Michael B. Paulsen

Editor

Higher Education: Handbook of Theory and Research

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Higher Education: Handbook of Theory and Research

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Manuel S. González Canché uses cutting edge econometric, quasi-experimental, geospatial, and network analysis methods to understand structural factors that influence minority and at-risk students' likelihood of success. He aims to identify plans of action capable of closing socioeconomic gaps resulting from students' reduced access to financial, academic, and social resources. His research is driven by the desire to offer better and more nuanced understandings of the effect of location, influence, and competition on access, persistence, and success in higher

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Chapter 1
Intellectual Autobiography

Sheila Slaughter

My childhood was idyllic. I grew up in a suburb just over the Chicago line, and lived a *Father Knows Best* sort of life, although Mom didn't wear heels when she vacuumed. Nor did she ever talk about politics. In contrast, my father was an outspoken Goldwater Republican. Nonetheless, Dad saved us from 1950s conformity. He had grown up on a cattle ranch in South Dakota, and even though he became a physician, he thought every child should have a farm or a ranch. So, we spent time with my grandparents in the West, and on a farm Dad owned near Aurora, Illinois. My brother and sister and I rode ornery horses, shot our 22's at whatever we could hit, chased each other across barn rafters high above the stable floor, and drove the 4-wheel drive vehicle into unimaginable of hazards, even though we had difficulty reaching the clutch. We were shockingly, deliciously unsupervised.

When at home in suburbia, I devoured books. They were the door in the wardrobe, the portal to other worlds. Our town library was one of my favorite places. It was in a building that looked like a large mock-Tudor mansion, on a street over which stately elms formed a canopy. On a summer day, I frequently rode my bike to the library, selected five or six books from the children's section in the basement, then climbed up the wide stairway to the main library and settled into a leather chair in front of the fireplace, which, in winter even had a fire, and spent hours reading. I didn't separate what I read from what I did. When our mothers drove me and my friends to the usual set of 1950s summer and after school activities, I told stories loosely tied to what I'd read, and had my friends hanging on every word, disappointed when we reached our destination. In the manner of the characters of Louisa May Alcott's *Little Women*, I often instigated amateur theatricals and was frequently the author, director, and star of the dramas we created and performed in various

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living rooms. Another endeavor was an authors' club that several friends and I started, where we wrote and shared our first short stories. I was certain I was going to be the great American novelist.

Then came Catholic girls high school, complete with nuns in habits, girls in uniforms, strict discipline, endless detention and a deadly dull curriculum. My parents had encouraged me to pursue my own intellectual agenda, never told me there were things I couldn't or shouldn't read, even allowing *Gone with the Wind* and *Forever Amber* in the 5th grade, very risqué for the 1950s. In contrast, in high school we read one play or book a year and spent lots of time diagramming sentences. Maria Goretti, a young Italian girl, up for the first stage of saint hood, was held up to us as a heroine because she chose death rather than sexual congress. In the school auditorium we saw—in bad black and white—documentary type films of her and in the lunch room heard scratchy recordings of her purported encounters with the brute, complete with screams. The book in my junior year was *Mill on the Floss,* in which George Eliot has Maggie Tulliver drown rather than find happiness by choosing between the two inappropriate men she loves, another lesson in virtue for all of us.

At some level, I understood the primary purpose of our education was to teach us to become highly conventional, conservative and constrained Catholic wives and mothers. Mutinously, I avoided homework and read books that spoke to me: Maugham, Green, Mauriac, Kafka, Tolstoy, Dostoevsky, Turgenev, Camus, Sartre. I loved Shirley Jackson, knew *Catcher in the Rye* by heart, and when I read Jack Kerouac, Lawrence Fherlinghetti, and Allen Ginsberg, I knew I was a beatnik, and began to wear lots of black, along with pale lipstick, and increased my clandestine number of daily cigarettes.

Most of my friends did not share my reading list, but they were kindred spirits who chafed at rules and regulations aimed at keeping us on a straight and narrow path that led away from adventure and excitement. During the first year of high school, we identified each other. In the second year, we started a girl gang, the Cellmates—indicating what we thought of our school—and on the first day of classes our sophomore year walked in as a group wearing over our uniforms brand new red hoodies emblazoned with our gang's name. These were promptly confiscated, we were given days of double detention, and the nuns issued new rules against irregular garments. None of it stopped us from pushing social boundaries. I never would have made in through high school at all without my girl friends.

Such behavior did not endear me to the nuns, especially after I became a vocal atheist. In one class, Sister Philomena asked us what people wanted most. My fellow students gave the usual answers—love, children, happiness. I listened contemptuously, because I knew. When Sister called on me, I said what drove the lives of men was the search for power and immortality. Sister moved quickly to the next student.

I posed a problem for the nuns. I had terrible grades, but was a national merit finalist, because I tested well due to my endless reading. Thus, they couldn't stick me in the class for dummies, by and large populated by the Italian working class girls who were tracked there because they didn't fit the school profile. The nuns had to reckon with me and didn't make it easy—I was suspended for smoking in the bathroom and sharing my flask with my friends at the father-daughter dance. The

suspension of which I was proudest occurred after I had just completed Leon Uris' *Exodus*. I was taking a history class with a lay teacher who had fled from Hungary after the failed revolution. She made casual but obviously anti-Semitic remarks in her discussion of Eastern Europe. Of course, I accused her of this in class, and, although the principal knew I was right and told me so, she still suspended me yet another time, in this case on grounds of insubordination, illustrating once again the hierarchy of values in Catholic school.

Everyone was expected to go to college, preferably a small, safe Catholic girls' college, very like our high school. However, the nuns frequently told me I would never go to college because of my bad grades and behavior. But I knew I would. I always did well on standardized tests, and in the early 1960s, if you could fill out an application, you got in. Of course, I wanted to go to someplace like Columbia and live in the Village, but my parents told me I could do that for graduate school. Catholic girls' college first.

I didn't even last the first semester—I fled Loretta Heights before Thanksgiving, hitch-hiking to California with a friend to find the beats at City Lights Book Store and the Long Beach coffee houses. Such beats as were left were not interested in a couple of unbelievably naïve escapees from Catholic girls' college, so I wrote a bad check and flew home. To keep me off the streets, my father sent me to the Jesuits at Loyola in Chicago. However, I was suspended for questioning the idea that sex was only for procreation, as the priest insisted in the required Christian marriage class. I followed the good fathers' plan for re-instatement—a compulsory retreat—because I wanted to go to Loyola in Rome for my junior year. I adored Rome, and was having a grand time touring Italy with my new found friends, but was expelled when I was caught coming up the dormitory steps after staying out all night with a fellow student. Needless to say, he was not expelled. Another lesson learned.

My father had been a professor in the University of Wisconsin medical school, and came to my rescue once more, pulling strings so I was admitted as a second semester junior. In 1967, Wisconsin seemed like the world I had been so desperately seeking. As support for the Civil Rights Movement grew and protests against the Vietnam War expanded, everything having to do with *in loco parentis* was dropped. Instead a compulsory dress code that featured skirts for women, everyone wore blue jeans and army surplus jackets. Women's dormitories no longer had hours, visitation was no longer confined to common rooms, where each member of a necking couple had to have at least one foot on the floor. Men appeared in bathrooms and bedrooms and often stayed the night. Rather than yes ma'am, no ma'am, thank you ma'am, it was obligatory to say "fuck."

My two roommates were unlike the women at Catholic college: one was a Jewish woman from New York, the other a black woman from Chicago. When I told my parents about them, tripping over the words on the telephone, I was so excited, they asked me if I wanted to move. I was dumbfounded. These were the most interesting people I had ever met, and I was supposed to move? I had never thought of my parents as racist. However, we had been so enmeshed in our suburban Catholic community that the question of difference rarely arose, except when the Protestants refused to let us join the country club. I managed to say that I was fine, liked my

roommates, and that was that. Mom and Dad didn't pursue the matter, and, when I brought my roommates home with me, were happy to entertain them.

I loved Wisconsin in the late 1960s and early 1970s. I was an English major, of course, but also fascinated by history, my minor. The banquet of courses was unbelievable—two of my favorites were *Sub-Saharan Africa in the 17th Century* and *Little Known Novels of the 19th Century.* In the latter, I learned the trick of always and easily being an A student. The professor, a lean, almost desiccated man, with an incredibly dry sense of humor would open each class by saying of the novel of the week— "There are four readings of the *Damnation of Theron Ware*," and then he would share what the major critics said, explicating their differences and the points at which they contradicted each other. Then he would pause, look up at us over his glasses, and say, "And now I will share my reading with you," and proceed to critique the critics and demonstrate the strength of his argument, illustrating how they filled the gaps and holes the others had left, or, occasionally, offed a breath-taking alternative that made you see the novel in an entirely different way, as if the kaleidoscope had shifted. I was able to use his technique of analysis for my final paper in the course, so well he thought I had plagiarized the paper. When I convinced him I had not, he told me I should try to publish it.

It was impossible to avoid or ignore the student movement at Wisconsin. I unwittingly walked into the first Dow demonstration on the way from my dormitory to the library. Large crowds of student demonstrators gathered in front of the Registrar's office blocking my usual route, forcing me over a street. When I returned, well past midnight, even larger numbers of students milled around, black shadows against a dark and starless night. This was the first of the mass demonstrations, and there were no lights, camera crews, microphones or reporters. As I came closer, I heard voices raised in heated debate. Some voices demanded action now, an immediate march on the president's mansion, others counseled waiting for daylight. I asked someone what was happening, and was informed that the police had taken into custody the students who had staged a sit-down in the Registrar's office in protest over the university policy of giving school records to the selective service. A low GPA sent a young man to Vietnam. I joined the crowd and heard young women talking about counseling young men on draft resistance, secret routes to Canada, the perils of federal prisons, heard young men wonder about when their number would come up in the draft lottery, heard graduate students discuss forming a more permanent organization. When I left, the crowd was still growing, although nothing much was happening. The next morning, over breakfast with the *Daly Cardinal*, I read that Robben Flemming, the university's Chancellor, had arrived at the Registrar's office shortly after I had departed, had spoken with the crowd, and then gone down to the Dane County jail and bailed out the arrested students with his own money. I was hooked.

The second Dow Demonstration was different. By then Robben Flemming had moved to Michigan, and there would be no more chancellors at Wisconsin bailing anyone out. We were more militant, and the local police more hostile. The student movement was determined to keep recruiters from the Dow Chemical Company from meeting with students at the Business School because Dow manufactured

Agent Orange. Anyone joining the protest inside the building, where students were slated to join hands and hold back the recruiters, had to have non-violence training. I had not taken the training, so was outside. The student leaders had talked to the police previously, stating their non-violent intentions, making the case that they would not resist arrest, but the police would have to carry them out of the building. When the Dow recruiters entered, the police entered after them in full riot gear, and beat the students with batons. As soon as the first bloody demonstrator was hauled out, all hell broke loose.

After the police riot, as we demonstrators called it, the UW faculty senate held an emergency night meeting in the Student Union to decide what their response would be. Students, a number wearing bloody bandages from the riot, lined both sides of the corridor leading to the hall where the faculty were debating because we were not allowed in. The debate dragged on and on. Finally, the heavy doors swung open and a faculty spokesperson came out and read a prepared statement indicating that they would take no stance for or against the police. The students were asked to disburse, but they did not. Instead they stayed, mute, their faces masks of betrayal as the faculty walked out down the long corridor they lined. Another lesson: faculty were rarely radical when it came to "the university."

After that, in late fall 1968, I joined Students for a Democratic Society and attended meetings held in the Ballroom on the top floor of the Student Union, jammed full with hundreds of long-haired, bearded or braless blue-jeaned students, many of whom spoke from a jury-rigged podium. I heard Ira Shor and many others vow to dance on the grave of capitalism, all the while exhorting us to bigger and better demonstrations against the war. I attended candle-lit marches that went from the library down State Street to the Capitol building. I joined study groups that read Marx, Trotsky, Mao, and critiqued commodity fetishism, capitalism and especially imperialism. I saw *The Battle of Algiers* again and again. Whenever there was a demonstration, I gathered with my classmates to participate in the elaborate staging of a giant stag-and-hounds game, where the police, with dogs and tear-gas, chased thousands of us up and down Bascom Hill, wheeling and turning, catching only a hapless few, who were man-handled into police vans and hauled off to jail, while the rest of us ran free, taunting and jeering at "the pigs." When the National Guard rolled onto campus, complete with armored vehicles and armed soldiers no older than we were, the tension escalated, but the demonstrations never stopped. We spent the days in protest, and went home and watched ourselves on the six o'clock news.

In wasn't all politics and education. I remember the music of *The Doors, The Grateful Dead, The Beatles,* especially the white *Revolution* album, and *The Jefferson Airplane* floating through the air, and crowds of toked up youth dancing together but apart, under strobe lights, sometimes in outdoor fields. None of the kids I knew ever went to a football game or joined a sorority or fraternity, let alone student government.

Participation in the movement raised questions that previously had never even occurred to me: why were blacks segregated? did my family deserve what it had or was the system rigged to make sure we got it? was war more related to economics than politics, and was there such a thing as a just war? To find the answers, I read

books like *Manchild in the Promised Land*, *Coming of Age in Mississippi*, *Soul on Ice*, *The Labor Wars*, *My Life as a Political Prisoner*, *To the Finland Station*, *Homage to Catalonia*, *Red Star over China*, *Fanshen*, *The Wretched of the Earth*, *Episodes of the Revolutionary War* and many more. As I read, I came to believe that school had cheated me of my own history, that civics and social science were ideology, that education ought to be otherwise and perhaps I could do something to change it.

As an undergraduate, I was a foot-soldier in the student movement, one of thousands who participated erratically in organizing events, and usually joined in demonstrations. As a graduate student, things were different. I enrolled in Educational Policy Studies, an experimental department funded by the Ford Foundation to quell student unrest with a progressive curriculum—there were no required classes, not even methods classes. We were supposed to come up with a topic, find a major professor and figure out what classes would help us anywhere across the university. I saw it as an opportunity to become a full-fledged American dissident, as did many others.

The major professor was an obvious choice—Phil Altbach, a new and very young Ph.D. from the University of Chicago, who had himself been a student radical. He had been deeply involved with the Student Peace Union, which was strongly influenced by the Young People's Socialist League, and he had been to the USSR to attend conferences with student leaders from around the world to discuss the best ways to defeat the use nuclear weapons and imperialism. Phil later found out the SPU had been funded in part by the CIA so they could better monitor the participants. Phil also had a long FBI file that was so redacted it was impossible to read. Despite growing up during the McCarthy era, I had had no idea that FBI surveilled "normal" people. I was shocked and intrigued.

Phil and Bob Laufer, a sociologist, taught a seminar on universities in which students went out and did research on campus issues—such as student protest, how universities handled student protest, and academic freedom. Given that I had come to define myself as a dissident, yet wanted to be a professor, I had a compelling interest in the relationship between knowledge and power. How much of education was ideology, how far could you transgress before provoking the heavy hand of the state and the power elite? My project focused on how the university had handled the promotion and tenure of two leftist professors, one of whom was tenured, the other who was not. In the case of the professor who was not kept on, issues of academic freedom were raised immediately by his supporters. I interviewed a number of professors and administrators, and shared the process with classmates, as they did their projects with me, and our professors. As I talked to people, I realized, for the first time, and despite what administrators told me, that not getting tenured meant you were fired. I also came to understand that professors could be quite radical as long as they confined their analyses to professional journals, creating career as well as critique, and did not criticize the university where they worked in public forums.

Phil and Bob talked about an edited book, where the work we had done could be published. We were all thrilled—perhaps the work we were doing would make a difference, change how universities worked. And then, the lawyer of the professor

who had been fired called me. He wanted the transcripts of all my interviews in preparation for a court case, and perhaps as evidence in the case. I told him that no one had spoken directly about the professor who had been fired, which was the case, but also knew my analysis and deductions concluded that he had been fired for criticism of the university and its administrators. The lawyer said he could subpoena me and my research.

I was disturbed and dismayed, knew this was bad, that I could not hand over my research or testify about it. I had promised confidentiality to the people with whom I had talked. I immediately called Phil and Bob, and they did what we hope all professors will do. They said they would assume responsibility, that the lawyers would have to deal with them, as would the university, as they were the persons in charge of the materials because they were the professors. If I remember correctly, the alleged only copy of interview transcripts ended up in Japan, far from the reach of state courts, and the case never came to trial. I was buoyed up by the support of my professors, although I always had a niggling doubt about whether justice had been served, and felt somewhat guilty when I became a co-editor, with Phil and Bob, of the book in which the article ultimately appeared. The experience gave me a life-long interest in academic freedom and its limits.

About the same time, things were turning darker on and off campus in Madison. When we protested at the state capitol, about a mile straight down the street from the university, crowds of counter protesters would gather around us and, as we screamed STOP THE WAR IN VIETNAM, they would scream, NEW YORK JEWS GO HOME. There were outbursts of violence that went beyond that between police and protestors: buildings set on fire, odd and ineffective bombs set off on campus, along with smashed windows, and the Mifflin Street Riots, ignited when the hippy heartland was denied a parade permit and the residents paraded nonetheless, which led to a 3 days long brawl between students and police, marked by gratuitous police violence.

A number of my radical fellow grad students became convinced their telephone lines were being tapped and that we were under heavy surveillance. "Stop! Don't say anymore! Just stop!" they would say if you started to talk about where or when to meet for a protest, or actions that were being contemplated. If you continued, they would hang up. I couldn't believe any branch of the state would take us seriously—mere students with neither weapons nor, at that point, the will to use them. I was wrong. Paul Soglin, himself a law student and student protestor, became Mayor of Madison after the war ended, and declassified what ever information he could, enough to reveal that multiple state agencies, including one associated with the armed services had been spying on students, tapping their phones, following our every move. So much for freedom of assembly and rights to privacy. The state was not our savior.

Despite my involvement in the student movement, I went was making progress on my dissertation. I wanted to know why we had never learned what the student movement was teaching me. I was examining the organizational structure of U.S. social science (1880–1920) to see what accommodation early economists, political scientists and sociologists made with industrial capitalism, the state and

imperialism, and how their use of expertise in these domains shaped social science. I was particularly concerned with how the handful of dissident social scientists--W.E. B. du Bois, John Commons, Scott Nearing, Thorsten Veblen--negotiated with or lost their way in the emerging academy. In other words, I was concerned with education and ideology, power and knowledge, theory and praxis, at the same time I was wrestling with method, data and arguments.

My third year as a graduate student I became deeply involved in the Teaching Assistants Association (TAA). The TAA was our effort to make revolution at home. As the Viet Cong cast off the yoke of imperialism, so we would overthrow an academic establishment complicit in the military-industrial-academic complex. Emulating the working class, the members of which we saw as the anointed agents of revolutionary change and ironically ignoring our privileged position on campus, we unionized. Teaching and research assistants demanded greater control over courses taught, more relevant education, a voice in setting curricula and evaluating faculty, and better pay. We were committed to union democracy, so decisions about strategy and tactics were made at the department level through meetings of the whole that ended only when consensus was achieved or we collapsed from exhaustion. As the TAA prepared for its bargaining election, we attempted to affiliate with organized academic labor--first the American Association of University Professors, then the National Education Association, finally the American Federation of Teachers, all of whom rejected our overtures. Only the Teamsters, corrupt but powerful, would have us. Another lesson learned.

When the university refused to bargain with us, we went on strike, and shut the campus down. Like others in my department's unit, I walked endless hours on the picket line, maintained communications with strike head-quarters, proselytized professors and students in my college, trying to enlist their support for the strike. Part of our picket duty was to prevent deliveries from being made to various campus operations--food services, physical plant, science and engineering laboratories. The headiest moment I recall was when three or four of us blocked an ally behind the Army Math Research Building, armed only with our lathe and cardboard picket signs, as an 18 wheeler chemical tanker rolled up to deliver materials critical for weapons research. We didn't know if the driver would stop, nor what we would do if he didn't. He stuck his head out the window and asked if we were really teamsters. Yes, yes, we shouted. A fellow-teamster, he gave us a thumbs up and backed away. After 6 weeks, we won the strike.

Winning the strike, as always, didn't mean the end of the struggle. We had to bargain with our faculty at the department level to implement reforms we had sought. Among them were teaching evaluations. Even the most progressive faculty were against them, but they were part of the settlement. We had to bargain over each item in the evaluation questionnaire, a difficult task when at least one of us was always facing our major professor. However, we instated the first university wide faculty evaluations in the US.

About this time, I discovered I was pregnant, as was Sally, a close friend also in our program. Together, we tried to figure out how we were going to have babies, hold down research assistantships, and eventually have careers, topics which pushed

me inexorably toward feminism. Sally was already a committed feminist. She had been a member of an early feminist group while earning a Master's degree and began to talk to Pam, another woman who would become a lifetime friend and colleague, and me about the women's movement. Radical politics, the class struggle, Sally told us, were not enough. As blacks had to achieve parity with whites, the working class equity with the classes above it, so women had to win equality with men. Initially, I didn't pay attention. After several years in the student movement and the TAA, I saw imperialism, the war, racial and social inequality, and above all capitalism, as the central problems we faced. Perhaps, when those problems were solved, we could turn out attention to the lot of women.

"Exactly," replied Sally, "Exactly the mistake radical women always make." And she proceeded to lecture me on the history of the early American Federation of Labor and the way it had treated the International Ladies' Garment Workers' Union. I listened, but remained skeptical. Unlike Betty Freidan, whose work Sally urged upon me, I didn't think I had a problem for which there was no name. Even though I was married and pregnant, I was in graduate school, planning a career, and deeply involved in politics that I hoped would change the world. I thought my life would be different than my mother's.

Besides, I felt I had been generally well-treated by men. When I reviewed my past, I didn't see discrimination. In what I came to view as the height of false consciousness, I believed that being young, smart and pretty gave me a bit of an advantage in a world where older men had all the power. Sally sensed my ambivalence on the woman question. "You might not see it now," she said grimly, "You think you're special, you think you're different. But you just wait. When you're not a graduate student, the first time you're in a position where you have to tell men what to do, it won't matter what you look like or how smart you are. They'll call you a ball-breaking cunt."

At that point, I couldn't imagine a situation in which I would be telling men what to do. In my fantasies of the future, I was always the acolyte, the ingénue, hand maiden to men of intellect and action. But I did start to read. Simone de Beauvoir's *Second Sex* made sense to me in a way Betty Freidan did not. De Beauvoir's Marxist but existential analysis that drew parallels between class struggle and gender warfare fit in with the way I was coming to see the world. As I read, I said over and over to myself, "How could she write this in 1948? How could she see it?" but at the same time I, not unlike de Beauvoir, saw myself as an exception, thought my lot would be different. And, then, in my first job after completing my Ph.D., as assistant to the president of community college, exactly what Rachel said occurred—a very senior male professor with a temper who disagreed with me over our affirmative action policy called me a ball-breaking cunt in front of several other silverbacks, and stalked away. I got it then.

For the most part, the professors in our department studiously avoided discussing our increasingly obvious pregnancies. The exception was Phil, our major professor and life-long supporter. Another professor, never a teacher of mine, stopped me in the hall and told me women in my condition shouldn't be in school. Because I obviously made professors uncomfortable, the TAA departmental bargaining unit, of

which I was a member, insisted that I be present at every session, no matter how many hours went by. When it became clear that my oral exams and my due date would occur about the same time, my committee, afraid I might go into labor under duress of questioning, waived the examination. I took my last academic classes at the same time I was taking Lamaze classes. I practiced panting and candle breathing while I studied for written prelims. I remained involved in the women's movement for the rest of my life.

Sally, Pam and I left Madison before we defended. We did finish, all came back at the same time, stayed with Phil, took our orals—Phil and I rode into the university on a bicycle built for two! —and had an amazing party afterward. We had not yet read Foucault's chapter in *Discipline and Punish* on The Examination, but we already had the critique.

The lessons we learned in Madison shaped the rest of our intellectual lives. I was the only one to go into the field of higher education, and I couldn't have had better preparation. I had learned an enormous amount about the way universities worked. I knew they liberated students through education at the same time they enforced stratification through selection processes at all levels. I knew they tolerated critique, but there were limits. Indeed, I came to understand academic freedom, as envisioned by the AAUP, was a tacit bargain administrations made that allowed space for critique in return for faculty managing the revolutionary potential of new knowledge. Even though I knew all this, I loved universities anyway, and still do.

We never considered not offering left critique in our academic work. If we couldn't research and write about what we though was important, we knew we didn't want to be in the academy. We were smart, well-educated, could do other things. I had even picked out epidemiology as an alternative career.

That's not to say we didn't temper our critiques as we got older and confronted the complexities of how money and power shaped organizations and culture. By the time we were associate professors we had long given up hopes of a revolution that would create Doris Lessing's four-gated city. Instead, we continued to value Marx and Marxian tradition for the critique of capital, subtle understanding of power and class, and, if we consider Engels, the longstanding, although often imperfectly realized, recognition of women as the equal of men. We moved beyond the state as the executive committee of the bourgeoisie to the ideas of Ralph Miliband, Antonio Gramsci and Louis Althusser. Later postmodernism taught us there was no truth with a capital T, but we still thought we had to struggle to find it, even if it was imperfect, transient, and contradicted ideas we held tightly.

Although the student movement and graduate school were formative, we never considered them the end of our education. All three of us were in various study groups at a number of different universities for the rest of our lives—feminist study groups, leftist study groups, theory study groups—and we tried to replicate those in the way we worked with students. And I learned from my many wonderful colleagues in higher education with whom I wrote and edited books and articles. After all, one's intellectual autobiography doesn't have an ending.

Chapter 2
Reclaiming Diversity: Advancing the Next Generation of Diversity Research Toward Racial Equity

Uma M. Jayakumar, Liliana M. Garces, and Julie J. Park

As a general concept, diversity is part of educational and mainstream discourse. It is common to hear about its value in K–12 and postsecondary education, in the workplace, and in society at large. In the case of higher education, it is considered central to an institution's capacity to thrive in an increasingly multiracial and pluralistic society (Gurin, Dey, Hurtado, & Gurin, 2002; Page, 2007; Smith, 2015). For some, its worthiness as a goal in and of itself is simply taken for granted. At the same time, however, many perceive it as an elusive agenda that has missed its mark. Some of this tension derives from disagreement about what we mean when we say "diversity." Are we talking about simple numerical representation or something more meaningful? In this chapter, we address this question as we describe how a notion that emerged as an avenue for upholding Civil Rights-era policies to address racial discrimination and exclusion has more recently come to include a broad range of social identities and experiential differences. We connect the evolution of diversity research to the outcomes of key U.S. Supreme Court cases over the last four decades, and we describe current conversations about the concept—conversations that are not necessarily tied to advancing racial justice in access, opportunities, and

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matriculation (Ahmed, 2012; Berrey, 2015b; Warikoo, 2016). This contradiction highlights a significant and pressing question: Is diversity still a useful concept for advancing social and racial equity, particularly in the context of postsecondary education?

We seek to complicate this binary question, as opposed to putting forth a simple answer. We discuss how constraints in early understandings of diversity have allowed for the concept to be co-opted, and argue that it is now therefore limited. We consider whether numerical diversity—which we view as a necessary but insufficient condition for promoting racial equity—can drive intentional work to fulfill a broader social justice vision. We encourage a more comprehensive interrogation of the supposedly "race-neutral" mechanisms within which postsecondary admissions practices and campus diversity initiatives are couched. Likewise, we consider the challenges of colorblindness and campus environments that center Whiteness as they co-exist with diversity infrastructures.

In this research synthesis, we define diversity in relationship to its emergence in the 1978 *Bakke v. University of California* U.S. Supreme Court decision. As we discuss extensively later, the term was employed in *Bakke* to narrowly define how and for what purposes colleges and universities could legally use race and ethnicity as a factor in admissions. Because the public and legal debates originated with and continue to center the racial and ethnic dimensions of diversity, that is where we also intentionally place our focus. This is consistent with the analytic approach we take in this manuscript, which is rooted in the tradition of critical race theory (CRT; Ladson-Billings & Tate, 1995; Ledesma & Calderon, 2015; Solórzano, 1997). While CRT calls for interdisciplinary approaches that invite intersectional analyses and consideration of multiple forms of marginalized social statuses, it does so while continuing to center race.

When we refer to diversity literature or scholarship, we borrow from Smith (2015), defining it as the body of social science research within the broader study of student learning and success that focuses on the role of and institutional conditions for diversity. This literature has emerged from a variety of fields, primarily social psychology, organizational theory, and higher education (Smith, 2015). It is in part the result of shifts in educational philosophies that now include a greater emphasis on pluralism, as well as increased student diversity of various forms on college campuses (Smith, 2015). But it has also largely materialized from concerted efforts to build a body of empirical inquiry to inform and defend legal challenges to the consideration of race in educational policies (Berrey, 2015b; Gurin, Lehman, & Lewis, 2007). In particular, diversity scholarship has sought to confront challenges to race-conscious admissions practices that made their way through the lower courts in the 1990s, leading up to the 2003 Michigan "affirmative action cases," *Grutter v. Bollinger* and *Gratz v. Bollinger*, and continuing through the most recent *Fisher v. University of Texas* cases, all of which, we argue, were limited by the 1978 *Bakke* precedent (Berrey, 2015b; Garces, 2014a; Smith, 2015).

As we discuss at length, legal decisions over the last 40 years have allowed for the continuation of the consideration of race in university admissions policies and for the creation of palatable interventions for improving campus racial dynamics that are not

threatening to White interests. Unfortunately, these changes have also constricted the potential for implementing more radical and holistic solutions toward racial equity across campuses (Ahmed, 2012; Warikoo, 2016). And while the concept of diversity can help build consensus, foster a sense of belonging, and improve social relations, it can also insulate those in power from responsibility for enacting transformative structural changes (Berrey, 2015b). Thus, we argue that the next generation of scholarship must address these tensions in order to reclaim the utility of diversity research in advancing more transformative postsecondary interventions and *greater racial equity*.

When we say equity, we are mindful that in the U.S. context an individual's life chances, educational opportunities, and ability for self-determination are shaped by race and racism. Equity therefore requires that educational outcomes not be constrained by structural inequities (see Brayboy, 2005). This definition of equity is based on a notion of *justice as transformation*, which draws from CRT in acknowledging the existence of institutional and structural racism in education and the need for policies and practices that actively counter and dismantle these conditions (Dowd & Bensimon, 2015). Thus, as Museus, Ledesma, and Parker (2015) argued, "racial equity does not simply refer to equal representation." Rather, it means "racially equitable systems in which racially diverse perspectives"—and, we contend, group interests—"are equally embedded in power structures, policymaking processes, and the cultural fabric of organizations" (p. 13). As such, simple numeric diversity is necessary but far from sufficient.

In the absence of transformative policies and practices that address racial inequities on campus, diversity rhetoric and efforts can be used to justify the divestment of resources to students of color and other marginalized campus subgroups (Ahmed, 2012; Baez, 2004; Berrey, 2015b). Failure to recognize structural and institutional racism can lead to racial apathy, or a "lack of care about racial inequity and the related belief that there is no need to intervene to address racial inequality" (Forman & Lewis, 2015, p. 1417). This is compounded by embedded "colorblind frames"— ways of seeing that do not recognize the pervasiveness of race and racism within campus diversity infrastructures (Jayakumar, 2015b; Warikoo & de Novais, 2014)— and a growing belief among many that there is "reverse racism" against Whites (Bonilla-Silva, 2014; Cabrera, 2014).[1]

While White backlash against civil rights progress has been evident and growing over the past decade (Haney López, 2010; Lipson, 2011), these trends have arguably reached an emboldened status with the election of our 45th president, who has consistently denigrated groups of minoritized and marginalized peoples as part of his platform (Bannan, 2016). The failure of postsecondary institutions to foster environments that challenge rather than reinforce inequitable racial dynamics is not lost on students, as evidenced by protests and the thoughtful demands presented by Black student organizations and allied groups across 100+ institutions nationwide

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[1]In this manuscript we capitalize "White" and "Black" in reference to racial groups, per current APA guidelines.

last year. (See, for example, http://www.thedemands.org, as well as Chessman and Wayt's 2016 analysis of the demands in *Higher Education Today*.) We believe that it is only by understanding and engaging these new challenges and tensions that diversity scholarship can reclaim its utility and have significant implications for challenging racial inequality in postsecondary education.

Numerous scholars have offered useful and comprehensive syntheses of the now vast literature on how postsecondary campuses can bring students together to realize the educational benefits of diversity and build institutional capacity and conditions for healthy intergroup relations (see, for example, Garces & Jayakumar, 2014; Gurin, Nagda, & Zúñiga, 2013; Hurtado, 2005; Hurtado, Milem, Clayton-Pederson, & Allen, 1998, 1999; Jackson & O'Callaghan, 2009; Milem, Chang, & antonio, 2005; Smith, 2015; William, Berger, & McClendon, 2005). To avoid repetition and provide a different perspective that engages the new tensions for diversity scholarship, we depart from this traditional approach. Instead, we provide a review of scholarly work to inform a reclaimed framing of diversity—one that will advance advocacy research, policy, and discourses as it provides direction for a critical diversity scholarship agenda toward racial equity.

Research and institutional discourse on diversity have been shaped by demographic trends as well as national and global imperatives (Smith, 2015), but the legal context has often dictated the role of diversity in movement toward racial equity and justice in postsecondary practices (e.g., Berrey, 2015b). As such, we frame our exploration around the U.S. Supreme Court cases that have informed and shaped diversity research in recent decades. This more context-informed (but not context-dependent) framing allows for a broader range of solutions across multiple advocacy contexts, and supports the advancement of diversity scholarship guided by a critical race consciousness (i.e., awareness of the existence of racism and the need to dismantle policies and practices that promote and sustain it). But legal parameters need not dictate the range of institutional interventions and solutions we envision for improving racial equity in postsecondary education (Chang, Chang, & Ledesma, 2005; Yosso, Parker, Solórzano, & Lynn, 2004). Thus, later in this chapter we also propose a range of future empirical studies on diversity that remain connected to postsecondary racial equity and justice, are informative for questions raised by current legal frameworks, and expand inquiry outside these legal parameters.

We have divided this chapter into three main parts. First, in Part I, we provide an overview of the legal context that informed the evolution of diversity-related research to date. We then discuss how constraints in early conceptions of diversity allowed other audiences to define the term for their own purposes in ways that took away from a focus on the racial discrimination students face on college campuses. In light of this "watering down," in Part II we turn to critiques and limitations of diversity as a tool for addressing racial inequality and advocacy today. In so doing, we highlight Bell's (1980) thesis of interest convergence to explain the contradictions related to engaging in the debate over how race can be considered in educational policies and practices and argue that we need a new critical framing of diversity in order to advance research, policy, and discourse. Finally, in Part III, we highlight recent empirical and theoretical work that can inform a new agenda for

critical diversity research. We intentionally feature areas of work that engage prior lines of diversity scholarship in ways that continue to be helpful, while also highlighting new frameworks that put forth a re-envisioned agenda that advances racial justice.

This chapter will be of interest to higher education scholars and practitioners who have a strategic critical orientation toward diversity research, as well as those who are interested in developing a critical consciousness. It is dedicated to emerging scholars, institutional researchers, and student affairs administrators interested in contributing to the diversity literature in new ways that can inform more racially equitable policies and postsecondary practices. At the same time, it will also be useful to more seasoned higher education scholars and practitioners. In particular, it will be valuable to those who seek to consider recent racial critiques of diversity and the new challenges of a shifting policy context in work aimed at advancing postsecondary racial opportunity and justice.

Before turning to these three primary components, it is worthwhile to provide a bit more context for the endeavor. Specifically, we describe in greater depth our rationale for approaching this review of diversity research through a legal lens. Because our underlying goal in writing this chapter is to inform future directions for diversity scholarship, our approach was guided largely by a framework informed by a critical race praxis for educational research (CRP-Ed; Jayakumar & Adamian, 2015a). Thus, we close this introductory section with a summary of CRP-Ed as it relates to this manuscript.

2.1 Rationale for Our Approach

The phrase *diversity work* is used to describe efforts on college campuses to increase diversity or to facilitate meaningful inclusion on campus. These efforts include addressing the historical legacies of exclusion that characterize predominantly White institutions (Hurtado et al., 1998, 1999; Milem et al., 2005) as well as nurturing cross-racial interactions that contribute to learning and reduce prejudice (Gurin et al., 2013). Such efforts have primarily concentrated on gender, racial, and ethnic diversity, but in more recent years have expanded to include marginalized social status groups (e.g., English learners, LGBTQ community members, students with disabilities) and non-traditional identity status groups (e.g., international students, adult learners). Institutional leaders, as Berrey (2015b) asserted, "invoke diversity to describe heterogeneity, talk in code for black people, denounce minority exclusion, or build a concept of mutual gain. They 'do' diversity in a variety of ways, from implementing effective policies, to photoshopping. Their objectives vary as well, be they advocacy for race-targeted interventions, low-stakes affirmation, or legal inoculation" (p. 7). But how did this evolution, this broadening, take place?

In higher education, the concept of diversity cannot be divorced from the legal developments that have shaped its current definition and application. For this reason, we trace the concept back to the types of policies and practices that emerged out of

the Civil Rights Movement in the 1960s that were intended to address the legacies of government-enforced racial segregation (Karabel, 2005). Race-based affirmative action, for example, emerged from an express moral imperative on the part of some colleges and universities to contribute to the cause of racial equity and social change necessary to address centuries of racial oppression (Stulberg & Chen, 2014). At the most selective institutions, these policies started in the early 1960s at the initiative of liberally-minded administrators who were inspired by the Civil Rights Movement; others joined years later, in response to direct action campaigns by Black college students and their allies (Rogers, 2012; Stulberg & Chen, 2014). The resulting policies and practices included aggressive outreach to and recruitment of Black students and the consideration of their race as a favorable and "matter of fact" factor in admissions (Stulberg & Chen, 2014, p. 42).

Today, however, such race-based policies and practices have come to be seen by many as racially-discriminatory (Bonilla-Silva, 2014; Garces, 2014a; Harris, 2003). The only permissible legal rationale for considering race in postsecondary admissions is the goal of diversity; even then, it can only be considered alongside an array of other additional factors such as gender, sexual orientation, disability, and veteran status. In fact, diversity has come to denote differences in viewpoints, perspectives, and personal experiences of students—in many instances without attention to how these differences connect to unequal access to resources or to legacies of racial oppression in U.S. society. A main contributor to this shift was a concerted attack on race-based policies and practices by conservative groups in the legal arena (Lipson, 2011; Orfield, 2015). Concurrently, a large body of social science research has emerged related to diversity across a number of areas in postsecondary education.

Most if not all of the pioneering scholars who initially developed lines of inquiry foundational to the diversity literature did so to have a strategic advocacy voice in legal debates leading up to *Grutter v. Bollinger* (2003). Patricia Gurin, Mitchell Chang, Sylvia Hurtado, Eric Dey, and Jeffrey Milem, amongst others, provided important evidence that the Court cited in support of upholding affirmative action (Gurin et al., 2007; Jayakumar & Adamian, 2015b). While the Court ignored the more student-of-color-centered arguments of intervening groups that spoke to the role of racism in schools—including the organized efforts of the Coalition to Defend Affirmative Action, Integration and Immigrant Rights and Fight for Equality by Any Means Necessary (BAMN), student-activist intervenors at the University of Michigan, and scholars such as Walter Allen, Daniel Solórzano, Lani Guinier, and others (Harris, 2003; Ledesma, 2015)—these critical arguments impacted institutional practices, public discourse, and even the legal parameters of the impending debate (Jayakumar & Adamian, 2015b).

The evidence entered by those who stayed within the Court-defined precedent leading up to the most recent pronouncement of the parameters within which postsecondary institutions can consider race in their policies—*Fisher v. University of Texas* (2013, 2016)—included a tempered discussion of racism and discrimination, negative campus climate, and racial microaggressions in support of the university's race-conscious policies (see, for example, Brief of American Social Scientist Researchers, 2013; Brief of 823 American Social Science Researchers,

2016; Garces, 2015a). This is encouraging. Still, despite the "wins" in the legal arena to maintain the constitutionality of "race-conscious" admissions policies and practices, universities' most exclusionary practices of relying largely on standardized test scores in admissions remained intact (Berrey, 2015b; Guinier, 2015).

The early scholars noted above, and many of those who continue to do diversity research as advocacy, have experienced conflict in attempting to conform to the problematic terms of a constricting debate, which has been perceived as a requirement for participation. (For a longer discussion, see Jayakumar & Adamian, 2015b.) Here, we engage with the tension caused by the resulting false binaries of divergent paths to influencing change—diversity work or critical work; conformist or reformist; following or challenging the rules of the debate. Challenging racial inequality at its roots, critiquing diversity discourses in postsecondary institutions, and rejecting dominant narratives are all important. To enact social, political, and legislative change, however, we cannot overlook the potential impact of being a part of the policy conversation—and, moreover, of doing so while guided by a critical consciousness. The lesson here is that diversity research efforts going forward can be informed by critical theory and long-term radical vision, and that scholars must actively and strategically incorporate such a vision wherever possible. This vision must include interventions that stay within parameters of legal decisions, such as *Fisher* (2013, 2016), so the cases can reflect the lessons of research that can expand those legal parameters; likewise, some interventions must go outside of the policy context to challenge mechanisms contributing to the production of racial inequities.

As Jayakumar and Adamian (2015b) asserted, this long-term radical vision is what differentiates *critically conscious diversity research praxis*—where "praxis" is understood as strategic and intentional practice "directed at the structures to be transformed" (Freire, 1970, p. 126)—from *conformist diversity research*, which centers the dominant group's interests without purpose or attention to policy implications for groups that are marginalized. Diversity work that does not consider political implications for people of color, perhaps even claiming objectivity, fits into the latter category because it implicitly or explicitly favors the dominant group's interests in the guise of neutrality (Jayakumar & Adamian, 2015b). This vision is particularly important following *Fisher*, a case that preserved the constitutionality of considering race in educational policies but did not end the debate about or conservative attack on such policies. This ongoing struggle is exemplified by current lawsuits against Harvard University and the University of North Carolina, Chapel Hill (Biskupic, 2015).

As we have imagined future diversity research in this post-*Fisher* era, several important questions have emerged: Will scholars produce diversity research that feeds into or provides counter-narratives to the dominant legal parameters? Can scholars expand diversity research to address the very mechanisms that reinforce racial hierarchies and inequality in postsecondary institutions? How can scholars work within and outside of the parameters of the debate for the explicit purpose of advancing meaningful inquiry with implications for supporting existing (and future) policies and practices that support racial equity in higher education? Our collective

answers may determine whether we move toward or away from a critically conscious diversity research praxis.

We take a "both/and" approach—one that considers the incremental racial relief acquired through the use of the diversity rationale in the policy context and juxtaposes it with the very real consequences and limitations of diversity discourses in addressing racism in postsecondary institutions. Given the limitations of studying diversity (Baez, 2004) and the contemporary challenges of how it has been co-opted (e.g., Warikoo, 2016), we require an approach that takes into account the current policy terrain and the current challenges to advancing racial equity in higher education. As such, we depart from a traditional literature review. Instead, we analyze literature on the topic of diversity in shifting sociopolitical contexts and discuss the implications of that analysis for research going forward. As noted earlier, rather than identifying gaps in the literature, which has been done before (e.g., Garces & Jayakumar, 2014; Gurin et al., 2013; Hurtado et al., 1998, 1999; Jackson & O'Callaghan, 2009; Milem et al., 2005; Smith, 2015; Williams et al., 2005), we highlight frameworks and areas of scholarship that can advance strategic directions for diversity work that can more effectively advance racial equity in postsecondary education.

2.2   A Critical Race Praxis for Educational Research Approach

The contemporary challenge for scholars who seek to critically inform consequential policy decisions by having a voice at the table is to understand the limitations of the legal context but not to accept these limitations as empirical truth. In other words, it is important to participate within the proverbial legal box, but at the boundaries—to press up against and expand its stated limits. In practical terms, this means engaging in empirical inquiry that provides evidence in language that will be well received in the legal context, but that also challenges dominant legal narratives (Jayakumar & Adamian, 2015b). At the same time, it means understanding that affirmative action and the diversity argument put forth to maintain the policy have always been grounded in partial truths and partial solutions—they have always been "race-conscious" but never "racism-conscious," and always incomplete as solutions to achieving racial equity and justice (Jayakumar & Adamian, 2015a).

Thus, CRT calls on researchers to advance counterstories that challenge dominant narratives across multiple spheres of influence (Crenshaw, 2011; Delgado & Stefanic, 2012). Such spheres of influence might include a policy audience, various institutional stakeholders and practitioners, the college classroom, scholarly debate, public (critical) consciousness, or knowledge production. Within each sphere of influence there are associated parameters for participation—for example, particular languages and literacies that are accepted versus contested. Likewise, there are context-specific dominant narratives that support the racial status quo, and there

are different avenues to interventions against these narratives depending on whether the approach is short- or long-term, tempered or radical. To support the need for multiple counterstories, our approach here represents a reflective process toward envisioning the next generation of diversity scholarship. This process is guided by CRP-Ed.

CRP-Ed is rooted in CRT and is based on legal scholar Erik Yamamoto's (1997) foundational theorizing about what it would mean to employ CRT toward a critical race praxis in the field of law. Critical race scholars in the field of education have recently begun to draw on Yamamoto's critical race praxis (see, for example, Croom & Marsh, 2016; Stovall, Lynn, Danley, & Martin, 2009) in order to challenge oppressive schooling conditions. To further support its application in educational research and practice, Jayakumar and Adamian (2015a) put forth the CRP-Ed lens, which calls for educational scholars and practitioners to work toward transformation with a critical awareness of the current racial paradigm within which policies and practices are situated. In addition to foundationally drawing from Yamamoto (1997), the tenets of CRP-Ed (described in detail below) integrate the authors' interdisciplinary perspectives and advocacy experiences across secondary and postsecondary education sectors, as well as the theoretical contributions of Freire (1970), Ellsworth (1997), Gramsci (1971), Zuberi and Bonilla-Silva (2008), and Bell (1980), amongst others.

CRP-Ed supports bridging the counterproductive chasm between critical race theorists, researchers who strive to inform policy and schooling structures, and stakeholders who are aligned with community activism. It encourages a more synergistic relationship marked by mutual recognition and strategic leveraging of the role each group can play in seeking to advance racial justice, whether in tempered or radical ways, depending on the context in which advocacy is being generated. It is synergistic when these groups can inform one another to improve upon their respective weaknesses—whether that is a lack of practical application and policy relevance, or a lack of a critical perspective, which can limit the potential for radical change. CRP-Ed recognizes the advantages within each camp for effecting policy change and for transforming inequitable structures at different moments in the overall change process. Notably, it does not endeavor to quell the existing tensions and contradictions between various camps, but instead encourages awareness for how the tensions and contradictions can be mutually beneficial for countering White hegemony across multiple dimensions or battlegrounds.

Hegemony (or hegemonic ideology) is an ideology that is "dominant, rarely questioned, and often seems to be "common sense"; it is constructed, legitimized, and perpetuated to maintain social control through the privileging of more powerful social groups over the voices of those in positions of less power" (Camangian, 2013, p. 119; Gramsci, 1971). Collins (as cited in Camangian, 2013) noted that hegemonic ideology works to "absorb and thereby depoliticize oppressed groups' dissent" (p. 119), which creates a need for re-naming co-opted justice strategies and creating new resistance tactics (Freire, 1970; Gramsci, 1971). Counter-hegemonic action and analysis can promote liberatory, humanizing thought and discourses against oppressive political, economic, and social hegemony (Camangian, 2013; Gramsci, 1971).

Jayakumar and Adamian (2015a) posited four tenets of CRP-Ed: (a) relational advocacy toward mutual engagement; (b) the re-definition of dominant and hegemonic systems; (c) research as a dialectical space that can challenge the racial status quo or perpetuate it; and (d) critical engagement with policy. The first of these, *relational advocacy toward mutual engagement*, asserts the importance of multiple counterstories to challenge dominant narratives across multiple spheres of influence (e.g., policy debate and public consciousness/debate), and collective reflection/leveraging across different positionalities (e.g., grassroots, teachers, students, educational researchers, political lawyers, policymakers) and within and across intersectional identities and power relations. The second tenet, *redefining dominant and hegemonic systems*, is a commitment to naming the world and the word in order to transform it (Freire, 1970), which requires cultivating a critical consciousness that informs the application of theory to practice. Naming the context of oppression includes understanding different resistances and their co-optations; it entails an iterative process that requires re-defining the context once it adapts to the resistance, in order to continue to challenge oppressive policies and practices.

Third, *research as a dialectical space* acknowledges the racist legacy of White research and White methods (see Zuberi & Bonilla-Silva, 2008), thereby interrupting the assumption of research as neutral and objective. At the same time, however, this tenet promotes the usage of empirical inquiry as a tool for advancing counter-narratives to support resistance that is accountable to communities of color. In other words, it reminds scholars of the power and legitimacy that research findings can generate for an idea or position as well as the imperative of taking this responsibility seriously and in a way that is accountable to oppressed communities. This means that critically conscious research praxis can come in many forms, methodologically speaking (e.g., qualitative or quantitative) and with regard to the utilization of language/terminology that allows for participation and advocacy particular to the context it seeks to transform.

Finally, the fourth tenet, *critical engagement with policy*, calls for strategic advocacy within (and outside of) the policy context that involves an understanding of the dynamics of *interest convergence constriction* and *expansion* (discussed in detail later in the chapter). It calls on scholars to both recognize when interest convergence expansion is happening—for example, when there is agitation and social movement that lead to mass consciousness raising—and to see that this expansion can be leveraged to advance more just policies and practices. In sum, this tenet encourages a broader understanding of the types of research that can impact policy change. This can include but looks beyond research that directly (and critically) questions and informs educational policy and school reform efforts within legal parameters. In particular, it draws an explicit link between research that supports agitation (and counter-hegemonic actions) and the policy transformation process. Together, the four CRP-Ed tenets emphasize and embrace the contradictions and tensions involved in working across different positionalities that involve power dynamics and differential constraints and opportunities for racial justice advocacy.

As a whole, a CRP-Ed lens supports research that answers problems of practice as they are situated within current legal and institutional paradigms that support White hegemony. At the same time, it supports research that names and challenges the very hegemonic systems and paradigms within which the work is situated in order to transform these structures. The latter is critical, not only for its theoretical value but also because it adds practical value by allowing research that is situated within the legal system and institutions to remain counter-hegemonic. Stated differently, this naming and challenging, informed by CRT and its interventions, can ensure that research designed to inform problems of legal and institutional practice has the potential to disrupt dominant narratives as opposed to blindly facilitating White hegemonic interests (usually framed in the guise of neutrality). The contemporary challenges identified in this manuscript include an increasingly colorblind policy context and the co-optation of diversity as an effective strategy for advancing more inclusive and equitable postsecondary institutional environments.

The CRP-Ed lens incorporates an understanding of prior strategy in order to guide future diversity scholarship within the legal paradigm and beyond. Thus, in the context of this chapter, a CRP-Ed approach calls for naming and understanding the shifting legal and institutional context and challenges within which future diversity work will be situated, toward envisioning the type of empirical inquiries that can generate interest convergence expansion and counter-hegemonic actions on multiple advocacy domains. Specifically, it calls for a holistic and critical assessment of the current legal and political climate—which, as we describe, is one of colorblindness and racial divisiveness. First, however, we turn to a discussion of how diversity research has evolved, and how this evolution can be mapped to the legal developments surrounding affirmative action in a postsecondary educational context.

2.3 Part I: Mapping the Evolution of Diversity Research to Legal Developments Around Affirmative Action in Postsecondary Education

As we noted in the previous section, an understanding of the evolution of diversity research requires a simultaneous exploration of the effects of the legal developments around affirmative action policies and practices and the related collaborations between legal and social science scholars (e.g., Garces, 2014a). The consideration of race in education policies is subject to constitutional scrutiny under the Equal Protection Clause of the 14th Amendment to the U.S. Constitution. As such, when postsecondary institutions consider race—such as in affirmative action or race-conscious policies—they inevitably confront questions of law. As individuals and organizations bring new challenges under the 14th Amendment, postsecondary administrators and professionals must defend their policies and practices in the legal arena. Their efforts are supported by lawyers, legal scholars, and social scientists who can participate in the litigation as *amici curiae* (friends of the court)

through what are commonly referred to as amicus briefs. In this way, challenges to race-conscious practices in the legal arena generate new lines of research that can inform such litigation. The outcomes of these legal cases then shape educational policies and practices that, in turn, generate new lines of diversity research. And, in a continuation of the cycle, these new lines of research subsequently inform new challenges to race-conscious practices in the legal arena.

In this section we trace this dynamic process in the postsecondary context, highlighting challenges and compromises between legal advocates and, in particular, social science researchers. We first summarize the 1978 landmark legal case that set the legal foundation for considering the constitutionality of race-conscious admissions practices in postsecondary education, *Regents of the University of California v. Bakke*. As legal challenges to race-conscious practices continued, collaborations between legal scholars and social scientists generated early lines of diversity research that informed litigation in the next set of legal cases, more than 20 years later—*Grutter v. Bollinger* (2003) and *Gratz v. Bollinger* (2003). The outcomes of these cases shaped educational policies and practices as well as generated new lines of diversity research, as scholars worked within and sought to expand the constraints of the legal framework. These new lines of diversity research have informed ongoing litigation, including the recent decisions in *Fisher v. University of Texas* (2013, 2016).

2.3.1   Bakke*'s Shift: From Addressing the Effects of Racial Segregation Policies and Ensuring Access for Racial Minorities to Promoting Diversity, Protecting Whites from Discrimination, and Advancing Conceptions of White Innocence*

Regents of the University of California v. Bakke (1978) resulted in a splintered Supreme Court decision that established the legal framework used to evaluate the constitutionality of race-conscious policies in postsecondary education. The decision required institutions to shift the focus of race-conscious policies away from compensating for racial wrongs or addressing ongoing discrimination and toward promoting diversity. As we summarize in more detail below, the case also applied a legal test—strict scrutiny—that ultimately equated efforts to promote access to education for racial minorities with discriminatory practices against Whites and advanced the rhetoric of "White innocence" (Ross, 1990b), marking an important shift in judicial decision making that has had consequences for admissions practices and diversity research that persist to this day.

As Garces (2014a) has noted, before *Bakke*, early affirmative action efforts were grounded in the need to address racial inequities created by racial segregation policies and other exclusionary laws. The efforts of the Civil Rights Movement culminated in the Civil Rights Act of 1964 and various executive orders for

affirmative action. These laws focused on ensuring access to higher education and employment for African American, Latinx, American Indian, Asian American, and White women in fields where they were underrepresented. The laws, designed to address the effects of discrimination, gave the federal government the authority to bring a civil action against institutions that failed to take steps to racially integrate, and to withhold federal funds from school systems that failed to desegregate (Minow, 2010). In the late 1960s and early 1970s, reinforcing efforts by the executive and legislative branches of government, the U.S. Supreme Court made rulings to enforce racial desegregation and stop the delaying tactics used by some school districts (Minow, 2010). The Court authorized federal courts to institute comprehensive desegregation plans across the South and the North, essentially ordering that race be considered in education policies to remedy the effects of government-enforced (de jure) segregation in both K–12 and higher education.

In the absence of de jure segregation, institutions of higher education began adopting race-conscious admissions practices to address discrimination and racial/ethnic inequities. Race-conscious practices where segregation was not the result of an official government policy but of other structural factors, such as housing patterns, then became the focus of challenges and litigation. Litigation in this area culminated in 1978 with *Bakke*, which involved a challenge to the University of California, Davis, School of Medicine's consideration of race in its admissions decisions. (The school reserved 16 of 100 places for disadvantaged minority students.) In contrast to other institutions with a history of legally enforced segregation, the medical school had adopted its race-conscious admissions policy to remedy inequities and address the effects of societal discrimination.

Allan Bakke, a White student who had been denied admission to the medical school twice, challenged the race-conscious policy on the grounds that it violated the Equal Protection Clause of the 14th Amendment. The school sought to defend the policy on the grounds that it was needed to (a) address the effects of past discrimination practices and existing racial and ethnic inequities in higher education; (b) improve the delivery of healthcare services by increasing the number of physicians who would practice in communities currently underserved; (c) reduce the deficit of traditionally disfavored minorities in medical school and in the medical profession; and (d) obtain the educational benefits that flow from having an ethnically diverse student body. In six separate opinions with no clear majority and a controlling opinion by Justice Powell, the Court applied *strict scrutiny*, a legal test that had not previously been applied to affirmative action policies, and ultimately rejected all but the last of these four justifications—the educational benefits of diversity.[2]

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[2]The vote in *Bakke* was 4-1-4. Powell agreed with one four-Justice block on some aspects of the case and with the other four-Justice block on others. Thus, his rationale constituted the controlling opinion, as it resulted in a majority vote on the various legal issues. For a detailed analysis of Powell's rationale, see Garces (2014a).

Bakke established an important shift in constitutional jurisprudence by applying strict scrutiny to decide the case (Garces, 2014a). In considering the constitutionality of a policy under the 14th Amendment, a court will apply one of three legal tests, also known as standards of review: rational basis, intermediate scrutiny, or strict scrutiny. A rational basis standard is the lowest level of review and the easiest to satisfy; the Court will uphold the policy if the institution is pursuing a "legitimate" objective and there is a "rational relation" between the means chosen and the objective. Under intermediate scrutiny, the objective needs to be "important" and the means need to be "substantially related" to the objective. Strict scrutiny is the highest level of review and the hardest to meet. It requires a "compelling interest" and means that are "narrowly tailored" to this objective. The Court applies this standard to "smoke out" illegitimate use of race (i.e., racial classification) by ensuring that the institution "is pursuing a goal important enough to warrant use of a highly suspect tool" (*Johnson v. California*, 2005).[3]

When *Bakke* was argued, the precedent for which of these legal tests should apply was unclear, with opposing sides arguing for different standards (Garces, 2014a). Ultimately, in its splintered 4-1-4 decision, the Court applied the strict scrutiny standard to assess constitutionality, thus requiring that the admissions policy further a compelling interest in a manner that was narrowly tailored to that interest. By extending the Court's strictest review to policies that were implemented to *include* racial minorities—as opposed to policies that were intended only to *exclude* racial minorities—the Court equated efforts to advance equality for Blacks and other marginalized populations with efforts that could be discriminatory against Whites. This shift thus provided a constitutional justification for individuals to challenge race-conscious policies as discriminatory against Whites (Garces, 2014a).

In an analysis of the *Bakke* decision, legal scholar Thomas Ross (1990a, 1990b) illustrated how the Court's rationale underlying this constitutional shift was also based on a rhetoric of innocence. In particular, it was based on a notion of "White innocence" (Ross, 1990b) that characterized Whites as innocent victims of affirmative action. In assessing the medical school's justification for its policy, for example, Justice Powell wrote about the "patent unfairness of 'innocent persons. . .asked to endure. . .[deprivation as] the price of membership in the dominant majority'. . .and 'forcing innocent persons. . .to bear the burdens of redressing grievances not of their making'" (Ross, 1990a, p. 302). Ross (1990a, 1990b) demonstrated how such rhetoric—which questioned Black victimization—allowed the Court to avoid questions that called for a more complex understanding of affirmative action. These questions involved more realistic understandings of the benefits White individuals have experienced from the oppression of people of color and the advantages they continue to experience in myriad ways.

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[3]Even when a policy is "race neutral" under this legal definition, the strict scrutiny standard may apply if the court finds that the policy was motivated by racial or ethnic factors (see, e.g., *Hunter v. Underwood,* 1985). Under a legal definition, a policy is race-neutral when the language of the policy does not explicitly confer a benefit to an individual (such as an offer of admission) based on that individual's race or ethnicity.

The one interest that Justice Powell found "compelling"—and therefore constitutionally permissible—was the need to further an educational mission by having a diverse student body. In endorsing this last justification for the educational benefits of diversity, Powell discussed how diversity contributes to the type of critical thinking central to the mission and quality of higher education, such as a "robust exchange of ideas" (*Bakke*, 1978, p. 313), a principle that is grounded in First Amendment constitutional principles and the umbrella of academic freedom. On the question of narrow tailoring (the second part of the strict scrutiny test), Powell emphasized that the compelling interest of diversity "encompasses a far broader array of qualifications and characteristics of which racial or ethnic origin is *but a single* though important element" (p. 315; emphasis added). He found that because the set-aside admissions program focused solely on ethnic diversity, it hindered rather than furthered the "attainment of genuine diversity" and thus was not narrowly tailored. Justice Powell also held that the policy had to be holistic and flexible, and that the medical school's policy operated as a quota and therefore was not constitutionally permissible. For these reasons, he struck down the policy as unconstitutional.

With his ruling in *Bakke,* Justice Powell thus established a practice-based shift in race-conscious admissions, and universities throughout the country modified their policies to comply with the Court's requirements (Welch & Gruhl, 1998). No longer allowed to expressly consider the effects of societal discrimination or racial inequities to justify voluntarily adopted race-conscious policies, institutions that sought to expand access for underrepresented populations had to focus their efforts on a broader notion of diversity, of which race could only be one of a number of factors considered. With this shift, social science research on diversity, as it is contemporarily understood, emerged.

2.3.2 Early Stages of Diversity Literature Post-Bakke and Leading to Grutter

2.3.2.1 Early Collaboration Among Legal and Social Science Communities to Address Ongoing Legal Challenges Post-Bakke

After the *Bakke* decision, challenges to race-conscious practices in admissions continued in both the policy arena and the courts, setting the stage for early research on diversity. In the early to mid-1990s, for example, a number of public policy initiatives and legal challenges organized and funded by Ward Connerly and likeminded conservative groups were designed to end the use of race as a factor in college admissions. In the policy arena at the state level, the University of California Board of Regents voted to end the use of race and gender in admissions and hiring practices in 1995 with Special Policy 1. The policy was replaced in 1996 by Proposition 209, a voter-approved referendum that prohibited affirmative action at all public postsecondary institutions in California. Soon after, in 1998, voters

approved a similar initiative in Washington State. Ward Connerly led these efforts as part of a national campaign to end affirmative action.[4] In the courts, a legal challenge to a race-conscious policy at the University of Texas law school led to the legal decision in *Hopwood v. University of Texas Law School* (1996), where, in an unusual move, the Fifth Circuit refused to extend otherwise binding Supreme Court precedent in *Bakke*, concluding instead that the race-conscious policy was unconstitutional, thereby prohibiting race-conscious admissions in Texas, Mississippi, and Louisiana (Garces, 2015a).

Around the same time, in 1997, Barbara Grutter, a White female applicant, was denied admission at the University of Michigan Law School. Supported by the national campaign to end affirmative action, she sued the school to challenge its admissions policy, which considered race, among other factors, as a characteristic that could enhance an applicant's chances of admission. The policy had been modeled after the type Justice Powell had endorsed in *Bakke*. Grutter argued that the race-conscious admissions policy violated the Equal Protection Clause of the 14th Amendment because a higher percentage of minority applicants were admitted than non-minority applicants with similar test scores. The law school argued that the policy was needed to further a compelling interest in student body diversity, which required the enrollment of a "critical mass" of students of color (i.e., more than a token number) to help diminish the impact of stereotypes. Further, the school argued, the admissions process met the narrow tailoring requirements of strict scrutiny because it was based on individualized consideration of every applicant. Social science research, as we describe in depth in a later section, informed these arguments. At the same time, Jennifer Gratz filed a separate lawsuit to challenge the admissions policy at the undergraduate College of Literature, Science, and the Arts, which awarded extra points to some candidates on the basis of their race.

As these legal challenges were making their way through the lower courts, it became clear that the ability of postsecondary institutions to consider race as a factor in admissions would again be reviewed by the U.S. Supreme Court. This led to a concerted effort among lawyers, civil rights advocates, policymakers, administrators, and scholars to review existing research that could support legal arguments for affirmative action, and to identify studies that could be done in a relatively short period of time to fill policy-relevant gaps in the existing literature. Modeled after the collaboration that had occurred in *Brown v. Board of Education of Topeka* (1954), the goal was to unite these diverse stakeholders to assemble compelling social science evidence that would inform the case and counter anticipated arguments challenging the use of race as a factor in college admissions.

Researchers involved in this early work came from a variety of fields—economics, education, law, political science, psychology, public policy, sociology—and

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[4]Six additional states currently ban the consideration of race as a factor in postsecondary admissions decisions as a result of similar voter initiatives, legislative efforts, or other avenues: Florida (One Florida Initiative), Michigan (Proposal 2), Nebraska (Initiative 424), Arizona (Proposition 107), New Hampshire (House Bill 623), and Oklahoma (Oklahoma Affirmative Action Ban Amendment).

included established and emerging scholars. The group was committed to a set of core values about the continued significance of race and racism in U.S. society, as well as to the social justice imperative of integration. The work focused broadly on racial dynamics in society, in educational institutions, and on college campuses (e.g., educational equity, race-relations, racial climate, and desegregation). Through their scholarship, they sought to inform and improve educational theory and practice with the hope of transforming institutions to make them more equitable and less exclusionary (Jayakumar & Adamian, 2015b).

Notably, in entering this policy and legal conversation, these scholars made the choice to be significantly constrained by legal advice on the types of evidence that would be permissible in the courts. Specifically, many of the social scientists opted to follow the advice of lawyers who predicted, based on legal precedent, what types of evidence could be entered in the particular political moment (Jayakumar & Adamian, 2015b). The advice at the time was to capitalize on the narrow avenue *Bakke* left for institutions to justify the consideration of race in admissions—that is, the educational benefits of diversity. This reframing meant moving away from a more critical focus on race that centers the experiences of students of color. For some, this evoked internal (and external) conflict and frustration.

The approach was intended to demonstrate "interest convergence" (Bell, 1980) on the part of Whites and students of color, wherein policies benefiting students of color would also be viewed as beneficial to Whites, so as to generate interest on the part of the Justices to rule in favor of the university. Social scientists thus focused on documenting the benefits of diversity for all students (e.g., antonio et al., 2004; Chang, 1997; Gurin, 1999; Gurin et al., 2002; Hurtado, Engberg, Ponjuan, & Landreman, 2002). Thus began a strategic effort aimed at purposefully building on previous theory and research related to the educational benefits of diversity. This entailed executing targeted studies after identifying research questions, modes of inquiry, and analyses that could generate empirical findings that would be permissible in the legal deliberations. Much of the data were quantitative, accounting for the intended audience (e.g., the Supreme Court, with relatively conservative-leaning Justices), what those audiences would perceive as legitimate, and the degree of generalizability to broader student populations and institutional contexts.

2.3.2.2 Documenting the Educational and Societal Benefits of Diversity

In the context of these legal developments, two key frameworks guided the initial diversity scholarship on the educational benefits of diversity: (a) a framework by Gurin (1999) for explaining the impact of diversity on students' learning, and (b) a framework by Hurtado et al. (1998, 1999), which incorporated a psychological and behavioral climate component and a lens for understanding the context for diversity and educational benefits on college campuses. These two frameworks guided the diversity and educational benefits literature from its inception and led to the documentation of a host of individual and societal outcomes, both short- and long-term.

These included enhanced critical thinking skills, greater cross-racial understanding, and improved leadership skills for a multiracial society.

Gurin (1999) drew from psychosocial theories of development and cognition, the college impact literature, and documentation of racial segregation patterns to link racial diversity to student developmental outcomes. Gurin's report, filed on behalf of the University of Michigan in *Grutter* and *Gratz*, cited an emerging body of policy-relevant research linking student body diversity to student learning outcomes and societal imperatives (e.g., democracy and citizenship). Complementing this work was Hurtado et al.'s (1998, 1999) ecological perspective that drew attention to the interconnections between individual, institutional, and social change and provided a holistic understanding of racially diverse learning environments by situating the campus experiences of students of color within institutional legacies of exclusion and discriminatory practices. Extending beyond numeric diversity, Hurtado and her colleagues outlined a conceptualization of racial climate that was not limited to perceptions and attitudes, but included the institution's structure and history as well as interracial interactions. It assumed that students are educated in contexts that vary from campus to campus, and that variations in racial climate are shaped by a range of external and internal forces.

These theoretical perspectives, couched within the educational benefits conversation, re-inserted attention to racism and racist structures into the approach by social scientists. The scholars doing this early work recognized the limitations in Justice Powell's statement and intended to use his own language to shift the discourse about the diversity rationale (Jayakumar & Adamian, 2015b). They offered a more nuanced, contextual, and student-of-color-centered understanding of the relationship between racial diversity and educational benefits. Unlike Powell's vision of the educational benefits equation, where simply admitting more students of color would result in positive outcomes, these scholars showed that institutional context and race relations also matter. Thus, while studies examining the educational benefits of diversity documented such benefits, they also showed, as we discuss in more detail later, that Powell's articulation was less than complete (see, for example, antonio et al., 2004; Chang, 1999; Chang, Witt, Jones, & Hakuta, 2003; Gurin, 1999; Gurin et al., 2002; Gurin, Nagda, & Lopez, 2004).

It is important to note that the University of Michigan strategy in the *Grutter* and *Gratz* cases included a social justice-oriented shift in the discourse from "diversity" back to "integration," and an expansion from "individual benefits" toward "societal needs" and "national interests" (Lehman, 2004). Patricia Gurin's expert testimony, and a wealth of empirical social science research entered as evidence, sought to support these interests (Jayakumar & Adamian, 2015b). Gurin's testimony outlined a theory of how interactions across racial identity groups stimulate personal and cognitive development. Importantly, it connected long-established psychosocial and cognitive theories of development to de facto neighborhood and institutional segregation. The goal was to expand the conversation from a narrow diversity rationale to include a social justice agenda encompassing institutional responsibility in order to address racial segregation, thus forming a connection to the legal precedents in the 1954 case of *Brown v. Board of Education* (Jayakumar & Adamian, 2015b).

The social justice strategy also involved a group of student activists and three pro-affirmative action organizations that participated as intervenors at early stages of the litigation but that were denied a request to participate in the case at the Supreme Court level (Harris, 2003; Massie, 2001).[5] The student intervenors sought to foreground the Civil Rights roots of affirmative action as a policy designed to address systemic racial discrimination. They passionately defended the university's race-conscious policy as important for furthering diversity, while also critiquing it for falling short of fully addressing the corrective and remedial purposes of affirmative action (Berrey, 2015a). They focused on the history of discrimination, the effects of segregation, and the realities of racial bias that affect admissions to justify the university's policies (Berrey, 2015a; Ledesma, 2015). Throughout the litigation, however, their efforts were viewed as too confrontational, and were relegated to the margins through a series of concerted efforts by the legal team of the main parties in the case and university administrators (Berrey, 2015a).

2.3.3 Legal Outcomes in Grutter and Gratz that Shaped the Next Stages of Diversity Research

After being presented with a record number of amicus briefs in the *Grutter* case—some 200 in support of the University of Michigan policies—the Court, in a 5–4 opinion authored by Justice O'Connor, upheld the constitutionality of race-conscious policies under limited circumstances based, in part, on notions of how the benefits of diversity accrue to all students, regardless of race. The Court issued a separate decision in *Gratz v. Bollinger* (2003) striking down the undergraduate admissions policy on the grounds that the point system was not flexible enough to comply with the individualized consideration outlined in *Grutter*. Together, the *Gratz* and *Grutter* decisions established the parameters for postsecondary institutions to implement the consideration of race as a factor in admissions decisions in a constitutionally permissible manner. Here, we focus on the Court's decision in *Grutter,* as it outlines the rationale underlying the Court's endorsement of the educational benefits of diversity as a goal that justified the university's race-conscious policies.

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[5]The students included 41 Black, Latina/o, Asian Pacific American, Arab American, and White individuals who were prospective or current law students at the time of the litigation (Massie, 2001). The organizations included BAMN, which spearheaded the intervention, joined by Law Students for Affirmative Action and United for Equality and Affirmative Action.

2.3.3.1 Expanding Endorsed Benefits of Diversity to Include Democratic Interests

As Justice Powell had ruled in *Bakke,* the 5–4 Court decision in *Grutter* found that universities have a compelling interest in student body diversity. The ruling emphasized the notion that institutions should be afforded the freedom to select a student body that will contribute most to a "robust exchange of ideas" (p. 329, quoting *Bakke*), that student body diversity promotes "'cross-racial understanding,' helps to break down racial stereotypes, and 'enables [students] to better understand persons of different races,'" and that "classroom discussion is livelier, more spirited, and simply more enlightening and interesting when the students have the greatest possible variety of backgrounds" (p. 329, quoting lower court record). The Court cited research studies showing that student body diversity "better prepares students for an increasingly diverse workforce and society, and better prepares them as professionals" (p. 330, citing Brief of American Educational Research Association et al., 2003; see also Bowen & Bok, 1998; Orfield & Kurlaender, 2001; Chang et al., 2003).

While reaffirming the underlying justification for why diversity serves a compelling interest in *Bakke* (i.e., educational benefits), the Court's rationale in *Grutter* further expanded the justification for race-conscious admissions policies by emphasizing that student body diversity is important not only for improved learning outcomes but also for the role it plays in sustaining U.S. democracy (i.e., democratic/societal benefits; Garces, 2014a, 2015a). Indeed, the majority opinion emphasized the role of universities, and professional schools in particular, including law schools, in providing "the training ground for a large number of our Nation's leaders" (*Grutter,* 2003, p. 332). The Court stressed the need for these institutions to extend opportunities to individuals of all races and ethnicities so that members of our society can have "confidence in the openness and integrity of the educational institutions that provide this training" (*Grutter,* 2003, p. 332). With this expanded rationale, the Court recognized the important role postsecondary institutions play in sustaining the health of U.S. democracy by having a student body that more closely reflects the nation's racial and ethnic diversity. The rationale also brought to the forefront the important role that racial and ethnic diversity plays in graduate studies, as graduate degrees are prerequisites to several professions and, often, to positions of influence and power in American society. Racial diversity in graduate studies can also contribute to a more racially diverse professoriate, which is critical for fostering creativity and innovation as well as generating more complex knowledge (Page, 2007).

This expanded rationale illustrates the likely influence of the early research on diversity in informing the Court's support of the benefits of diversity for individuals as well as for society. Notably, the argument about the importance of diversity for democracy likely also gained traction as it aligned with the amicus briefs filed by 65 of the nation's top corporations and military leaders articulating the advantages of diversity to the workforce and society (Coleman, 2004). In fact, it was clear from

Justice O'Connor's opinion in *Grutter* (2003) that, in addition to social science research, corporate and national interests played an integral role in the defense of affirmative action in the eyes of the Court. In this way, the language of national security, although embedded in racist policies and practices, served as an entry point for advocacy.

2.3.3.2 A Focus on Critical Mass and the Means for Attaining Racial Diversity

Importantly, the Court in *Grutter* (2003) agreed with the university's asserted need to have "a critical mass" of Latinx, African American, and Native American students "who without this commitment might not be represented in [the] student body in meaningful numbers" (p. 3). The university's arguments about critical mass drew from research documenting the harms of stereotype threat and tokenism. The Court acknowledged that in the absence of such a critical mass of same-race peers, students of color are more vulnerable to social stigma (Steele, 1992, 2010) and are more likely to experience racial tension (Hurtado, 1992) and tokenism (Kanter, 1977). Both the majority and dissenting opinions in the *Grutter* case asserted the need for more than token numbers of students of color to avoid the harms of racial isolation and to create the conditions for educational benefits. In Justice Rehnquist's words, a critical mass was necessary "[t]o ensure that these minority students do not feel isolated or like spokespersons for their race; to provide adequate opportunities for the type of interaction upon which the educational benefits of diversity depend; and to challenge all students to think critically and reexamine stereotypes" (*Grutter*, 2003, Rehnquist dissenting, p. 3.).

In *Grutter* (2003), the Court supported the description of a critical mass as "meaningful numbers," "meaningful representation," and "a number that encourages underrepresented minority students to participate in the classroom and not feel isolated," or "numbers such that underrepresented minority students do not feel isolated or like spokespersons for their race" (pp. 318–319). Informed by this work, the Court's majority opinion noted:

> ...diminishing the force of [racial] stereotypes is both a crucial part of the Law School's mission, and one that it cannot accomplish with only token numbers of minority students. Just as growing up in a particular region or having particular professional experiences is likely to affect an individual's views, so too is one's own, unique experience of being a racial minority in a society, like our own, in which race unfortunately still matters. (*Grutter*, 2003, p. 333)

In this way, the Court recognized the role that race plays in shaping students' experiences and educational pathways.

In *Grutter* (2003) and *Gratz* (2003), the Court noted that the consideration of race serves a compelling interest, and also that such consideration must be done in a narrowly tailored manner. This narrow tailoring prong of the legal test established in *Bakke* (1978) required that the policy (a) involve a flexible, individualized consideration of applicants so that race, while important, was only one of a number of

factors being considered; (b) not operate as a "rigid quota or a functional equivalent in the form of a set-aside or a predetermined number of seats for minorities" (Garces & Jayakumar, 2014, p. 9); (c) give good faith consideration to workable race-neutral alternatives to the race-conscious policy; (d) not unduly burden disfavored groups; and (e) be limited in time or include a periodic review to assess necessity (Garces & Jayakumar, 2014).[6] The Court held in *Grutter* that the law school's policy satisfied each of these requirements, specifically noting that narrow tailoring did not require that every conceivable race-neutral alternative be exhausted.

At the time of the *Grutter* and *Gratz* litigation, amicus briefs also presented evidence to address the "narrow tailoring" part of the legal test. These briefs sought to demonstrate the limited effectiveness of so-called race-neutral policies, such as percentage plans, for yielding a student body as racially and ethnically diverse as one that would be generated if race was considered among many factors in admissions. This research involved one of the first studies on percentage plans by Horn and Flores (2003). Justice Ginsburg (joined by Justice Souter) cited the study in her dissent in *Gratz* (2003) as evidence that calling such plans race-neutral would be disingenuous because they were adopted for the specific purpose of increasing racial and ethnic representation.

2.3.3.3 Endorsing a False Dichotomy Between Selectivity and Diversity

Even as the Court's rationale in *Grutter* connected racial diversity to institutional missions and democratic goals, it endorsed the perspective that diversity and selectivity are two options between which institutions must decide (Garces, 2014a; Solórzano & Yosso, 2002). In defending the limited use of race in admissions, the university stated that it did not need to abandon "selectivity" as a "core part" of its mission to achieve racially diverse learning environments (Brief for Respondents in *Grutter*, 2003). The university argued that "overruling *Bakke* would force this Nation's finest institutions to choose between dramatic resegregation and completely abandoning the demanding standards that have made American education the envy of the world" (Brief for Respondents in *Grutter*, 2003, p. 13). The university did not question whether its reliance on standardized tests in admissions discriminated against racial minorities, nor did it propose relying less on these measures as a way to attain racial diversity. In its opinion, the Court agreed with the university's arguments, emphasizing that the university need not choose "between maintaining a reputation for excellence or fulfilling a commitment to provide educational opportunities to members of all racial groups" (*Grutter*, 2003, p. 309). However, by agreeing with the university's argument, the Court essentially enforced the notion

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[6]Although the Court emphasized that the practice needed to be limited in time or subject to periodic review, in what has become an oft-quoted sentence, the Court also stated that it "expects that 25 years from now, the use of racial preferences will no longer be necessary to further the interest approved today" (*Grutter,* 2003, p. 343).

that diversity and selectivity are mutually exclusive. Because selectivity is viewed as a proxy for educational quality, endorsing a dichotomy between diversity and selectivity essentially endorses a chasm between diversity and educational quality (Garces, 2014a).

A number of other organizations and groups that filed briefs in support of the university's policy had advanced arguments that did not frame the goals of diversity and selectivity as requiring a choice. These organizations included groups like BAMN, the United Negro College Fund, the National Center for Fair & Open Testing, and the Society of American Law Teachers. They focused instead on the disparate racial impact of the LSAT and SAT and the role of these racially biased admissions criteria in perpetuating racial inequities in education—an issue we discuss in greater detail later in the chapter. Fundamentally, these groups questioned whether White applicants with higher standardized test scores were in fact more qualified for admission than minority applicants with lower test scores, and whether the admission of racial minorities with lower test scores was discriminatory against Whites with higher test scores. They argued that the university's admissions policy was *not* used to create an exception to quality but was needed to address the law school's otherwise biased admissions criteria. They also affirmed the importance of affirmative action policies in continuing the racial gains brought about by the civil rights movement (see, for example, Brown-Nagin, 2005).

Interestingly, Justice Thomas's dissent highlighted the "Law School's refusal to entertain changes to its current admissions system that might produce...educational benefits," noting that "if the Law School is correct that the educational benefits of 'diversity' are so great, then achieving them by altering admissions standards should not compromise its elite status" (*Grutter,* 2003, p. 355, 356n4). Justice Thomas's dissent highlighted an important contradiction between the goal of the university— racial diversity—and the means it employed to further this interest—measures of achievement strongly correlated to race and class that reflect unequal advantages (see Brown-Nagin, 2005). His argument highlighted the point that the choice need not be between diversity and selectivity or quality, but between diversity and biased, poor measures of merit (Garces, 2014a).

2.3.4 Stages of Diversity Research Post-**Grutter,** *to* **Fisher** and Post-**Fisher***: Pushing Within the Constraints of the Legal Framework*

Next we describe how some scholarship since *Grutter* (2003) has actively attempted to address these legal developments and reshape the diversity rationale toward a greater acknowledgment of the ongoing role that race continues to play in students' educational experiences and interactions. The educational benefits of diversity, as framed by Justice Powell in *Bakke*, and again in *Grutter*, focus on the relationship "between numbers [of students of color on campus] and achieving the benefits to be

derived from a diverse student body, and between numbers [of students of color on campus] and providing a reasonable environment for those students admitted" (*Bakke*, 1978, p. 324). While Powell acknowledged the importance of the environment for achieving benefits, he did not elaborate, adding only that "unplanned, casual encounters" within a diverse student body can lead to "improved understanding and personal growth" (p. 313). Powell further argued, "it is hard to know how, and when, and even if, this informal 'learning through diversity' actually occurs" (p. 313).

Scholars have deliberately reframed two points from Powell's statements—whether "learning through diversity actually occurs" and the relationship between numbers and benefits.[7] For example, studies since *Grutter* (2003) have sought to empirically demonstrate the role of campus racial climate and other conditions that reflect a supportive institutional environment for students of color (for a review of this literature, see Garces & Jayakumar, 2014). These studies showed that higher education has a compelling interest in enrolling a racially diverse student body, but the associated educational benefits are not guaranteed; rather, they rest upon institutions creating the conditions that promote such learning outcomes within particular institutional contexts. This work countered Powell's dismissive statement—"'diversity,' whatever it means"—in the *Bakke* (1978, p. 355) opinion and began to construct a more complete picture that attended to the dynamic relationship between students and their learning environments. Below, we review select literature to illustrate how researchers working within a constrained legal framework have deliberately sought to expand the understanding of diversity.

2.3.4.1 A More Comprehensive Focus on Cross-Racial Interactions

One way researchers have strategically documented the encounters Justice Powell referenced in *Bakke* (1978) as providing wide exposure to ideas (p. 312) is by measuring undergraduate students' frequency of interactions with peers who do not identify as the same race, or what we and others refer to as students' frequency of cross-racial interactions. Researchers have also capitalized on the Court's assertion in *Grutter* (2003) about the need for adequate racial representation as a window of opportunity to further clarify the harmful effects of racial isolation and stereotype threat, harms that are connected to the undermining of cross-racial interactions, classroom participation, and the subsequent positive outcomes associated with racial diversity. This area of diversity research is rooted in a rich body of sociological and psychological scholarship concerning residential, employment, and school desegregation. In a meta-analysis of this literature, for example, Pettigrew and Tropp (2006)

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[7]We recognize that equating students of color to numbers contributes to a dehumanizing discourse. Shifting the conversation necessitates utilizing the problematic terminology, however. Therein lies a major tension for scholars and lawyers working within the legal system to undo unjust practices, particularly in the context of a politically conservative Court (Jayakumar & Adamian, 2015b).

showed that cross-racial interactions significantly reduce prejudice across a variety of samples and situations.

In fact, cross-racial interactions have been closely studied in higher education (pre- and post-*Grutter*) and have shown to be positively associated with a wide range of student outcomes. These outcomes include improved academic skills (Denson & Chang, 2009; Gurin, 1999; Gurin et al., 2002; Hu & Kuh, 2003; Luo & Jamieson-Drake, 2009); academic and social self-concept (antonio, 2004; Chang, 1999; Chang, Astin, & Kim, 2004; Chang, Denson, Sáenz, & Misa, 2006; Denson & Chang, 2009; Gurin et al., 2002; Nelson Laird, 2005); cognitive outcomes (antonio et al., 2004; Chang et al., 2006; Denson & Zhang, 2010; Gurin et al., 2002; Nelson Laird, 2005); personal growth and development (Hu & Kuh, 2003; Luo & Jamieson-Drake, 2009); teamwork and leadership skills (Denson & Zhang, 2010); prejudice reduction (Gottfredson, Panter, Daye, Allen, & Wightman, 2009; Zúñiga, Williams, & Berger, 2005); reduced social distance (Odell, Korgen, & Wang, 2005); perceived exposure to diverse ideas (antonio et al., 2004; Gottfredson et al., 2009); racial/cultural understanding and engagement (antonio, 2001; Astin, 1993; Chang et al., 2006; Denson & Chang, 2009; Denson & Zhang, 2010; Gurin, 1999; Gurin et al., 2002; Hu & Kuh, 2003); pluralistic orientation (Engberg, 2007; Engberg & Hurtado, 2011; Jayakumar, 2008); social agency and civic development (Astin, 1993; Bowman, 2011; Chang et al., 2004; Gurin, 1999; Gurin et al., 2002; Hurtado, et al., 2002; Nelson Laird, 2005; Zúñiga et al, 2005); retention (Chang, 1999); well-being (Bowman, 2010); and satisfaction with college (Astin, 1993; Chang, 1999; Luo & Jamieson-Drake, 2009).

Rare or superficial interracial interactions are not likely to lead to positive outcomes, however, because they can instead produce biased conclusions, such as attributions of counter-stereotypical behavior to circumstance or coincidence (Sekaquaptewa, Espinoza, Thompson, Vargas, & von Hippel, 2003; Seta, Seta, & McElroy, 2003), or to solidify previously held stereotypes (Berndsen, Spears, van der Pligt, & McGarty, 2002; Stroessner & Plaks, 2001). A large connected area of scholarship on intergroup dialogues (most recently presented in the litigation in *Fisher*, as noted below) provides evidence based on quasi-experimental design methodology that cross-racial interactions most effectively lead to prejudice reduction when there is facilitated dialogue that highlights similarities and differences across groups and an understanding of race and racism (Gurin et al., 2013).

While these findings make the case that encounters with people of different races contribute to undergraduate learning, they do not directly address what Powell referred to as the relationship "between numbers [of students of color on campus] and achieving the benefits to be derived from a diverse student body" (*Bakke*, 1978, p. 324). Although research pre-*Grutter* supported the notion that student body racial diversity is a prerequisite for the type of intergroup relationships thought to foster educational benefits (Hurtado et al., 1999; Chang, 1999), other research has contended that increasing racial diversity causes students to self-segregate into separate subgroups and not interact across race (Bloom, 1986; D'Souza, 1991; Thernstrom & Thernstrom, 1997). The conditions that lead to either self-segregation or interracial interaction were not clear within the empirical findings (Chang et al.,

2006). This relationship is especially important because the diversity rationale rests on evidence that increasing the numbers of students of color on campus will increase frequency of cross-racial interactions and, in turn, add value to the educational environment in ways that enrich all students' learning.

2.3.4.2 Understanding the Connections Between Institutional Context and Cross-Racial Interactions

In addition to more research documenting the benefits of cross-racial understanding, a number of studies have established a connection between the racialized experiences of students of color and the educational benefits of diversity. This research served to challenge conservative voices in the Court, such as those of Justices Thomas and Scalia, and other critics who suggested that diversity led only to racial balkanization. Campus racial climate plays a mediating role in determining whether increasing student body racial diversity leads to cross-racial engagement or self-segregation (Jayakumar, 2008). Based on structural equation modeling of 10-year longitudinal data, for example, Jayakumar (2008) showed that increased representation of students of color (numeric diversity) is directly and highly associated with a positive racial climate, but on its own is not associated with an increased likelihood that White individuals will engage in cross-racial interactions.

Denson and Chang (2009) similarly used hierarchical linear modeling to further explore the unique contextual effect between campus climate and interracial interactions. The authors anticipated and challenged a conservative assertion that institutions could achieve desired benefits without enrolling sufficient numbers of students of color by attending to the campus racial climate. Their study documented that, at the institutional level, a peer group average measure of cross-racial interactions had a significant positive effect on racial-cultural engagement. This finding suggests that while both are related, individual-level encounters are relatively more important to individual development than the broader context of race relations on campus. Overall, they confirmed the findings of two previous studies (Engberg, 2007; Nelson Laird, 2005) that also asserted the importance of positive quality interactions in enhancing students' academic self-concept and social agency. These studies and others (for example, Chang, 1997; Gurin 1999; Milem & Hakuta, 2000) generated policy-relevant quantitative evidence—which, as we note later, was cited in the amicus briefs filed in *Fisher*—about the contextual relationship between what Justice Powell called "numbers and benefits," showing that it is not hypothetical but rather empirically linked to campus climate.

2.3.4.3 Centering the Experiences of Students of Color and Focusing on Institutional Responsibility

Another important line of research that continued post-*Grutter* involved centering the experiences of students of color with research to demonstrate that they

experience a more hostile racial climate than White students (e.g., Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999; Fischer, 2010; Harper & Hurtado, 2007; Hurtado, 1992; Rankin & Reason, 2005), and that a negative climate compromises the growth and development of all students (Cabrera et al., 1999; Carter & Hurtado, 1997; Harper & Hurtado, 2007; Jayakumar, 2008; Nora & Cabrera, 1996; Pascarella & Terenzini, 2005). Indeed, quantitative studies post-*Grutter* and pre-*Fisher* documented that students who report negative racial experiences are more likely to experience a lower sense of belonging in the first 2 years of college (Hurtado et al., 2007; Locks, Hurtado, Bowman, & Oseguera, 2008) and overall dissatisfaction with the college experience (Miller & Sujitparapitaya, 2010). The literature also documented the impact of climate perceptions on the academic adjustment and quality of engagement in all campus environments for students of color (Cabrera et al., 1999; Carter & Hurtado, 1997; Museus, Palmer, Davis, & Maramba, 2011; Pascarella & Terenzini, 2005), including the classroom environment (Quaye, Tambascia, & Talesh, 2009). In *Fisher*, as we discuss below, this argument was expanded to the classroom level to underscore the effects of racial isolation on the personal and educational experiences of students of color and on engagement and educational benefits for all students.

Adding to the ecological perspective that informed the *Grutter* litigation that was first advanced by Hurtado et al. (1998, 1999), Milem et al. (2005) added the dimension of organizational structure, pointing to institutional norms, policies, and practices that protect and perpetuate inequitable schooling conditions and outcomes. More recently, Hurtado, Alvarez, Guillermo-Wann, Cuellar, and Arellano (2012) further developed the framework to incorporate social identity and power relations among actors. Other scholars have more distinctly explored the types of interactions and facilitated experiences that contribute to the kind of institutional capacity and responsibility that helps realize the educational benefits of diversity. Collectively, these studies have shown, for example, that campuses with higher levels of cross-racial interactions within the student body have in place a curriculum that reflects the historical and contemporary experiences of people of color, programs that support recruitment and retention, and an institutional mission that reinforces a commitment to pluralism and racial equity (Allen & Solórzano, 2001; Gurin et al., 2013; Hale, 2004; Hurtado, Dey, Gurin, & Gurin, 2003; Richardson & Skinner, 1990; Smith et al., 1997). Such campuses, scholars have argued, are intentional about recruiting and retaining a racially diverse student body, attending to their historical legacy of exclusion, incorporating ethnic studies curricula more broadly, and facilitating positive intergroup relationships and a positive racial climate (Hurtado et al., 1999; Hurtado et al., 2012; Jayakumar & Museus, 2012; Milem et al., 2005).

The research related to the diversity rationale in support of the University of Texas in *Fisher* further connected the benefits to studies centering the experiential realities of students of color. Scholars connected to a social justice imperative by pulling in studies on microaggressions and counterspaces, for example. They demonstrated that the classroom, an important focus of the university's argument, is a particularly vulnerable site for racial microaggressions—that is, relatively subtle, indirect insults and forms of discrimination that can appear innocuous but have

cumulative negative weight and consequences (see Lewis, Chesler, & Forman, 2000; McCabe, 2009; Solórzano, Allen, & Carroll, 2002; Yosso, Smith, Ceja, & Solórzano, 2009). Likewise, counterspaces, settings that support the psychological well being of students who experience discrimination, are particularly important when there is a lack of critical mass and associated hostile climates for students of color who occupy token status in the classroom and beyond (McCabe, 2009; Yosso et al., 2009). Garces and Jayakumar's (2014) review of diversity rationale-related research exemplifies how this and other scholarship on racial climate and centering the experiences of students of color informed the legal questions in *Fisher*. Notably, relatively more qualitative work centering the voices of students of color was used to frame the arguments in *Fisher*, although quantitative studies were still privileged and strategically utilized to draw broader conclusions and to support qualitative findings.

2.3.5   Legal Outcomes in Fisher That Need to Be Considered for Next Stages of Diversity Research

In this section, we address the implications of the Court's *Fisher* decisions on diversity-related research moving forward. In its review of the case, the Court issued two separate decisions, one in 2013 (*Fisher I*) and another in 2016 (*Fisher II*). (For an overview of the cases, see Garces, 2016.) Overall, these decisions had the practical effect of requiring institutions to more fully document whether they are obtaining the educational benefits of diversity (Garces, 2015b), a move that requires that they not only attain numerical representation of students of color, but also promote the type of racial climate and environment that facilitates the benefits of diversity (Garces & Jayakumar, 2014). The decisions, however, also remind institutions of the need to explore race-neutral alternatives to obtain racial and ethnic diversity, a requirement that represents a colorblind approach, and, as we discuss in more detail in later sections, has important consequences for diversity research moving forward.

2.3.5.1   Expanding Diversity Efforts to Focus on Inclusion

While emphasizing the benefits of diversity as articulated in *Bakke* and *Grutter*— such as the destruction of stereotypes, promotion of cross-racial understanding, preparation of the student body for a diverse workforce and society, and the cultivation of leaders with legitimacy in the eyes of the citizenry—the Court's decision in *Fisher II* (2016) referenced the university's efforts to provide an "academic environment" and "educational setting" that allows for these benefits to occur. As Justice Kennedy wrote in the majority opinion, "Increasing minority enrollment may be instrumental to [the] educational benefits [of diversity]," but so is "provid[ing] an educational setting that fosters cross-racial understanding…[and]

enlightened discussion and learning" (*Fisher II,* 2016, p. 2211). The decision also introduced the importance of considering student experience as part of the regular evaluation that institutions need to undergo to continue to justify race-conscious admissions policies. In doing so, the Court's decision focused on the experiences of students in a way that prior decisions on affirmative action had not, and shifted from a numbers-focused diversity approach to one that also considers efforts to promote what scholars and postsecondary administrators refer to as "inclusion" on campus.

In the K–12 context, the concept of inclusion is related to the notion of multiculturalism, particularly in curriculum and pedagogy (e.g., Banks, 2008; Blum, 2001). In the higher education context, however, the concept has not been clearly defined across the literature. Tienda (2013), one of the few scholars to include a specific definition, distinguished inclusion from diversity, defining it as "organizational strategies and practices that promote meaningful social and academic interactions among persons and groups who differ in their experiences, their views, and their traits" (p. 467). Museus (2014) described the value of racially inclusive and culturally engaging environments and provided a definition of inclusion focused on "the extent to which campus environments engage the cultural identities of racially diverse student populations and reflect the needs of these students" (p. 209). We would add to these prior definitions of inclusion a focus on creating conditions that trouble dominant status privilege and safety, wherin pervasive norms of prioritizing the voices and comforts of White students and others who maintain dehumanizing views about people and communities of color remain unchallenged (Leonardo & Porter, 2010).

Other diversity-related frameworks that call for a shift from "diversity-minded" to "equity-minded" policy and practice (e.g., Dowd & Bensimon, 2015; Jayakumar & Museus, 2012) can also be related to this concept of inclusion; equity-minded practices bring attention to the importance of addressing past and present racial discrimination and moving toward practices that address the oppression of minoritized students in education. These frameworks center the experiences of students of color within specific institutional contexts that may be shaped by exclusionary practices (i.e., those that reinforce the status quo/White privilege, and that intentionally or unintentionally signal to non-dominant status students that they are not welcome). Inclusionary practices, by contrast, are those that move toward racial equity as it relates to systems of power, policy-making processes, and organizational culture at both the institutional (e.g., mission statements, strategic plans, curricula, etc.) and broader state and federal levels (Museus et al., 2015).

While related, inclusion can be distinguished from "inclusive excellence," which Williams et al. (2005) connected to how campus environments adapt to meet the needs of today's highly diverse entering students. Their definition incorporates the Association of American Colleges and Universities definition of inclusive excellence, which consists of four primary elements: (a) a focus on student intellectual and social development; (b) a purposeful development and utilization of organizational resources to enhance student learning; (c) attention to the cultural differences learners bring to the educational experience and that enhance the enterprise; and

(d) a welcoming community that engages all of its diversity in the service of student and organizational learning.

Beyond the lack of an explicit definition, a commonality across studies that relate to inclusion has to do with the conditions that need to be in place for the educational benefits of diversity to occur (see Garces & Jayakumar, 2014). These conditions include the importance of attending to the institutional context and historical legacies of exclusion that characterize traditionally White institutions, or TWIs[8] (Hurtado et al., 1998, 1999; Milem et al., 2005), as well as the need to nurture cross-racial interactions that contribute to learning and reduce prejudice (Gurin et al., 2013). In addition to practices such as supporting ethnic studies programs, diverse student organizations, academic support programs, and multicultural programs, efforts would also require generating greater awareness among White students and predominantly White student organizations about systems of privilege (see, for example, Garces & Jayakumar, 2014). Importantly, the Court's rationale in *Fisher II* (2016) reflects this definition of inclusion as supported by decades of research, research that was submitted to inform the Court's deliberation in the case. Evidence of these inclusion efforts will be critical to justifying future race-conscious admissions policies, as was the case for the University of Texas at Austin in *Fisher II*.

2.4 Part II: Accounting for Interest Convergence and Critical Race Critiques

2.4.1 *Interest Convergence, Constriction, and Expansion: Possibilities and Limitations*

As we mentioned in Part I, affirmative action victories based on the diversity rationale, such as in *Grutter* (2003), capitalized on the notion of interest convergence, wherein policies that advance opportunity for people of color are seen as in alignment with those that advance the interests of the majority (Bell, 1980). Following the Court's decision in *Bakke* (1978), for example, some affirmative action advocates and social scientists viewed the diversity rationale as the best approach for defending affirmative action in anticipated future attacks. This led to a concerted

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[8]We use "traditionally White institution," instead of "predominantly White institution." The increase in student of color populations can mean that institutions with previously majority-White student populations are no longer predominantly White. However, these institutions (unless transformed) maintain a legacy of exclusionary structures and oftentimes continue to uphold exclusionary traditions and cultures. Notably, TWIs would include those newly designated as minority- or Hispanic-Serving Institutions if their origins were rooted in traditional White (male) populations and culture. Historically Black Colleges and Universities (HBCUs) and Tribal Colleges and Universties (TCUs) fall outside the TWI category because they were never segregationist institutions, but were founded with the goal of providing access to education for people who were excluded from traditional colleges.

effort among social scientists to explore particular questions aligned with political lawyering practice that could be used within the limited legal paradigm in preparation for the defense of affirmative action involving the University of Michigan in *Grutter* and *Gratz*. (For reflections from those involved in the initial social scientists strategy, see Jayakumar & Adamian, 2015b.) This defense included, in part, documenting the benefits of diversity for White students, so as to demonstrate an interest convergence on the part of White students and students of color and thereby generate interest on the part of the Justices to rule in favor of the university (Garces & Gordon da Cruz, 2017).

As scholars such as Bell (2005) have demonstrated, however, the Court's decision in *Grutter* also came with substantial compromises. The decision reinforced a divide between the goal of fostering racial diversity and of addressing persistent racial/ethnic inequities in education, while furthering an inaccurate understanding of racial diversity as something that comes at the expense of educational quality rather than as something that is necessary to achieve it (Garces, 2014a). Race-conscious admissions policies, moreover, became a shield that allowed institutions to "retain policies of admission [standardized test scores like SAT or LSAT] that are woefully poor measures of quality, but convenient vehicles for admitting the children of wealth and privilege" (Bell, 2003, p. 1632; see also Guinier, 2015; Soares, 2011). And, as the findings of more recent diversity research that we summarize below demonstrate, although meaningfully maintained in *Grutter* and *Gratz* collectively, the practical utility of diversity as a policy has been significantly watered down for addressing the concerns and needs of students of color (Ahmed, 2012).

Other recent Court decisions regarding race-conscious admissions practices in higher education, such as *Schuette v. Coalition to Defend Affirmative Action* (2014) and *Fisher v. University of Texas* (2013, 2016), and the policy debate over affirmative action have moved toward a more colorblind orientation that overlooks systemic inequity (Garces, 2014b; Garces & Gordon da Cruz, 2017; Jayakumar & Adamian, 2015a). In *Schuette*, the Court upheld the constitutionality of a ban on race-conscious policies in admissions in Michigan, reversing a lower court ruling that had found the ban violated the federal constitutional guarantee of the Equal Protection Clause. In five different opinions, the Justices outlined extremely varied understandings of how the Equal Protection Clause should be understood to operate in our democracy, with equally strong and passionate disagreement about the ways in which race continues to matter.

Rather than understanding race-conscious policies as a way to further diversity or to address persistent racial inequality, the various opinions in *Schuette* (2014) demonstrated that the majority of the Justices viewed them as "preferences" that embody rather than address racial discrimination (Garces, 2014b). The use of race in admissions policies, therefore, is viewed as highly suspect, and, as the Court articulated in *Fisher I* (2013) and *Fisher II* (2016), requires the consideration of other possible "race-neutral" alternatives before it is considered. Within this colorblind ahistorical framing, affirmative action is viewed as a policy that preferences people of color and as reverse discrimination against White students, rather

than one that seeks to counteract cumulative advantages that occur to dominant White populations (Garces & Gordon da Cruz, 2017).

The political climate, moreover, has indeed shifted from where it was nearly a decade ago when the United States proudly inaugurated its first Black president, and some heralded in what was believed to be a post-racial era (Bonilla-Silva, 2014). At the time, any public figure expressing overt racial bigotry would arguably have been booed off the political stage and out of the public eye. In contrast, the 2016 presidential election cycle revealed voters willing to overlook and even embrace such bigotry and policies directed at setting back racial progress (Bannan, 2016). These constituents are largely poor working-class Whites—a group likely to be further underserved by proposed changes. Yet their support, along with that of the majority of White men and women of all socioeconomic and educational backgrounds, can be understood as a response to politicized appeals to White innocence and a sense of loss of group status.

By White innocence, we mean the notion that White people and the systems that protect White interests have only an abstract connection—not one with accountability—to the subordination and inferior status of Black people and other minoritized groups (Ross, 1990b). For example, in *Brown v. Board of Education* (1954), White innocence was kept intact by the Court acknowledging the harms of racial segregation to Black children and ignoring the racist intentions and material consequences of sanctioned segregation (Gotanda, 2004; Ross, 1990a). White innocence erodes the possibility of an empathetic response to the suffering of Blacks and other people of color. Further, it leads Whites to believe they are losing something, without recognition of what they have gained from structural White privilege. White innocence and a sense of loss seem to be increasingly salient in recent affirmative action cases and on college campuses.

As in *Bakke* (1978), the *Gratz* (2003) and *Grutter* (2003) cases were based on the premise that a White plaintiff had suffered the loss of a tangible seat at a particular university. More recently in *Fisher I* (2013) and *Fisher II* (2016), however, the Court treated a *perceived* loss due to race-conscious admissions as an actual harm. In fact, members of Fisher's legal team themselves admitted from the beginning that the plaintiff would have been rejected from the university regardless of affirmative action. And on postsecondary campuses, White student groups have emerged in direct backlash to consciousness raising by the #BlackLivesMatter movement and student protests demanding institutional attention to racial bias, underrepresentation, and structural racism. In other words, appeals for greater institutional responsibility and action toward racial justice have triggered a sense of loss of status among a growing number of vocal White students. The Union of White Cornell Students, for example, submitted a set of demands to the administration as "a community of white students who wish to preserve and advance their race" (Keller, 2016). Their open letter denouncing Black student demands demonstrates the salience of White racial resentment.

According to Bell's (1980) concept of interest convergence, this backlash and resistance to racial justice is to be expected. After all, from an interest convergence perspective, affirmative action was never a revolutionary policy that could bring

about racial justice in higher education; rather, it carried the promise of incremental progress and momentary racial relief, one that would be depleted as soon as it posed a threat to the superior status of (mostly middle- and upper-class) Whites. Indeed, interest convergence has ebbs and flows—moments of *expansion* where there is a high level of racial justice potential and moments of *constriction*, where it severely wanes (Jayakumar & Adamian, 2015a).

A time of racial backlash—of constriction, wherein White interests are seen as under threat and no longer aligned with racial progress—is upon us (Wise, 2010). This is evident in the racial climate of the nation, particularly regarding perceptions of reverse racism and a loss of status among White Americans (Bonilla-Silva, 2014; Garces & Gordon da Cruz, 2017; Jayakumar & Adamian, 2017). As Derrick Bell's (1992) notion of racial realism reminds us, "only by accepting that racism is real and operates in different ways at different points in history, can we slowly work toward a different future that challenges racism and the ways it structures meaningful engagement in important areas of society" (Garces & Gordon da Cruz, 2017, p. 2). For these reasons, we can anticipate that any promising social science strategy within the legal system (and U.S. society at large) will eventually lead to a shift in the hegemonic context, including progress and new problems that require a new set of solutions and approaches that account for shifts in manifestations of racism.

CRP-Ed, the theoretical framework that guided our envisioning of the next generation of diversity scholarship, draws heavily from Bell's (1980) reflections on *Brown v. Board of Education* (1954), and particularly his recognition that racial progress in the legal system is tied to White elite interests, but that such progress can come with substantial compromises. Bell called for an understanding of this context—that is, White interests motivating a concession, or, as informed by the notion of racial realism, White resentment and backlash over perceived threatened status resulting in the revoking of said progress. While Bell's groundbreaking concept of interest convergence, including the notion of racial realism, is important for understanding the relationship between policies that promote racial justice and communities of color, it has been critiqued for its static, prescriptive analysis that falls short when it comes to considering possibilities for agency and action (Driver, 2011).

Jayakumar and Adamian (2015a) addressed this limitation by drawing from Freire (1970) to advance their notion of interest convergence expansion. The interest convergence that led to the desegregation of secondary and postsecondary schooling was generated by activism and social movement that raised awareness of racial injustice, both at home and abroad. In other words, grassroots movements rooted in a critically conscious collective struggle created the disequilibrium and incentive that brought about the potential for incremental racial progress to transpire within the legal system. Thus, awareness raising produced through agency enacted by oppressed peoples can be destabilizing and threatening to the interests of those in power, creating the space and opportunity—the expansion—for a concession to be made in order to bring interests back to equilibrium (Jayakumar & Adamian, 2015a).

In the present post-*Fisher* moment—a moment of interest convergence *constriction* with regard to racial equity in higher education—the work of critical race scholars amongst others can provide a critique of the limitations of diversity

research; it can generate the basis for a critical consciousness that names the current contexts and hegemonic structures. Naming and understanding the particular challenges of the current policy context can help propel interest convergence *expansion*, leading to greater possibility for policy changes that advance racial justice. CRP-Ed requires recognizing where such interest convergence is happening, and then leveraging this for change in more constricted contexts, including the current colorblind policy context (Jayakumar & Adamian, 2015a). To better understand the challenges of addressing racism as it is playing out in this particular moment of postsecondary racial inequality, we explore the critiques of a diversity-based framework and the challenges we face.

2.4.2   Research Critiquing the Limitations of Diversity and Ramifications of Court Rulings Perpetuating Colorblindness

Arguing that the diversity conversation must be expanded beyond race is a common strategy to derail the imperative of addressing racial inequality in higher education. Social science research plays a critical role in challenging this co-optation and dilution of diversity. As we will demonstrate in this section, the term *diversity* in higher education has been redefined to capture difference in terms of gender, religion, sexual orientation, disability, veteran status, and geographic location, to name a few, without attention to how these differences—particularly around race and ethnicity—determine levels of privilege and power in society (Allen, 2011; Garces & Gordon da Cruz, 2017; Warikoo, 2016). Indeed, we have yet to see a clear focus on transforming institutions so that students of color are truly supported and their needs are met (Ahmed, 2012; Dowd & Bensimon, 2015; Leonardo & Porter, 2010). There are also biases and roadblocks, particularly for White faculty and students, when it comes to meaningful engagement concerning White privilege and power. Addressing these challenges toward facilitating race dialogues that are humanizing for students of color is absolutely necessary, however, in order for meaningful interactions across race to take place (Leonardo & Porter, 2010; Singleton, 2013). As scholars have asserted, the overarching framework for both K–12 and postsecondary education relies on a deficit-based orientation—one that calls for "fixing" students of color so that they can achieve traditional educational success or assimilate into dominant spaces, instead of addressing inequitable structures, systems, policies, and practices that contribute to racially disparate outcomes that preserve White status privilege (Garces & Gordon da Cruz, 2017; Harper, 2010; Yosso, 2005).

Given the constraints of the contemporary legal landscape, proponents of diversity have had to walk the tightrope between advancing a legally and publically acceptable version of diversity and highlighting the persistence of racial injustice. Researchers have documented how this tension has at times resulted in diversity

efforts that highlight the former at the omission of the latter (Warikoo, 2016), reflecting the limited ability of current Court rulings to speak to the continued realities of racism and racialization. While a vision of diversity research and practice that incorporates explicit recognition of racism and racial realities is in alignment with the underlying need for a diversity-based rationale, the execution of such a vision has been more elusive. The legal framework for examining the constitutionality of race-conscious policies calls for an ahistorical definition of diversity that ignores the links between present-day racial and ethnic inequities and past (persistent) legacies of exclusion. Further, as scholars have documented, a vision of diversity that does not explicitly address racism and the ways that race continues to shape students' educational experiences and opportunities has led many institutions to advance a watered down vision of diversity—one that allows for a symbolic commitment to the numeric representation of students of color while bypassing systemic changes and interventions that address racial inequality or discrimination (Ahmed, 2012; Garces & Bilyalov, in press).

Various scholars have documented how diversity-related discourse has been exploited to avoid the more difficult issues of race and racism (Ahmed, 2012; Leonardo & Porter, 2010; Warikoo, 2016). In some cases, they have maintained that the rising prominence of "diversity" has upheld White supremacy, or at minimum, left it unchallenged (Berrey, 2015b). This critique extends to efforts to create inclusive campus environments and racial dialogues. Scholars such as Cabrera, Watson, and Franklin (2016) and Leonardo and Porter (2010) have used critical methodologies to make important contributions to our understanding of the broader political context surrounding diversity and inclusion, underscoring why efforts to promote diversity must be tightly coupled with anti-racism work at the individual and institutional levels. Their research shows the unintended fallout from the legal strategy of the diversity defense, ushering in a challenge to diversity educators concerning how their work can more faithfully honor the vision of a framework that recognizes and challenges the perniciousness of racism.

A key theme in the research critiquing the implementation of diversity-related programs is the limitation of the diversity-based legal framework for radical, systemic change. The Supreme Court's favoring of a diversity rationale for affirmative action over a rationale focused on remediation for inequality left campuses with a diminished toolkit to address persistent racial injustice. Justice Powell's decision to decouple the educational benefits of diversity from the continuing need to remedy past and present racial injustice led to a weakening of the vision for why diversity is part and parcel of the broader cause of advancing racial justice (Chang et al., 2005). Further, Powell's decoupling of the two rationales seriously weakened the capacity of universities to foster the unique context and conditions needed engaging in racial diversity work toward institutional transformation. It also supported a lack of institutional efforts toward racial justice, including further interrogation and improvement of admissions practices outside the context of the Supreme Court (Garces, 2014a).

As a result, institutions all too easily celebrate diversity as a form of difference but do not go deeper to investigate why they fundamentally lack it or to explore the

complicated power dynamics that emerge when they support a racially diverse student body (Warikoo, 2016). Warikoo and Deckman (2014) documented this phenomenon in their comparison of approaches taken by Harmony University and Powers University (pseudonyms for two elite institutions). They conducted 77 interviews with undergraduates and found that organizational and institutional dynamics deeply influenced student attitudes towards race relations. Notably, Harmony had institutional features such as randomized housing (meant to combat student clustering along racial/ethnic lines) and attempted to foster interaction among all students. Harmony's approach was to foster "integration and celebration," which Warikoo and Deckman (2014) believed opened the door for cultural appreciation, but gave students few tools to critique power structures and address racism. The approach gave students a short-term sense of campus unity but, in the long-term, most students were generally unaware and uncritical of structural inequities.

In contrast, Warikoo and Deckman (2014) noted that Powers took a more direct "power analysis and minority support" (p. 960) approach to challenging racism and oppression. They created spaces to provide intentional support for students of color, such as through a Third World Transition Program (TWTP). Setting the tone from the beginning of college, TWTP gave first-year students of color the opportunity to come to campus early to engage in discussions around power, racism, and oppression, communicating that such issues were ongoing challenges for the campus and society. Some White students critiqued the program as divisive, but participants expressed the need for the opportunity.

Warikoo and Deckman (2014) found that, in general, Powers students were more direct in addressing racism and structural inequality as realities that persisted in spite of the existing diversity on campus. Their findings indicate that celebrating diversity without addressing systematic inequality, as Harmony University did, may foster surface-level interracial cooperation, but likely falls short in addressing deeper issues around inequality and the challenges encountered by students of color. In prioritizing the comfort of the majority of the campus, Harmony likely missed opportunities to spur deeper, albeit more difficult and uncomfortable, learning around systematic inequality for its students, and potentially fell short in prioritizing the well-being of students of color.

Similarly, Leonardo and Porter (2010) pointed to the potential harm and even violence that students of color may experience in watered down campus racial dialogues and "safe spaces." These spaces—environments that supposedly protect non-dominant/marginalized students from discrimination and/or hostile ideas—tend to actually cater to and nurture White fragility and innocence by prioritizing the comfort of Whites (Leonardo & Porter, 2010). When catering to White innocence, safe spaces effectively preserve colorblind ideology and a positive sense of self for White students over dialogue that can address racism (Cabrera, 2014; Leonardo & Porter, 2010; Unzueta & Lowery, 2008). Nurturing White innocence supports a lack of concern or empathy toward the injustices suffered by marginalized communities (Gotanda, 2004; Gutierrez, 2006; Ross, 1990a, 1990b).

Arguably, as Warikoo and Deckman's (2014) work demonstrates, celebrating diversity without addressing deeper power dynamics sends the message that

diversity is paramount due to its benefit for the majority population—White students—rather than because it is part of a broader ecosystem of structural changes meant to challenge systematic racial inequality. Leonardo and Porter (2010) further demonstrated that discussing race/racism while not attending to issues of power can take a toll on students of color, who bear the burden of vulnerability while benefits are disproportionately accrued by Whites. Indeed, when discussions of diversity and race/racism are decoupled from issues of power and White supremacy, majority-status students too easily come to view diversity as a commodity that benefits them in a global market economy, rather than understanding the pressing need to address systematic inequality and racism (Cabrera et al., 2016).

Relatedly, the concept of diversity has been co-opted in such a fashion that the original intent of advocating for systemic change has been diluted (Berrey, 2015b). More specifically, when it is decoupled from recognition of racism and inequality, a weakened diversity-based rationale opens the door for institutionalized diversity work that lacks meaningful engagement with race, racism, and inequality. Initiatives once seen as major reforms, such as the hiring of a chief diversity officer or the creation of an office to support diversity, can end up as token efforts that reinforce a colorblind paradigm and even signal that diversity work holds a marginal place in the institution (Ahmed, 2012).

At too many institutions, racism is still seen as an individual-level phenomenon, an aberration rather than an entrenched component of the culture. Diversity marketing abounds in the form of brochures featuring smiling students of different races, with no mention of how students of color continue to experience persistent marginalization in the academy. In her study of how institutions in the United Kingdom have addressed diversity, Ahmed (2012) powerfully articulated how such efforts fall short when diversity becomes a way of "rearranging things" in order to position an organization in the best possible light (p. 107). Ironically, then, diversity discourse can be used to avoid doing the actual difficult work of diversity, antiracism, and institutional transformation. As Ahmed observed, "When our appointments and promotions are taken as signs of organizational commitments to equality and diversity, we are in trouble" (p. 43).

It may be hard to remember, but there was a time when multiculturalism and diversity were hotly contested issues at the national level (Leonardo, 2013). On the whole, however, the concept of diversity has gained a level of acceptance that was difficult to imagine in earlier times; it is now embraced—at least on some level—by corporate America and across academia. But with this acceptance has come a weakening of the original vision; this mainstreaming has come at a cost (Berrey, 2015b). A vision of diversity decoupled from racial inequality will only reinforce, rather than transform, existing inequality. Institutions all too easily fall into the "magical thinking" described by Chang et al. (2005), idealistically hoping for an "if you build it, they will come" approach, where acquiring the requisite markers of diversity (e.g., diversity offices, administrators, and programming) will somehow adequately prepare students to navigate a world permeated by inequality. Instead, "diversity" becomes superficial window dressing without deeper and more meaningful entry into work that addresses systemic racism and inequality (Ahmed, 2012).

All of this leads to some important questions: Has the terminology of diversity lost its usefulness? Or is the language of diversity still useful as long as institutions recognize that diversity is a necessary but insufficient condition for promoting racial justice and equity, and work to fulfill that broader vision? Educators should consider the need to interrogate others' usage of diversity terminology, recognizing that mere reference to diversity is no guarantee that it is being addressed in meaningful ways alongside the broader causes of equity and justice. Although the legal context has resulted in a favoring of the educational benefits of diversity over the persistence of racial inequality as a justification for affirmative action, there is no legal barrier to institutions addressing the continuing realities of racial stratification in their efforts to promote diversity.

Recognizing that diversity is a multi-faceted, dynamic phenomena requiring persistent attention to numerous spheres (Garces & Jayakumar, 2014; Jayakumar & Adamian, 2015a) can help universities identify ways that diversity advocacy has been weakened or limited on their own campuses, as well as design ways to incorporate strategies that take issues of power, inequality, and race into diversity promotion efforts. Universities need not choose between staying within legal bounds and proactively working for change, although this is a constraint that many administrators perceive (Garces & Cogburn, 2015). Significant agitation can and should occur within the context of what is legally permissible, and more explicit recognition of racial inequality is needed to advance diversity at the compositional level.

The relatively recent emphasis on inclusion in conjunction with diversity has some potential to help institutions recognize the importance of addressing racial inequality, although there is also the risk of the notion of inclusion being co-opted to reinforce colorblind norms. Additionally, the Equity Scorecard developed by Bensimon (2007) and colleagues has been an important tool for systematically identifying gaps in racial equity, challenging deficit-based approaches to student achievement, and helping educators to understand where institutions are falling short. The scorecard creates explicit metrics that can support institutions in taking stock of and improving the racialized outcomes of their organizational behaviors, policies, and practices, including diversity and inclusion efforts (Dowd & Bensimon, 2015).

On a similar note, the issue of diversifying the faculty demonstrates the need to bridge diversity-promoting efforts with attention to racial inequality. Put another way, the lack of meaningful institutional transformation speaks to the ineffectiveness of diversity recruitment efforts that ignore structural inequality (Smith, 2015). For many years, institutions have made efforts to recruit faculty of color, but numerous studies affirm that their efforts have fallen short, resulting in low retention and morale for faculty of color (Turner, González, & Wood, 2008). Clearly, the problem runs much deeper than merely recruiting faculty members to campus; pervasive barriers exist, preventing these scholars from flourishing in environments that are often at best ambivalent, and at worst hostile to their presence (Griffin & Reddick, 2011).

In short, institutions need take a more direct approach to recognizing how racial dynamics—including in both subtle and overt manifestations—affect sense of

belonging and retention. A definition of inclusion that addresses racial inequality as the paramount challenge to university efforts to achieve diversity would be highly beneficial, especially in comparison to a more generic vision that equates inclusion with a sort of fuzzy desire to promote belonging without interrogating the underlying causes for why a lack of belonging persists in the first place. Altogether, addressing diversity and racial equity together is not an "either/or" conundrum, but rather a "both/and." Institutions have room—limited but still existing—within the legal framework to address the dynamics of power and inequality that underlie the broader purpose of seeking diversity. Such attention is greatly needed for broader institutional transformation.

2.4.3 Constraints and Limitations of the Legal Framework for Institutions

The narrow tailoring requirements in the Court's decision in *Fisher II* (2016) expanded diversity to consider the educational environment and experiences of students after admission. At the same time, it moved institutions away from being able to consider race explicitly in their admissions policies toward so called "race-neutral" approaches that create a path toward a colorblind approach to racial diversity. For example, an institution needs to show that "'a nonracial approach' would not promote its interest in the educational benefits of diversity 'about as well and at tolerable administrative expense'" (*Fisher II*, 2016, p. 2208). While the Court clarified that "narrow tailoring does not require exhaustion of every conceivable race-neutral alternative," it does "impose 'on the university the ultimate burden of demonstrating' that 'race-neutral alternatives' that are both 'available' and 'workable' do not suffice" (*Fisher II*, 2016, p. 2208).

As noted previously, in the legal arena, a policy or practice is defined as race-neutral when, with respect to language and intent, it confers no benefit (e.g., an offer of admission or scholarship) associated with an individual's race or ethnicity. However, a rich body of work has found that approaches considered race-neutral under this legal definition, such as class-based admissions, are not effective substitutes for creating racial diversity (Flores & Horn, 2015; Kidder & Gándara, 2015; Reardon, Baker, Kasman, Klasik, & Townsend, 2015). Studies that examine the effectiveness of strategies like expanded and targeted outreach to high schools that serve large populations of students of color have found that administrators view these approaches as ineffective in maintaining racial diversity (Garces & Cogburn, 2015). This is because, even if more students of color are encouraged to apply, other factors, such as structural inequities in K–12 education and standardized testing requirements, can impede whether students are admitted. Moreover, the inability to offer targeted financial aid to students of color can undermine whether they enroll (Garces & Cogburn, 2015).

An emerging body of work has also started to document the detrimental consequences that race-neutral approaches in admissions are having in other essential areas of university life. A study of the 2006 affirmative action ban in Michigan, for example, found that not being able to consider race as part of a holistic admissions process has had negative consequences for efforts to support an inclusive environment. Administrators said the ban has effectively silenced conversations around race and racism, thus making efforts that support racial diversity less visible and leading the administration to feel disempowered to support racial diversity on campus (Garces & Cogburn, 2015). Other recent work has shown that admissions policies that do not consider race as a factor and are therefore deemed race-neutral, such as those at the University of Georgia, can make efforts to focus on race increasingly challenging (Glasener, Martell, & Posselt, 2016). By diverting attention to race and undermining the sustained support that diversity efforts require (Hurtado et al., 1999), these consequences can create serious barriers to promoting inclusive learning environments.

When institutions are required to show that race-neutral alternatives are insufficient, it reinforces an illusion of colorblindness because the requirement is based on an assumption that policies can, in fact, be race-neutral (Garces, 2014b). This moves institutions further away from being able to consider the systemic and societal ways in which race affects educational opportunity. As race scholars have demonstrated (e.g., Bonilla-Silva, 2009; Haney López, 2007), a colorblind approach is an illusion; it obscures the ways in which race continues to matter in shaping students' experiences and educational opportunities, and the mechanisms that advantage Whites within and outside education in American society (powell, 2012). This approach also ignores the persistent, stubborn link between historical racial exclusion and contemporary reasons for racial inequality (Bell, 2005; Harris, 2003). Thus, the ways in which institutions implement the Court's requirements have important implications for improving racial representation and equity on college campuses.

For these reasons, racial equity-minded scholarship is crucial for addressing the mechanisms that advantage White students within and outside of the educational system and policy context. This includes addressing problematic notions of meritocracy and cultural capital valued in admissions, institutional environments that center Whiteness and promote colorblindness, narratives aimed at dividing communities of color, and problematic colorblind institutional practices. Within the legal paradigm, it entails advancing a more contextualized and nuanced understanding of how diversity works, such as a dynamic diversity framework (Garces & Jayakumar, 2014). In the next section we elaborate on these mechanisms as key areas of focus for diversity research and social science evidence related to racial equity in higher education.

2.5 Part III: Advancing a New Diversity Research Agenda

In this section, we highlight key perspectives and areas of social science research that can advance a re-envisioned agenda of empirical inquiry for addressing issues of diversity and inclusion in postsecondary education. Rather than providing a traditional review of diversity literature to identify gaps in research, which has been done before (e.g., Garces & Jayakumar, 2014; Gurin et al., 2013; Hurtado, 2005; Hurtado et al., 1998, 1999; Jackson & O'Callaghan, 2009; Milem et al., 2005; Smith, 2015; Williams et al., 2005), our approach entails highlighting frameworks and research areas that can advance necessary strategic directions for diversity scholarship. To be clear, this is not an exhaustive list, as we encourage the generation of additional areas that align with a CRP-Ed approach and our analysis of the contemporary legal and institutional contexts. These areas of research align with the CRP-Ed approach by advancing empirical inquiries across multiple domains and spheres of influence. In particular, we focus on five directions.

First, we argue that diversity research can continue to play an important role in advancing inquiry that informs the national and institutional policy context, as affirmative action and institutional efforts targeted at increasing diversity and inclusion continue to be dismantled and co-opted. Along this domain, we address how the dynamic diversity framework (Garces & Jayakumar, 2014) and intersectionality (Crenshaw, 1991; Hill Collins, 2000; Núñez, 2014a, 2014b) can be employed to foster more equity-minded research, policy, and practice. Both lenses support challenges to co-opted diversity discourses such that we can continue to expand research inquiry that informs legal and institutional diversity conversations while advancing racial equity within legal parameters.

Second, given the role of the public debate and broader narrative in shaping legal challenges and strategies, we name and challenge dominant narratives and frames that perpetuate postsecondary racial inequality. Such narratives not only stifle the policy context but also uphold the root mechanisms and problems—including problematic admissions practices—that prevent us from achieving racial equity in access, representation, and inclusion on college campuses. Specifically, we address the oppressive narratives in admissions, including meritocracy (Liu, 2011; Posselt, 2016) and dominant narratives that threaten to divide communities of color (Park & Liu, 2014; Lee, 2008). While research has focused on barriers to access tied to pre-college contexts—including school resources, academic preparation, and familial agency (Perna, 2006)—there is a greater need to examine the role of postsecondary admissions practices as a mechanism that produces racial inequality (Guinier, 2015; Yosso, 2005). Thus, throughout this section, we illustrate how admissions practices can be re-envisioned to foster more equitable outcomes.

Third, we explain how future diversity inquiry that addresses the mechanisms of exclusion can be greatly enhanced by a focus on generating power within and among communities of color. We describe the strategic equity framework, which is critical for supporting diversity scholarship that can generate this power to ultimately lead to more equitable institutional policies and practices. The framework offers three

principles that can help advance more equitable postsecondary policies and guide future research to generate new areas of interest convergence among intersecting and shifting identities (i.e., race, gender, sexual orientation, citizenship status, language, class, etc.).

Fourth, to inform a more nuanced understanding of how to improve race relations and inclusion on college campuses, we highlight strategies to address issues that have strategically been left out of or minimized in the conversation—racism, colorblind ideology, and Whiteness. We emphasize frameworks that can deepen our understanding of campus environments and race relations that center racism and Whiteness. We highlight Leonardo and Porter (2010) and Cabrera et al.'s work (2016) that challenges conceptualizations of safe spaces, and Ledesma's (2016) healthy campus racial climate framework that offers an alternative to "positive racial climate" discourses. Both complicate our understanding of what will be necessary to address the challenges that keep us from finding real solutions to our diversity and inclusion problems on college campuses.

And fifth, we recognize that, in addition to choosing relevant and useful topics of inquiry, in order to follow a CRP-Ed perspective it is critical to choose appropriate methods and perspectives to interpret findings (see, for example, Martínez-Alemán, Pusser, & Bensimon, 2015; Stage & Wells, 2014). In the absence of mindfulness and careful maneuvering around the known pitfalls of diversity, future diversity work will only restrict the potential for advancing more racially just policies and postsecondary practices. Thus, we close with a discussion of the possibilities and limitations of quantification and the use of innovative research methods.

2.5.1 Advancing Inquiries That Can Inform Policy Within Legal Parameters

2.5.1.1 Dynamic Diversity on College Campuses and the Need for an Equity Focus

"Dynamic diversity" is a framework that promotes a more contextual discussion of diversity beyond numbers (Garces & Jayakumar, 2014) and addresses the critique of critical mass by former Justice Scalia in *Fisher I* (2013). Specifically, to challenge the problematic de-contextualization of critical mass in the *Fisher I* and *II* deliberations, the framework synthesizes the social science literature related to critical mass in order to demonstrate the connection between racial representation and the educational benefits of diversity. Prior scholarship has indicated that the proportion and number of students of color on campus can mitigate or prevent experiences of tokenism, racial isolation, and stereotype threat (McCabe, 2009; Murphy, Steele, & Gross, 2007; Smith, Allen, & Danley, 2007; Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008; Walton & Carr, 2012; Walton & Cohen, 2007; Walton & Spencer, 2009; Yosso et al., 2009). But numbers alone do not generate educational benefits; rather, the interactions that take place among students, the particular

contexts of these interactions, and the conditions that help facilitate productive interactions generate the exchange of ideas (e.g., Cabrera et al., 1999; Gurin et al., 2013; Harper & Quaye, 2009; Hurtado & Carter, 1997; Hurtado et al., 1998, 1999; Jayakumar, 2008; Milem et al., 2005; Pascarella & Terenzini, 2005).

Thus, diversity and the related concept of critical mass must be reconceptualized; the focus must shift from numbers to the relationship between students and their environment. Understanding diversity as dynamic illuminates the types of transformations in which institutions need to engage in order to support students and help create the conditions necessary to foster related educational benefits. Research on diversity suggests that it is important to (a) foster a healthy racial climate to instigate productive interactions (Hurtado et al., 2012; Ledesma, 2016); (b) address institutional legacies of exclusion and current organizational practices that maintain inequity (Hurtado et al., 1998, 1999; Milem et al., 2005); (c) eliminate impediments for productive interactions in learning environments (Denson & Chang, 2010; Dasgupta & Asgari, 2004); and (d) nurture healthy cross-racial interactions and intergroup relations (Gurin et al., 2013).

Our understanding of diversity must be contextual, interdependent, cross-racial, and participatory. First, we need an understanding of the conditions required for meaningful interactions and participation—*contexts* that cut across national, state, campus, classroom, and interpersonal levels, as well as the additional dimensions of time and space, from historical to current sociopolitical contexts. The key institutional components that enable dynamic diversity—the number of students of color on campus and particularly members of historically underrepresented groups, the campus climate, and the classroom climate for participation—are *interdependent*, shaped by one another in a cyclical reaction. Dynamic diversity is defined by productive *cross-racial interactions* at the individual and institutional (intergroup relation) levels. It is characterized by participation that engages group members' full selves under conditions that promote equal status contact.[9] When cross-racial interaction allows for *full participation*, it triggers dynamic diversity by activating more lively discussions, challenges to prior understandings/convictions and stereotypes, greater potential for innovation, and an expanded range of perspectives and solutions (Garces & Jayakumar, 2014).

Most importantly, the study of diversity and cross-racial interaction must be better informed by a focus on racial equity, inequality, and institutional environments (Hurtado et al., 2012). The study of cross-racial interaction has always highlighted the effect of institutional environments including racial heterogeneity (see, for example, Bowman, 2012; Chang et al., 2004; Park, Denson, & Bowman, 2013). But the quantitative framing of these studies has allowed for less consideration of other factors that may influence equity (or lack thereof) in students'

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[9]The importance of equal status contact in determing the quality and value of intergroup contact — particularly with respect to reducing stereotypes and prejudice—was first outlined in Allport's (1954) classic work. Today, we can think of it as interactions that take place under conditions that account for privileged and marginalized social statuses and the accompanying power dynamics.

interactions with one another. This dynamic is particularly critical to consider given Allport's (1954) assertion that a pre-condition for healthy intergroup contact is relative equal status between students—something often assumed to exist, especially in comparison to the imbalanced student–faculty relationship (Aries, 2008). However, the rich body of research documenting inequity and the persistence of racism in students' everyday lives (see, for example, Harper & Hurtado, 2007; Harper, 2012; Museus & Park, 2015) makes it clear that the inequality that shapes students' lives prior to college does not go away upon enrollment.

So, how might the study of cross-racial interaction take these surrounding conditions into greater consideration? One suggestion is to provide clearer recognition of the inequities that exist in the benefits accrued from engaging with racial diversity: White students tend to benefit most consistently, with mixed findings for other groups (see, for example, Gurin et al., 2002; Spanierman, Neville, Liao, Hammer, & Wang, 2008). Other suggestions include the expansion of qualitative and network-based methods in the study of cross-racial interaction to highlight the inequities and challenges to relative equal status that exist among students and that are influenced by institutional environments (Park, 2013; Park et al., 2013; Warikoo, 2016).

2.5.1.2   Intersectionality in Higher Education

The study of intersectionality represents an additional area in which future research can advance our understanding of diversity in nuanced and critical ways. Pioneered by Black feminists, intersectionality explains how experiences, inequality, and oppression operate uniquely when two or more social identities function in tandem with one another (Crenshaw, 1991; Hill Collins, 2000; Núñez, 2014a, 2014b). Given the sometimes watered down use of intersectionality in research today, Núñez (2014a) pointed to the need to consider power relations in intersectionality work, as was initially intended by Black feminist scholars. For example, the experiences of Latinx students may have some general commonalities, but within the population, inequality could operate distinctively along gender lines. For example, Latinas may be subject to manifestations of sexism that affect women of color more generally and Latinas more specifically, while Latino students simultaneously grapple with both privilege and oppression that represent the unique ways in which their identities related to race, ethnicity and gender interact (Núñez, 2014a, 2014b). Within each subpopulation, further forms of intersectionality may exist—for instance, relating to the intersections of race/ethnicity, gender, sexual orientation, and religion.

The growing emphasis on the unique dynamics that affect women of color and men of color represents increasing acceptance and understanding of intersectionality; this has deep implications for policy and practice in higher education. Research organizations such as Project MALES (Mentoring to Achieve Latino Success), based at the University of Texas, Austin, the Minority Male Community College Collective, based at San Diego State University, and the Supreme Love Project (a social and emotional justice initiative for women of color; see

supremeloveproject.com), all of which seek to address the contextualized inequitable power dynamics that limit opportunities for the groups they serve, reflect this dynamic (see Sáenz, Ponjuan, Segovia, & Del Real Viramontes, 2015; Staples, 2016).

Within diversity research, intersectionality has also gained traction as an analytical lens used to draw attention to how attitudes and patterns related to intergroup relations, diversity, and equity play out uniquely when researchers pay attention to the differences that exist both within and between populations. For instance, in a study comparing the experiences of Black female and male faculty, Griffin and Reddick (2011) drew attention to how both groups experienced significant challenges linked to race and ethnicity, but Black female faculty were taxed in particular, with heavier expectations related to their levels of service and socioemotional caretaking of students. While research has documented the caretaking that is often expected of female faculty, Griffin and Reddick documented how the dynamics for Black women play out in unique ways that both parallel and diverge from patterns linked to gender alone, due to the unique intersectionality of race, ethnicity, and gender. The study showcases the possibilities of intersectionality research for more precisely identifying patterns of inequality that co-exist with compositional diversity.

Other studies do not explicitly reference intersectionality but demonstrate that attention to how individual demographic traits operate in tandem with one another can open up new insights into the complexities of diversity and equity. Park et al. (2013) found that the socioeconomic diversity of an institution in combination with the racial diversity of the student body was an indirect predictor of cross-racial interaction. While socioeconomic diversity did not subsume the direct effect associated with the racial diversity of the institution, these researchers suggested that socioeconomic diversity played a role in "priming" racial diversity by creating a more fluid, equitable environment for cross-racial interaction. An institution where racial lines are not reinforced strongly by socioeconomic boundaries can open up more opportunities for students to share relative equal status—as noted above, this is one of the key conditions identified by Allport (1954) for healthy intergroup contact. In contrast, when socioeconomic divides overlap strongly with racial divides, the social distance further widens, making it harder to cross these boundaries. Park et al.'s (2013) work highlights the unique intersections that exist between racial and socioeconomic diversity—two forms that have distinctive, as well as interrelated, characteristics.

Reardon et al. (2015) offer another example that does not explicitly utilize the framework of intersectionality but that nevertheless demonstrates how careful attention to interlocking forms of diversity has key implications for equity. These researchers included simulations of various undergraduate admissions outcomes when institutions considered race and/or class in varying capacities. They found that the highest level of socioeconomic diversity came not from policies only incorporating social class-related preferences, but from the simulation where both race and class were considered. Unsurprising but perhaps counterintuitive, class-alone policies failed to capture the full magnitude of socioeconomic disadvantage

due to the unique ways that race and class intersect in fostering economic inequality (Park et al., 2013).

In sum, intersectionality is a promising framework for advancing diversity research while taking into account a move toward broader definitions of diversity beyond race. Both dynamic diversity and intersectionality can support intentional, critically conscious diversity scholarship within the legal parameters of a very constricting debate.

2.5.2 Advancing Inquiries That Address Public Discourses and Dominant Narratives

2.5.2.1 "Meritocracy" and Admissions Metrics in an Era of Supposed Race-Neutrality

The coming years will require researchers to think critically about the conceptualization of merit. Despite rulings preserving the consideration of race in *Fisher I* (2013) and *Fisher II* (2016), we are facing an era in which consideration of race in admissions is far from guaranteed. The existing admissions system promotes the myth of meritocracy by operating under the guise of fairness, fostering traditional notions of merit as an objective, quantifiable standard that can be applied uniformly across populations (Liu, 2011). In reality, it upholds and reinforces deeply troubling structures that greatly limit opportunity for students (Guinier, 2015). In fact, the issue of meritocracy is deeply fraught (Baez, 2006; Liu, 2011; Park & Liu, 2014), and a re-envisioning of the admissions system that boldly addresses the reality of structural inequality is sorely needed. Investigations of graduate admissions also unveil the complex dynamics behind how students are assessed and the importance of holistic admissions, particularly those that can consider race as a factor, for expanding opportunity (Garces, 2012; Posselt, 2016).

Much of this work will need to pay careful attention to the metrics currently used in admissions decisions, and perhaps none of these is more contested than the SAT. The entire point of the SAT is, arguably, to provide a standardized assessment of all students. Critiques of the test have highlighted disparities in access to supplemental tutoring, either privately or via test preparation classes. In particular, critics note that test prep—and, in particular, high quality test prep—is more readily accessible to the wealthy (McDonough, 1997). East Asian Americans also have higher levels of test prep participation than other racial/ethnic groups, likely due to the infrastructure of the ethnic economy that provides such opportunities in abundance (Park, 2012). While the latter trends are of concern, perhaps more troubling is work that suggests that the actual benefits linked to test prep are inequitable. Contrary to advertising, it actually does not pay off in sizable gains for most populations (Avery, 2013; Briggs, 2009), and some studies suggest that gains are disproportionately accumulated by East Asian Americans, high-income students, and those with the highest prior levels of academic preparation (Briggs, 2009; Byun & Park, 2012; Park & Becks, 2015).

Discrepancies in the benefits linked with SAT prep suggest that solutions that focus on expanding its availability, as the College Board has done by partnering with online tutoring resource Khan Academy, are laudable but fall short of ensuring equity in college admissions. Future diversity research can further unpack the underpinnings of a system that can do little to compensate for cumulative inequities at the K–12 level, challenging the notion that meritocracy in its most popular framing (e.g., test scores) can be captured objectively and consistently. Likewise, findings on the inequities of SAT prep—not just in terms of access, but in terms of its actual benefits—raise major concerns about reliance on SAT scores in admissions decisions, particularly at the level of selective and highly selective admissions. Is comparing scores between students really a case of "apples to apples" (Park, 2015)? The fact that SAT coaching and the related benefits fall along racial, ethnic, and socioeconomic lines speaks to the need for the continued individual, contextual, and holistic assessment of student achievements, including test scores. It also speaks to the continuing need to consider race, ethnicity, and social class in the admissions process in order to understand the context in which scores are achieved, or the alternative: eradicating the consideration of standardized tests in admissions altogether.

To be sure, another potential area for research will be to examine the implications of SAT-optional initiatives, where institutions do not require that applicants submit these test scores. Viewed widely by admissions officers as one of the most effective means to advance equity in admissions, it remains one of the least utilized (Espinosa, Gaertner, & Orfield, 2015). Individual institutions have reported promising findings on the effects of making the SAT optional. For instance, the president of Hampshire College reported a 10% increase in student-of-color enrollment, as well as a sizable bump in first-generation college students and an increase in admissions yield (Strauss, 2015). However, more systemic, multi-institutional research is needed to advance understanding of how holistic admissions can better capture talent and achievement that might otherwise go unrecognized.

Furthermore, it is critical that we address the wide-ranging influence of the current race-neutral policy climate and legal requirements on university policy in admissions and other areas of campus life. Past work has demonstrated the negative consequences that affirmative action bans can have, not only on the number of students of color who enroll, but also on efforts that are necessary to promote racially inclusive campus climates (Garces & Cogburn, 2015). Recent work illustrates how a colorblind admissions approach can take hold through seemingly innocuous practices and responses that are called "race-neutral" (Garces & Bilyalov, in press). It will be important to address how requirements to adopt these policies can give cover to seemingly race-neutral actions that have racial consequences for students on college campuses.

2.5.2.2   Narratives Aimed At Dividing Communities of Color: Implications for Meritocracy

Affirmative action cases featuring Asian American plaintiffs are currently moving through the lower courts (Wong, 2016). As they do so, we can anticipate a continued shift in the discourse toward dividing communities of color. Indeed, the anti-affirmative action movement has actively courted Asian Americans to support its case, despite surveys indicating the majority of Asian Americans support race-conscious admissions (Park, 2009). The co-optation of Asian Americans by the anti-affirmative movement represents an insidious form of interest convergence, wherein the anti-affirmative action movement has shown little interest in supporting the needs of Asian Americans except in situations that serve its own agenda (Park & Liu, 2014). For example, it raises questions about the nature of meritocracy and the limitations of a system that does not address the roots of systemic inequality.

The courting of Asian Americans by the anti-affirmative action movement persists despite the fact that Asian Americans have historically been direct beneficiaries of affirmative action programs (Lee, 2008).[10] Asian Americans have been visible supporters of affirmative action through the decades, from legal scholars Charles Lawrence and Mari Matsuda's (1997) classic, *We Won't Go Back: Making the Case for Affirmative Action*, to the aptly named civil rights organization, Chinese for Affirmative Action. At the same time, Asian American groups have also organized against affirmative action, particularly in 1994 when a group of Chinese Americans sued the San Francisco Unified School District to challenge the consideration of race in admissions for the selective magnet Lowell High School.

While affirmative action as a policy does not explicitly disadvantage Asian Americans, institutional admissions practices informed by racial bias and discrimination have led to exclusionary practices that do. In the 1980s, several high-profile universities were accused of maintaining ceilings on Asian American enrollment (Takagi, 1992). Both Harvard and UCLA were under federal investigation by the U.S. Department of Education's Office of Civil Rights. Brown and Stanford were not subject to federal investigation but did admit to irregularities in their own admissions processes. Harvard was exonerated, as discrepancies in admit rates could be attributed to differences in legacy and other special admissions considerations, but UCLA was ordered to admit certain math graduate students who had previously been denied admission (Takagi, 1992). This historical context is indicative of how the topic of college admissions and Asian Americans has been a complicated and sensitive issue within the community for decades.

In more recent years, divides within the community have been increasingly apparent. A major shift occurred in California in 2014, when a coalition of primarily

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[10]From the 1970s to the present day, Asian Americans may be considered eligible for race-conscious programs and admissions depending on the context of the institution. For instance, the University of Wisconsin system gathers data not just on students' racial identification, but also on their ethnic identification, allowing the institution to be aware of the unique issues affecting educational opportunity for students from Southeast Asian American populations.

Chinese American recent immigrants launched an attack against State Constitutional Amendment 5 (SCA-5), which would have repealed Proposition 209 (which had prohibited affirmative action) in higher education institutions. In the same year, Edward Blum, who coordinated the plaintiff's case in *Fisher I* and *Fisher II*, specifically sought out Asian American plaintiffs to launch a high-profile lawsuit against Harvard University. Since these events, coalitions of Asian American groups have launched public campaigns both in support of and in opposition to race-conscious admissions. Both sides also filed amicus briefs in the *Fisher* cases, and a brief filed by the Asian American Legal Education and Defense Fund in support of the University of Texas was cited in Justice Kennedy's majority opinion in *Fisher II* (2016) to argue that there was no evidence of discrimination against Asian American applicants at UT Austin.

Asian American groups opposing affirmative action have relied heavily on a misinterpretation of statistical analysis from Espenshade and Radford's (2009) study of the admissions processes at selective institutions, which found that, on average, Asian Americans had SAT scores that were about 140 points higher than those of White students. Frequent references to Espenshade and Radford's study neglect the fact that it is based on analysis of standardized admissions metrics (e.g., SAT, GPA, class rank), which only represent a fraction of the factors and experiences that admissions officers consider at selective institutions. Espenshade himself has acknowledged that his work is not conclusive evidence of discrimination against Asian Americans (Jaschik, 2009). Anti-affirmative action advocates also neglect Espenshade and Radford's (2009) finding that selective colleges and universities give significant preference to low-income and working class Asian Americans at private institutions, challenging the perception that Asian Americans are uniformly disadvantaged by race-conscious admissions policies.

Asian American groups that have supported affirmative action point to three factors to make their case: (a) the continued need for race-conscious admissions for both certain Asian Americans and underrepresented students of color more generally; (b) the fact that Asian American (and all) students benefit from engaging in a racially diverse student body; and (c) the idea that *negative action* is distinct from affirmative action. Negative action refers to the phenomenon where Asian American applicants are disadvantaged in the admissions process when compared to White applicants who are equally qualified (Kang, 1996). Interestingly, the anti-affirmative action wing of the Asian American population has identified negative action as a reason to reject race-conscious admissions, while Asian American supporters of affirmative action have recognized it as a distinct issue that does not undermine the continuing need for such policies (Park & Liu, 2014).

In either case, the identification of negative action is challenging (Park & Liu, 2014). It is relatively easier to spot in cases like 1980s UCLA admissions decisions that were heavily reliant on quantified metrics (e.g., GPA and SAT scores) and specific numbers of available slots. In contrast, it is more challenging to diagnose in the current era of holistic admissions where institutions rely on a much wider array of traits to identify talent. Even extracurricular activities, leadership positions, and teacher recommendations are not necessarily quantifiable, as admissions officers

seek to understand students' academic, social, and leadership accomplishments in the context of their opportunities to achieve, as well as students' ability to contribute to the richness of the student body community.

In an era where admissions rates at the most selective institutions are in the single digit range, the oversupply of qualified applicants as measured by quantified metrics far exceeds the number of slots available; hundreds if not thousands of strong students—even those with near perfect test scores and stellar records—will be rejected. Thus, comparisons between admit rates for various groups based solely on quantified metrics are insufficient in diagnosing negative action. It is also important to recognize that negative action may exist even in the absence of affirmative action. The common conflation of negative action and affirmative action divides communities of color, making some Asian Americans hesitant to support affirmative action because they see it as responsible for negative action. Although negative action is still worthy of attention, it is important to address it as an issue distinct from affirmative action (Kang, 1996).

Altogether, this discussion highlights how undergraduate admissions research and practices concerning Asian Americans represent numerous tensions in the affirmative action debate, shifting the conversation in ways that previous, underqualified White plaintiffs were less able to do. The discussion points to important questions that are deserving of inquiry: What do fairness and equality look like when there is an overabundance of students who meet standardized admissions criteria? How can admissions officers identify the context for educational opportunity without consideration of race/ethnicity? What element of admissions is somewhat arbitrary when market forces have contributed to an oversupply of "qualified" students and yet the most coveted, selective institutions have admission rates in the single digits? How might race-conscious admissions policies actually open the door for Asian Americans who do not fit the mold of the perfect 1600-SAT-score-achieving student? These questions further underscore the need for careful examination of the conception of merit—an examination that moves beyond a view of merit as objective and unbiased, to one that addresses contextual factors affecting educational opportunity, racism, and institutional context (Park & Liu, 2014).

2.5.3   Advancing Inquiries That Promote Interest Convergence Expansion by Generating Power Among Communities of Color

2.5.3.1   A Strategic Racial Equity Framework

A strategic racial equity framework can help guide how educational policies are framed and enacted toward racial equity in light of a current period of retrenchment, which we summarized in Part II. Such a framework combines a range of concepts and strategies including racial literacy, intersectionality, community organizing, and opportunity hoarding—the practice of dominant group members regulating the

distribution of resources in ways that ultimately restrict nondominant group members from gaining full access to such resources (DiTomaso, 2013; Lewis & Diamond, 2015). The strategic racial equity framework benefited from the interventions of CRT and its intellectual lineage (see Yosso & Solórzano, 2005) as well as from CRP-Ed. While drawing from different literature, it provides an approach that is similar to CRP-Ed, with principles that overlap with and compliment its key tenets. Nonetheless the strategic racial equity framework is uniquely beneficial in that it hones in on guiding research focused on advancing policies toward racial equity within existing legal parameters. In other words, it can be viewed as a specialized and practical application of CRP-Ed, with the potential for supporting scholars with a developing critical consciousness. The framework encompasses three basic principles: (a) attending to the dynamic relationship among power, race, and identities; (b) actively naming and addressing hidden contributors to inequity; and (c) generating power among marginalized communities of color toward transformative policies (Garces & Gordon da Cruz, 2017).

The first of these principles—*attending to the dynamic relationships among power, race, and identities*—is related to the above-mentioned areas of dynamic diversity and intersectionality, which can inform policy within legal parameters. Rather than deny a focus on race, which legal decisions have encouraged, Garces and Gordon da Cruz (2017) proposed what legal scholar Lani Guinier (2004) termed *racial literacy*, so that we understand race as dynamic and in relationship with fluid identities and access to power. Guinier (2004) argued that to be racially literate in our current context is to simultaneously not lose sight of race and not *only* focus on race. Consequently, to be racially literate is to "interrogate. . .the dynamic relationship among race, class, geography, gender, and other explanatory variables" (p. 115). Further, Guinier noted, racial literacy stresses the relationship between race and power; power—or, in her words, agency—is both an individual phenomenon as well as connected to larger environmental and institutional factors that influence an individual's capacity to exercise this agency. A racial literacy lens requires a focus on dynamic shifting identities—including race—and the relationship between these identities and the power to access opportunities and resources. The concept of *intersectionality*, already discussed at length, provides a helpful lens for research and policies that promote racial literacy with a focus on these dynamic shifting identities (Crenshaw, 1991; Hill Collins, 2000; Núñez, 2014a, 2014b).

The second principle of the framework—*actively naming and addressing hidden contributors to inequity*—is connected to racial equity. This principle is similar to the CRP-Ed tenet focused on redefining dominant systems in order to act in counterhegemonic ways and to challenge dominant narratives (Jayakumar & Adamian, 2015a). It emphasizes that countering a colorblind framework in education requires naming and addressing the hidden (and not-so-hidden) policies and practices that contribute to and perpetuate racial inequity. Specifically, this principle calls for: (a) actively naming the social and historical contexts that shape current events and policies; (b) making explicit the advantages afforded to Whites based on laws, policies, and cultural practices; and (c) developing language and other tools for naming privilege and advantage. Research studies might use this principle to guide

studies that document the racialized implications of so-called race-neutral approaches in educational policies and practices.

In addition to naming and addressing the policies and practices that sustain inequity (such as exposing the racialized dimensions of approaches that are purportedly race-neutral under a legal definition), a strategic racial equity framework is focused on the importance of *generating power among historically marginalized communities of color* to enact transformative policies in education. This principle reflects a practical application of CRP-Ed, which recognizes that the power of individuals from oppressed communities can be a source of transformation potential (Jayakumar & Adamian, 2015a). As such, the framework focuses on generating power among communities that have historically been marginalized in an attempt to minimize the inevitable compromises that happen as a result of interest convergence as traditionally conceived (e.g., interests across Black and middle- or upper-income White communities within a hegemonic system). This principle is particularly relevant at present, when dominant narratives are aimed at dividing communities of color.

2.5.4   Advancing Racial Equity-Minded Inquiry That De-centers Whiteness

Another area that we believe is critical to the future of diversity research is the legacy of institutional environments that put Whiteness at the forefront, and the responsibility of institutions to their students in this regard. Challenging the co-optation of diversity discourses on campus requires advancing inquiry that addresses the legacy of institutional environments that center Whiteness and individualism. Bensimon's (2004, 2007) groundbreaking work on equity-mindedness advanced the notion of how standard post-positivistic research practices reinforced deficit-minded, individualistic notions around students—that individual students were largely responsible for their achievement, and that institutions had little control or ability to change their environments to support racially and economically diverse student bodies. Her work drew attention to the surrounding layers of inequality that permeate what goes on within institutions, as well as the influence on students and their ability to thrive. Likewise, other scholars have highlighted the legacies of institutional environments that center Whiteness—and with it, an individualistic paradigm in which structural forces are either dismissed or ignored (see, for example, Ahmed, 2012; Cabrera, 2014; Warikoo, 2016). Thus, we suggest that a future priority for advancing the diversity research agenda is a focus on how institutional environments advance or discourage equity alongside the pursuit of diversity.

Central to understanding the impact of institutional environments is Ledesma's (2016) work reframing traditional understandings of campus climate as negative or positive. Earlier approaches to climate research have emphasized the achievement of a positive or "warm" climate, but climate may vary within a single institution, or

such a climate may never be truly achieved. Climate is a constantly dynamic state that requires careful attention. Indeed, studies of institutional environments highlight how institutions that have been lauded for innovative work in the area of diversity and equity can later experience significant difficulties due to the ever-changing influence of state and federal policy (Garces & Cogburn, 2015). Thus, rather than encourage an approach that assesses campus climate as singularly chilly or warm, Ledesma argued for a health metaphor—an approach that can help individuals understand that an entity may have areas of well-being that co-exist with areas of sickness, frailty, or risk. This approach to assessing climate, that includes an understanding of how health is a constantly changing state, is a helpful tool to assess the climate for diversity and equity.

Ledesma (2016) made a strong case for moving beyond simply increasing racial representation to cultivate healthy climates that address reluctance to acknowledge White discomfort and the negative emotions that can occur with race talk and the decentering of White privilege. In higher education—as Gutierrez (2006) noted in the K–12 domain a decade ago—there is an urgent need to articulate and address how problematic notions of White innocence and safety are protected at the expense of students of color. It is no longer sufficient to tangentially incorporate this analysis, particularly in increasingly racially diverse schooling environments. Similarly, building on Leonardo's (2009) work, Cabrera and colleagues (2016) questioned the popular conceptualization of "safe spaces" in diversity work—as we noted earlier, these spaces protect White innocence and colorblind racism, and are in fact unsafe for students of color.

White students' comfort, safety, and positive self-perceptions are protected in schooling environments that largely center Whiteness and meritocracy (Cabrera et al., 2016; Leonardo & Porter, 2010; Lewis, 2001; Unzueta & Lowery, 2008). White college students are often protected from confronting their own racial biases and assumptions. This is particularly true at TWIs, where White students experience high levels of (White) racial isolation (Jayakumar, 2015b; Warikoo & de Novais 2014) and where colorblindness has been extensively documented (e.g., Bobo, Kluegel, & Smith, 1997; Bonilla-Silva, 2014; Cabrera, 2014; Forman & Lewis, 2015; Kinder & Sanders, 1996; Lewis et al., 2000; Picca & Feagin, 2007). Thus, when Whites do have experiences in which Whiteness is made salient, they experience *racialized vulnerability*, defined as unease based on perceived control and protection against various threats to integrity and personhood, which are shaped by dominant or marginalized racial identity statuses (Jayakumar, 2015a). In contrast, students of color tend to experience high race salience and consistently experience (and have built up resistance toward) racialized vulnerability brought on by tokenism, microaggressions, stereotype threat, and racism in schooling and society (Jayakumar, 2015a). Nonetheless, as Leonardo and Porter (2010) pointed out, racial dialogues and spaces at large entail a level of emotional violence towards students of color. A healthy racial climate is one in which racialized vulnerability and violence are minimized for students of color, and where productive racialized vulnerability is nurtured for White students, toward the development of anti-racist and humanizing identities and relationships.

As White students navigate shielded TWI campus environments, they are absolved of confronting their role as actors and beneficiaries in the perpetuation and maintenance of institutional racism. Protecting White students from engaging with such discomfort stifles their ability to situate themselves where they can endure the pain and discomfort that arise in the face of race and racism (Cabrera et al., 2016; DiAngelo, 2011; Leonardo & Porter, 2010). DiAngelo (2011) identified Whites' inability to deal with the stressors that come with confronting racism as *White fragility*. She explained, "These moves include the outward display of emotions such as anger, fear, and guilt, and behaviors such as argumentation, silence, and leaving the stress-inducing situation" (p. 54). Furthermore, White fragility engenders racial apathy, defined as a "lack of care about racial inequity and the related belief that there is no need to intervene to address racial inequality" (Forman & Lewis, 2015, p. 1417).

More alarming, White students' racial apathy has been on the rise in the last 25 years (Forman & Lewis, 2015), as racial attitudes have not only shifted from overt to covert forms of racism (Forman, 2004; Forman & Lewis, 2006, 2015; Samson & Bobo, 2014) but are developing in a more complex manner. As such, the performance of colorblind ideology is more nuanced and insidious. For example, recent research (Jayakumar & Adamian, 2017) documents an emerging fifth frame of colorblind ideology—the disconnected power-analysis frame— that represents an adaptation of colorblindness to contexts wherein race salience and fragility are heightened for White students. With these challenges in mind, diversity research connected to racial equity must work to address the prevalence of White fragility and colorblind ideology within diversity infrastructures and across campus.

2.5.5 Advancing Inquiries That Are Mindful of the Possibilities and Limitations of Quantification in Diversity Research and the Potential of Innovative Research Methods

In line with a CRP-Ed approach, it is important to think not only about the content of the inquiries we have just outlined, but also the methods we will use in future research—particularly, what they will illuminate and where they will have blind spots. When it comes to diversity, future research may consider both the limitations and possibilities of the quantification of merit, as well as the benefits linked with engagement with racial diversity. The aforementioned co-optation of Espenshade and Radford's (2009) work to promote the misconception that Asian Americans need certain SAT scores to be admitted to selective institutions is a powerful example of how the quantification of merit in statistical analyses can lead to information that is too easily misinterpreted and misconstrued by the public. In this example, analyses that primarily relied on limited indicators of merit such as SAT scores and GPAs to predict the odds of acceptance led to problematic

conclusions about the nature of admissions and the ability to predict one's likelihood of acceptance.

At the same time, quantitative analyses can still serve as a powerful tool to challenge assumptions around the effectiveness of various approaches to admissions. As noted earlier, using agent-based simulation models, Reardon et al. (2015) found that simulations where both race and class were considered produced more economic diversity than simulations where class alone was weighed strongly and race was not considered at all as a "plus" factor. Their findings, while counterintuitive, are helpful in showing how class-alone policies fail to capture the full extent of economic disadvantage due to the unique intersectionality between race and class. The use of quantitative methods in admissions simulations can lead to misinterpretation when variables that influence admissions decisions, such as essays, teacher recommendations, and the quality of extracurricular involvement, are omitted. In contrast, Reardon et al.'s (2015) analysis is arguably more effective because it is able to compare numerous simulations with scenarios that give different weights to race and class, respectively, while operating under the assumption that less quantifiable factors (e.g., essay quality) would be held consistent.

Thus, an ongoing recommendation for future quantitative analyses is that they simply be qualified and contextualized—that researchers have a responsibility to explain what implications can be drawn from their results and what conclusions are less appropriate or unsubstantiated in the data. Of course, it may be difficult to anticipate all of the potential assumptions or implications of a study, but we suggest that researchers should be cognizant that this work is all too easily politicized or co-opted for purposes beyond original intent. The growing visibility of critical quantitative analyses in higher education (Carter & Hurtado, 2007; Stage & Wells, 2014) also raises questions around paradigms and approaches utilized by quantitative research—whether post-positivism really results in a "do no harm" ethic, or whether post-positivism without sensitivity to diverse populations may perpetuate deficit perspectives or false understandings of the experiences of people of color.[11]

Baez (2004) powerfully recognized the limits of quantification, in particular to capture the educational benefits of diversity. In "The Study of Diversity: The 'Knowledge of Difference' and the Limits of Science," he noted how a heavy reliance on quantitative research implicitly or explicitly narrowed the public's ability to value easily quantifiable educational benefits, which could lead to a devaluing of traits that are more difficult to capture through survey instruments, but that are no less critical to the development and flourishing of students. Quantitative, qualitative, and mixed-methods work can all play a critical role in capturing the multifaceted ways that students engage with diversity, as well as identify inequities and injustices that may be perpetuated in its name. Ethnographic work in particular has highlighted

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[11]Post-positivism is the implicit paradigm guiding the majority of quantitative research. Unlike its predecessor, positivism, it rejects the complete detachment and conviction that absolute truth can be found. Post-positivism generally adheres to the idea that researchers can identify cause-and-effect relationships, that truth is more objective and standardized (versus subject to interpretation), and that objectivity and detachment are ideal stances for approaching research (Creswell, 2013).

the influence of pervasive systematic inequality on well-intentioned efforts to promote diverse and inclusive environments (see, for example, Park, 2013; Posselt, 2016; Warikoo, 2016). Methods such as critical discourse analysis represent promising tools to advance the study of race, racism, diversity, and equity (Goldstein Hode, 2014).

The emerging study of social networks and social ties (Clarke & antonio, 2012; González Canaché, D'Amico, Rios-Aguilar, & Salas, 2014; McCabe, 2016), which seeks to understand the interconnectedness of students within particular networks, is another area ripe for better understanding how peers influence individuals' interactions across racial and ethnic lines. In particular, the role of subcultures and peer groups can help elucidate dynamics that have previously been assumed to be more related to individual student choice and agency (Clarke & antonio, 2012; Park & Kim, 2013). Research using the subculture as the primary unit of analysis also unveils patterns such as how participation in ethnic student organizations is actually linked with higher rates of cross-racial interaction for students, including students of color (Bowman & Park, 2014), challenging the assumption that such communities contribute to the negative balkanization of campuses.

Studies of social networks and connections are among the first to take on the overwhelming but critical question of how technology and social media influence student interactions and engagement (Davis, Deil-Amen, Rios-Aguilar, & González Canaché, 2015). Given that the very nature and understanding of what constitutes "interaction" is subject to constant evolution due to the pervasiveness of social media (Park, Buckley, & Koo, 2017), innovative methods and approaches to studying how this type of technology influences racial dynamics is greatly needed. Additionally, creative methods are needed to account for the limitations of self-reported data in patterns of cross-racial interaction and interracial friendships. While techniques like name recall represent an improvement over self-reports, the rise of technology and social media also represent potential opportunities for researchers to mine data on student engagement across race.

2.6   Conclusion

Diversity scholarship has a long history with ties to particular legal contexts. This history has created particular agendas and approaches that have not always effectively served a racial justice agenda. A more critical awareness of how diversity discourses are being diluted and diminished can support future scholarship that actively challenges the co-optation of the initial diversity agenda and the long-term radical hope rooted in the policies that preceded it, including race-based affirmative action. Researchers must focus in on particular analyses that address outstanding questions in legal strategy and issues raised by the U.S. Supreme Court in dissenting opinions and by swing vote Justices; they must challenge the co-optation of diversity in both the legal and institutional policy contexts. But

diversity scholars must also "zoom out" for the larger view and operate with a critical consciousness about the hegemonic social and legal context shaping the debate.

It is essential that diversity scholars not lose sight of the broader roots of racial inequalities in higher education and the mechanisms that have created the need for affirmative action in the first place, including traditional notions of meritocracy and admissions metrics, a legacy of exclusion, and present day barriers to inclusion. Research that seeks to inform and agitate the policy debate about race-conscious practices and institutional diversity discourses can be impactful. However, as a CRP-Ed approach reminds us, this work involves negotiating within contradictions and must be guided by a critical consciousness about hegemonic forces at play (Jayakumar & Adamian, 2015a). It also requires an understanding of how reliance on interest convergence is limiting, wherein incremental racial progress is met with co-optation and dilution of the concessions made by those in power (Bell, 1980; Garces & Gordon da Cruz, 2017; Jayakumar & Adamian, 2015a).

As we discussed in Part I of this manuscript, early diversity research was advocacy-oriented and strategic. Although it had a limited role in advancing racial justice, it contributed toward desegregating postsecondary institutions. As the agenda became institutionalized, however, it was employed for other purposes and diluted when it came to racial justice. Thus, in Part II of this manuscript, we discussed how this progression unfolded, using the lens of interest convergence to name the challenges of advancing racial equity within the affirmative action debate. Just as scholars who initiated the body of work on diversity contemplated how to inform the different legislative and policy decisions leading up to the *Grutter* (2003) and *Gratz* (2003) Supreme Court cases, future scholars can advance the work by addressing the watered down conception of diversity that has taken hold and the current political climate of racial backlash and colorblind interpretations of the law.

Recognizing and leveraging resistance, consciousness raising, and grassroots efforts that generate interest convergence expansions can help to push policy conversations around diversity and race in more critical directions (Jayakumar & Adamian, 2015a). Future diversity research must strategically recognize interest convergence (including both constrictions and expansions), and advance areas of inquiry that can be useful for expanding knowledge and leveraging advocacy across multiple spheres of influence—including the legal paradigm and institutional policy constraints—to the root mechanisms that support problematic institutional policies and practices (e.g., admissions and notions of meritocracy), to understandings of diversity that recognize and benefit from critical race critiques and increased public consciousness about racism that is generated by grassroots efforts. This approach can actualize the initial intent and fulfill the promise of diversity research to inform and generate more racially equitable policies and practices in higher education.

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Chapter 3
Inventorying the Scholarship of Teaching and Learning Literature

John M. Braxton, Clay H. Francis, Jenna W. Kramer, and Christopher R. Marsicano

In his 1990 volume *Scholarship Reconsidered: Priorities for the Professoriate*, Boyer delineated the importance of expanding the definition of scholarship beyond the predominate emphasis on the scholarship of discovery to include three other domains of scholarship: the scholarships of application, integration, and teaching. Of the four domains, the scholarship of teaching invokes the most attention in the literature (Braxton, Luckey, & Helland, 2002).

This scholarly attention includes such matters as defining the goals and objectives of the scholarship of teaching, offering conceptual perspectives on this domain of scholarship, and determining the extent to which faculty publish scholarship reflective of this scholarship domain. In addition to Boyer (1990), scholars such as Rice (1991), Hutchings and Shulman (1999), Kreber (2002) and Braxton et al. (2002) offer viewpoints on the goals and objectives of the scholarship of teaching. To provide some direction in this matter, Braxton et al. (2002) posit the goal of the scholarship of teaching as the development and improvement of pedagogical practice. Moreover, Hutchings and Shulman (1999) assert that the scholarship of teaching is a process through which the profession of teaching itself advances as it transpires with one eye on improvement of one's own teaching and the other on the practice of teaching. Hutchings and Shulman also posit that the scholarship of teaching requires a focus on student learning by addressing such questions as how

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learning occurs and under what conditions students learn. These questions link teaching and learning, which gives rise to the term SOTL, or the Scholarship of Teaching and Learning.

Conceptual perspectives on the scholarship of teaching and learning include formulations that situate this form of scholarship within the context of social action systems. Paulsen and Feldman (1995) contend that scholarship constitutes a social action system. For their existence and effectiveness, social action systems require the performance of four functional imperatives: adaptation, goal attainment, pattern maintenance, and integration (Parsons & Smelser, 1956; Parsons & Platt, 1973). Paulsen and Feldman posit the scholarship of teaching as performing the functional imperative of adaptation of scholarship as a system of social action. Adaptation entails interactions with the external environment to acquire resources to develop and maintain the social action system (Parsons & Platt, 1973). The scholarship of teaching contributes to adaptation by exchanging the transmission of knowledge for student enrollments (Paulsen & Feldman, 1995).

Moreover, Paulsen and Feldman (2006) extend this earlier work by conceptualizing the scholarship of teaching as a distinct system of social action. They present a model of the scholarship of teaching and learning as social action systems comprised of aspects of teaching that perform each of the four functional imperatives previously delineated (Paulsen & Feldman, 2006). Paulsen and Feldman present this model as an analytical framework for the clarification, organization and discussion of the literature of the scholarship of teaching and learning.

Further conceptual approaches to the scholarship of teaching and learning include Weimer's (2006) *Enhancing Scholarly Work on Teaching and Learning: Professional Literature that Makes a Difference.* In this landmark book, Weimer delineates a classification schema to array published work on the scholarship of teaching and learning, or as she puts it, "pedagogical scholarship" (p. 39). Through her own reading and analysis, Weimer delineates various approaches used by practitioners to describe and understand teaching and learning in the published literature on this topic. She contends, "To advance our understanding of scholarly work on teaching and learning we need many thoughtful perspectives on its structure (Weimer, 2006, p. 40)". In a subsequent section of this chapter, we describe the various approaches delineated by Weimer (2006).

On a more concrete level Braxton et al. (2002) empirically addressed the question of the extent to which faculty publish works associated with each of the four domains of scholarship delineated by Boyer including the scholarship of teaching. Another empirical piece focused on the institutional affiliations of faculty members who published articles in four teaching-focused journals (Henderson & Buchanan, 2007). Weimer's (2006) work described above also constitutes an empirical treatment of the scholarship of teaching and learning as she provides examples of published works that exemplify the approaches to classifying such scholarship she identified.

Beyond such macro-level attention to the scholarship of teaching and learning, discipline-specific interest in the Scholarship of Teaching and Learning (SOTL) has been one of the major driving forces behind this field's growth (Healey, 2000), but there are few broad, cross-discipline investigations into the nature of the types of

scholarship that are published in this literature. Instead, most of the literature still focuses on setting the boundary for what is considered to be SOTL or what the implications of SOTL should be (Gilpin & Liston, 2009). Additionally, Gurung & Schwartz (2010, p. 3) argue that SOTL research has entered its third wave, and as such, there exists a "need to situate all the myriad studies of pedagogical research in a common context." In short, researchers in the SOTL community should ask, "what kinds of research are being pursued, where is this research heading, and why [?]" (Woodhouse, 2010, p. 5).

SOTL researchers in some disciplines—namely sociology—have endeavored to review the work in their field and classify the types of scholarship. Paino, Blankenship, Grauerholz, & Chin (2012) reviewed 25 years of articles in *Teaching Sociology* to update and extend research by Baker (1985) and Chin (2002) on whether the sociology SOTL literature included empirically rigorous evaluations, who was publishing SOTL articles, and whether there was a focus on assessment.

More than 25 years have transpired since the publication of Boyer's (1990) *Scholarship Reconsidered: Priorities for the Professoriate* and more than 10 years have passed since the publication of Weimer's *Enhancing Scholarly Work on Teaching and Learning: Professional Literature that Makes a Difference* (2006). The number of teaching-focused journals also now approximates 50 journals. These particulars strongly indicate a need to take stock of the literature on the scholarship of teaching and learning. In addition to these particulars, the calls for such stocktaking by scholars such as Paulsen and Feldman (2006) and Weimer (2006) reinforce the need for such an appraisal of the SOTL or as Weimer calls it "pedagogical scholarship."

We contend that the first step in such a stocktaking process should take the form of an inventory of the SOTL literature. An inventory of this literature should precede efforts to summarize the contents of this literature given the uncertain properties of this body of work. Consequently, an inventory of the literature of the scholarship of teaching and learning (SOTL) or pedagogical scholarship constitutes the purpose of this chapter. We use the terms SOTL and pedagogical scholarship interchangeably throughout this chapter.

3.1 Chapter Overview

This inventory takes the form of a review of articles published over a span of 5 years between 2012 and 2016 in four teaching-focused journals. The four journals we reviewed include *Bioscience*: *Journal of College Biology Teaching* (biology), *The Journal of Chemical Education* (chemistry), *Teaching History* (history) and *Teaching Sociology* (sociology). We reviewed only articles focused on undergraduate instruction in higher education. We did not review editorials, letters, news items, or other similar types of writings. The four academic disciplines represented by these four journals correspond to the four academic disciplines used by Braxton et al. (2002) in their research on faculty engagement in Boyer's four domains of

scholarship including the scholarship of teaching. Academic disciplines vary in terms of their level of consensus on such matters as theoretical orientation, research methods, and the importance of various research questions to the advancement of the discipline (Biglan, 1973; Kuhn, 1962, 1970; Lodahl & Gordon, 1972). Biology and chemistry stand as high consensus disciplines whereas history and sociology constitute low consensus disciplines. However, all four of these disciplines are pure in their orientation (Biglan, 1973).

From their extensive review of the literature on academic disciplines, Braxton and Hargens (1996) concluded that low consensus disciplines are more oriented toward teaching than their counterparts are in high consensus disciplines. This greater orientation toward teaching finds expression in more time spent on teaching, a greater interest in teaching, and an affinity for teaching activities and practices designed to improve undergraduate education (Braxton, 1995; Braxton & Hargens, 1996; Braxton, Olsen & Simmons, 1998). A recent update of this research—using student perceptions instead of faculty self-reports of use of good practices—similarly concluded that students in low consensus disciplines report greater faculty use of prompt feedback and setting high expectations than those in high consensus disciplines; however, students also reported that faculty in high consensus disciplines make greater use of cooperative learning than their counterparts in low consensus disciplines (Kilgo, Culver, Young & Paulsen, 2017). Given such disciplinary differences, the articles published in these four teaching-focused journals may differ according to their approach to the scholarship of teaching and learning.

We restrict this inventory to a classification of the articles we reviewed in the above four teaching-oriented journals over the 5-year period from 2012–2016. Given that an inventory stands as the purpose this chapter, we do not engage in the scholarship of integration, as we do not place the content of these articles into a larger intellectual pattern (Boyer, 1990) nor do we integrate the content of these articles into a large body of concepts and facts (Halpern et al., 1998). The outcome of this inventory should provide scholars with the foundation for engagement in a scholarship of integration of such content. In the next section, we describe the process we used to classify the articles we reviewed.

3.1.1   The Classification of the Articles

We previously noted that Weimer (2006) demarcates approaches to describe and understand the published literature of pedagogical scholarship. She makes a distinction between "wisdom of practice scholarship" and "research scholarship". Weimer states that wisdom of practice scholarship emanates from the experiences of practitioners as "faculty learn about teaching as they teach" (2006, p. 40). She delineates four different approaches to wisdom of practice scholarship: personal accounts of change, recommended-practices reports, recommended-content reports, and personal narratives (Weimer, 2006). In contrast, research scholarship entails the

use of "established research protocols" to study teaching and learning (Weimer, 2006, p. 42). Research scholarship includes quantitative investigations, qualitative studies and descriptive research (Weimer, 2006).

In order to ensure reliable classification of articles in our content analysis, the coding authors worked collaboratively to ensure a systematic classification of elements of text. After the development of an initial template based on the wisdom-of-practice scholarship and research scholarship approaches described by Weimar (2006), we calculated inter-coder reliability estimates for individually-coded articles across the journals. Initial reliability was not up to standard, so the template was edited to be more specific (Tables 3.1a and 3.1b), in order to allow for standardized review and classification of the article and analysis types. We derived the characteristics and words, phrases, and operatives based on the texts of the articles that we had coded and discussed to that point. Our reading was guided by the questions: What does the author intend for other faculty to learn from this article? How did they analyze data in order to arrive at these recommendations?

The various classifications for type of article include Personal Account of Change, Recommended-Practices Report, Recommended-Content Report, and Personal Narrative. In a Personal Account of Change, the author describes a change to a curricular or pedagogical policy or practice (Weimer, 2006). Recommended-Practices Reports describe instructional methods for a course or discipline (Weimer, 2006). A Recommended-Content Report endorses particular topics, readings, or units for other faculty members to include in their courses (Weimer, 2006). In Personal Narratives, authors reflect upon their teaching with a critical eye toward their practice and content (Weimer, 2006). Table 3.1a exhibits the words, phrases, and operatives the coding team used to classify an article into one of these four types of articles.

These types of articles employed a number of distinct methods of analysis, including quantitative, qualitative, and mixed methods analyses, as well as descriptive reporting, literature reviews, and personal reflection. Quantitative analyses leveraged experimental or quasi-experimental design in order to estimate the effect of practice or content (Weimer, 2006). Qualitative analyses examined phenomena in their natural environments and employed analyses in a positivist or interpretative manner (Weimer, 2006). An article was coded as mixed methods when it employed both quantitative and qualitative methods of evaluation. Descriptive articles used data in general and survey data in particular to describe phenomena in a non-evaluative way (Weimer, 2006). Literature reviews compiled and commented on the extant literature on practice or content. Personal reflection articles detailed the authors' impressions or interpretations of practice or content in a non-empirical fashion. Table 3.1b presents the words, phrases, and operatives the coding team used to classify an article into one of these six types of analyses.

In addition to type of article and type of analyses, we also classified articles according to their topical focus. We derived various topics from the delineation of publications reflective of the goals of the scholarship of teaching by Braxton et al. (2002). These focal topics include a new teaching approach developed by the author and alterations to a teaching approach. After initial coding, the coding team edited

for specificity and added a number of subcategories to give more specificity to the elements of the various topical foci of the articles for classification.

As indicated by Tables 3.1a and 3.1b, our classification constitutes a refinement of Weimer's (2006) classification schema. Both the types of articles and types of analyses stand as refinements.

Table 3.1a Characteristics utilized for classification of study type

Type of article			
Personal account of change	Recommended-practices report	Recommended-content report	Personal narrative
Characteristics			
Description of change in policy or practice.	Recommends instructional methods for a course or discipline.	Recommends content for a particular course or discipline.	Reflective or critical account of growth or evolution. May take a position.
Words, Verbs, Operatives			
Adaptation	Pedagogy	Illustrate	Reflection
Application	Method	Demonstrate	Critique
Replication	Practice	Source	Growth
			Development
			Evolution
			Advocacy
			Emotions

Table 3.1b Characteristics utilized for classification of analysis type

Type of analysis					
Quantitative	Qualitative	Mixed methods	Descriptive	Literature review	Personal reflection
Characteristics					
Experimental or quasi-experimental design intended to estimate effect.	Examination of phenomenon in naturalistic setting. Data analyzed in positivist or interpretive manner.	Study employs both quantitative analysis and qualitative evaluation.	Data employed to report non-evaluative description of a phenomenon.	Compilation and critique of the extant literature. May take a position.	Non-empirical reflection of author on the subject of study.
Words, Verbs, Operatives					
Experiment	Interview		Survey	Existing	Impression
Quasi-experiment	Focus group		Non-evaluative	Body of literature	Interpretation
Pre-test/post-test	Observation		Describe	Status	Emotion
	Survey		Explain	Critique	

3.1.2   Inter-Coder Reliability

Based on the classification of the SOTL literature described above, we created a codebook with mutually exclusive categories for type of article and type of analysis. This codebook made use of Tables 3.1a and 3.1b. To ensure reliability among the three coders, we randomly sampled ten articles for review by all coders. Hallgren (2012) recommends the Fleiss's kappa statistic to measure the interrater reliability when there are more than two coders and the data are categorical (Fleiss, 1971). The measure of agreement was low in the first review, so the coders met to discuss and review the descriptions of the categories before randomly sampling another ten articles for review. In this second review, the Fleiss's kappa statistic for type of article was 0.497 and for the type of analysis, it was 0.713. This indicates that there was moderate agreement for the type of article and substantial agreement for type of analysis. During the coding process, the three reviewers held back any article that did not clearly fit into one of the categories, and we discussed as a group how to code those articles. Finally, one reviewer coded approximately 92% of the articles.

3.1.3   Description of Our Data Base

Our database consists of 425 coded articles. The number of coded articles ranges from a low of 14 for *Teaching History* to a high of 295 for the *Journal of Chemical Education*. We coded 18 articles published in *Bioscene* and 98 articles published in *Teaching Sociology*. The *Journal of Chemical Education* is published each month whereas *Bioscene* and *Teaching History* are published twice a year. *Teaching Sociology* appears quarterly.

3.2   An Inventory of SOTL Scholarship

Type of article, type of analyses, and the type of analysis juxtaposed to type of article provide a basis for the delineation of the inventory of the literature of pedagogical scholarship or the scholarship of teaching and learning. We also address variation across the four teaching-focused journals by the type of article, the type of analysis, and the type of analysis juxtaposed to type of article. Because of Boyer's (1990) prescriptions for institutional emphasis on the scholarship of teaching, we also attend to the institutional affiliation of the first author of the coded articles by the type of article and across the four teaching-centered journals. We used the categories of the

2015 Carnegie Classification of Institutions to demarcate the institutional affiliation of the first author.

3.2.1   Type of Article

Recommended-Practices Reports prevail as the most frequent type of article appearing across the four teaching-focused journals used in this Inventory. Recommended-Practices Reports advocate instructional methods for a course or an academic discipline (Weimer, 2006). Weimer refers to this type of article as "advice-giving" (2006, p. 41). As indicated by Table 3.2, more than two-thirds (64.00%) of the articles coded stand as a recommended-practice report. Recommended-Content reports constitute the second most frequent type of article given that 29.00% of all articles coded fit this category of types of articles. The type of article recommends content for a particular course or academic discipline (Weimer, 2006). Table 3.2 also shows that personal narratives (3.00%) and personal accounts (2.00%) of change rarely appear.

This same pattern of frequencies obtains when we look at the type of articles published in each of the four SOTL journals. Table 3.3 shows that recommended-practices reports predominate in three of the four SOTL journals. Specifically, over

Table 3.2 Types of articles for all journals

Personal account of change	8 (2%)
Recommend-practices report	271 (64%)
Recommend-content report	124 (29%)
Personal narrative	10 (2%)
None of the above categories	12 (3%)
Total	425

Table 3.3 Types of studies for individual journals

	Bioscene	Journal of Chemical Education	Teaching History	Teaching Sociology
Personal account of change	1 (6%)	2 (1%)	1 (8%)	4 (4%)
Rrecommend-practices report	12 (61%)	191 (65%)	5 (36%)	63 (64%)
Recommend-content report	2 (11%)	93 (32%)	5 (36%)	24 (24%)
Personal narrative	1 (6%)	4 (1%)	2 (14%)	3 (3%)
None of the above categories	2 (11%)	5 (2%)	1 (8%)	4 (4%)
Total articles	18	295	14	98

Column percentages in parentheses

60% of the coded articles published in *Bioscene* (61.00%), the *Journal of Chemical Education* (65.00%) and *Teaching Sociology* (64.00%) stand as recommended practices reports. In contrast, more than a third (36.00%) of coded articles published in *Teaching History* are recommended-practices reports. Likewise, more than a third (36.00%) of the coded articles appearing in *Teaching History* stand as reports of recommended content. Moreover, about a third (32.00%) of articles published in the *Journal of Chemical Education* during the period of 2012 to 2016 and 24.00% of articles published in *Teaching Sociology* during this same period of time also prevail as recommended content reports. As indicated by Table 3.3, Personal Accounts of Change and Personal Narratives rarely appear in print in each of these four SOTL journals.

3.2.2 Type of Analysis

Weimer (2006) describes "research scholarship" as comprised of descriptive research, quantitative investigations, and qualitative investigations. For our analysis, we use these three categories of analysis, as well as literature review, personal reflection and mixed-methods. We acknowledge that mixed methods stands as a form of research scholarship. However, to be consistent with Weimer's depiction of "research scholarship" we do not include mixed methods within this category of types of analyses in our presentation of findings regarding types of analyses.

As indicated by Table 3.4, research scholarship (descriptive research, quantitative investigations, and qualitative investigations) dominates given that 81% of analyses used fit this category of analysis. More specifically, descriptive research constitutes the most frequently occurring type of analysis across the four SOTL journals as 63% of all coded articles used this type of analysis. Descriptive research analyses endeavor to describe or explain a particular phenomenon based on an analysis of survey results (Weimer, 2006). Weimer states that descriptive research stands as the "largest and most well-developed type of analysis" (Weimer, 2006, p. 43). Analyses that employ experimental or quasi-experimental designs constitute quantitative analyses. This particular type of analysis (11%) stands as the next most frequent type of analysis. Moreover, we also note that personal reflection occurs less

Table 3.4 Types of analyses for all journals

Quantitative	45 (11%)
Qualitative	31 (7%)
Mixed methods	19 (4%)
Descriptive	269 (63%)
Literature review	11 (3%)
Personal reflection	36 (8%)
None of the above categories	14 (3%)
Total	425

Table 3.5 Types of analyses for individual journals

	Bioscene	Journal of Chemical Education	Teaching History	Teaching Sociology
Quantitative	6 (33%)	28 (10%)	0	11 (11%)
Qualitative	0	13 (4%)	0	18 (18%)
Mixed methods	4 (22%)	4 (1%)	0	11 (11%)
Descriptive	6 (33%)	226 (77%)	0	37 (38%)
Literature Review	0	10 (3%)	1 (8%)	0
Personal reflection	2 (11%)	9 (3%)	8 (57%)	17 (17%)
None of the above categories	0	5 (2%)	5 (36%)	4 (4%)
Total articles	18	295	14	98

Column percentages in parentheses

frequently (8%) as do qualitative methods (7%). And analyses using mixed methods (4%) and literature reviews (3%) occur the least frequently.

A different picture emerges when we consider the distribution of the types of analysis across each of the four discipline-specific SOTL journals. Table 3.5 exhibits this distribution. For example, descriptive analyses prevail in the coded articles of the *Journal of Chemical Education* as more than three-fourths (77%) of articles fit this description. In contrast, personal reflections dominate as the type of analysis found in *Teaching History* given that we coded 57% of the articles in this journal as such. We also note that 36% of the coded articles of *Teaching History* fail to fit any of the types of analyses. Personal reflections rarely occur in *Bioscene* (11%) and *The Journal of Chemical Education* (3%).

The type of analyses described in articles appearing in *Bioscene* and *Teaching Sociology* show more variation than the other two SOTL journals. To elaborate, Table 3.5 indicates that the modal percentage of articles published in *Bioscene* take the form of quantitative (33%) and descriptive (33%) type analyses. Mixed methods also account for 22% of such articles. More variation obtains in *Teaching Sociology* as the proportion of articles ranges from a low of 4% for articles that fail to align with any of the other categories of analyses through 11% for quantitative analyses to a high of 38% for descriptive analyses.

Literature reviews as a form of analysis occur rarely across the four SOTL journals. Specifically, none of the coded articles of *Bioscene* or *Teaching Sociology* used literature reviews as a form of analysis. Nevertheless, literature reviews appear but very infrequently (8%) in *Teaching History* and *the Journal of Chemical Education* (3%).

3.2.3   Type of Analysis Juxtaposed to Type of Article

Table 3.6 juxtaposes the type of article with the type of analysis employed. Table 3.6 shows that descriptive analyses predominate as the analytical foundation for

Table 3.6 Cross tabulations for type of study and type of analysis, full sample

	None of the above categories	Personal account of change	Personal narrative	Recommended-content report	Recommended-practices report	Total
None of the above categories	10	0	0	4	0	14
	83.33	0.00	0.00	3.23	0.00	3.29
Descriptive	0	2	5	78	184	269
	0.00	25.00	50.00	62.90	67.90	63.29
Literature review	0	0	0	10	1	11
	0.00	0.00	0.00	8.06	0.37	2.59
Mixed methods	0	0	0	4	15	19
	0.00	0.00	0.00	3.23	5.54	4.47
Personal reflection	0	2	5	10	19	36
	0.00	25.00	50.00	8.06	7.01	8.47
Qualitative	0	1	0	15	15	31
	0.00	12.50	0.00	12.10	5.54	7.29
Quantitative	2	3	0	3	37	45
	16.67	37.50	0.00	2.42	13.65	10.59
Total	12	8	10	124	271	425
	100.00	100.00	100.00	100.00	100.00	100.00
N	425					

Column percentages listed under proportions

recommended-practice reports given that more than two thirds (67.90%) of recommended-practice reports make use of descriptive analyses. Quantitative analyses (13.65%) or the use of experimental or quasi-experimental design stand as the second most frequent type of analysis used in recommended practice reports. As previously stated, Weimer (2006) viewed research scholarship as comprised of descriptive research, quantitative investigations, and qualitative investigations. If we combine these three types of analyses using the percentages exhibited in Table 3.6, the overwhelming majority (87.10%) of recommend-practice reports make use of research scholarship. In stark contrast, less than ten percent (7.01%) of recommended-practice reports spring from personal reflections. Descriptive analyses also prevail as the basis for recommended-content report. As indicated by Table 3.6 about two-thirds (62.90%) of recommended-content reports emanate from descriptive analyses. Moreover, like recommended practice reports, research scholarship (descriptive research, quantitative and qualitative investigations combined) provides the basis for the vast majority (77.42%) of recommended content reports. However, personal reflection infrequently (8.06%) underlies recommended content reports.

Tables 3.7, 3.8, 3.9, and 3.10 exhibit the juxtaposition of type of analysis for different types of articles for each of the four discipline-specific SOTL journals.

Table 3.7 Cross tabulations for type of study and type of analysis, *Bioscene*

	None of the above categories	Personal account of change	Personal narrative	Recommended-content report	Recommended-practices report	Total
Descriptive	0	0	1	1	4	6
	0.00	0.00	100.00	50.00	33.33	33.33
Mixed Methods	0	0	0	1	3	4
	0.00	0.00	0.00	50.00	25.00	22.22
Personal reflection	0	0	0	0	2	2
	0.00	0.00	0.00	0.00	16.67	11.11
Quantitative	2	1	0	0	3	6
	100.00	100.00	0.00	0.00	25.00	33.33
Total	2	1	1	2	12	18
	100.00	100.00	100.00	100.00	100.00	100.00
N	18					

Column percentages listed under proportions

Table 3.8 Cross tabulations for type of study and type of analysis, *Journal of Chemical Education*

	None of the above categories	Personal account of change	Personal narrative	Recommended-content report	Recommended-practices report	Total
None of the above categories	5	0	0	0	0	5
	100.00	0.00	0.00	0.00	0.00	1.69
Descriptive	0	1	4	68	153	226
	0.00	50.00	100.00	73.12	80.10	76.61
Literature review	0	0	0	10	0	10
	0.00	0.00	0.00	10.75	0.00	3.39
Mixed Methods	0	0	0	0	4	4
	0.00	0.00	0.00	0.00	2.09	1.36
Personal reflection	0	0	0	7	2	9
	0.00	0.00	0.00	7.53	1.05	3.05
Qualitative	0	0	0	6	7	13
	0.00	0.00	0.00	6.45	3.66	4.41
Quantitative	0	1	0	2	25	28
	0.00	50.00	0.00	2.15	13.09	9.49
Total	5	2	4	93	191	295
	100.00	100.00	100.00	100.00	100.00	100.00
N	295					

Column percentages listed under proportions

Table 3.9 Cross tabulations for type of study and type of analysis, *Teaching History*

	None of the above categories	Personal account of change	Personal narrative	Recommended-content report	Recommended-practices report	Total
None of the above categories	1	0	0	4	0	5
	100.00	0.00	0.00	80.00	0.00	35.71
Literature review	0	0	0	0	1	1
	0.00	0.00	0.00	0.00	20.00	7.14
Personal reflection	0	1	2	1	4	8
	0.00	100.00	100.00	20.00	80.00	57.14
Total	1	1	2	5	5	14
	100.00	100.00	100.00	100.00	100.00	100.00
N	14					

Column percentages listed under proportions

Table 3.10 Cross tabulations for type of study and type of analysis, *Teaching Sociology*

	None of the above categories	Personal account of change	Personal narrative	Recommended-content report	Recommended-practices report	Total
None of the above categories	4	0	0	0	0	4
	100.00	0.00	0.00	0.00	0.00	4.08
Descriptive	0	1	0	9	27	37
	0.00	25.00	0.00	37.50	42.86	37.76
Mixed methods	0	0	0	3	8	11
	0.00	0.00	0.00	12.50	12.70	11.22
Personal reflection	0	1	3	2	11	17
	0.00	25.00	100.00	8.33	17.46	17.35
Qualitative	0	1	0	9	8	18
	0.00	25.00	0.00	37.50	12.70	18.37
Quantitative	0	1	0	1	9	11
	0.00	25.00	0.00	4.17	14.29	11.22
Total	4	4	3	24	63	98
	100.00	100.00	100.00	100.00	100.00	100.00
N	98					

Column percentages listed under proportions

Table 3.7 pertains to *Bioscene*, Table 3.8 concerns the *Journal of Chemical Education*, Table 3.9 relates to *Teaching History* and Table 3.10 focuses on *Teaching Sociology*.

For *Bioscene,* descriptive research (33.30%) and quantitative investigations (25.00%) together account for nearly 60% (58.30%) of the type of analyses that provide the underpinning for recommended-practice reports published in this journal. Moreover, two of the twelve recommended-practice reports published in *Bioscene* stems from personal reflection. For recommended-content reports, mixed methods and descriptive research supply the basis for this type of article published in *Bioscene.* However, we note from Table 3.7 that only two recommended-content reports were published in this journal during the 5 year period used.

Table 3.8 shows that descriptive research (80.10%) and quantitative investigations (13.09%) comprise the overpowering proportion of the type of analyses that furnish the footing for recommended-practice reports published in the *Journal of Chemical Education*. Of the 93 articles in the *Journal of Chemical Education* coded as recommended-content reports, 81.70% of them use a type of research scholarship (descriptive research, quantitative investigation, or qualitative investigation) as their empirical foundation. Moreover, personal reflections rarely (7.53%) underpin recommended content reports.

Of the five recommended practice reports published in *Teaching History,* personal reflection underpins four of these five articles and a literature review underlies the last of these five articles. Of the five recommended content articles appearing in this journal, one of them springs from a personal reflection. None of the categories of various types of analyses represented in this Inventory provided the basis for the remaining four recommended content articles. Table 3.9 provide support for these observations.

In the case of *Teaching Sociology*, a sizeable proportion (69.90%) of the recommended practices reports published in this journal make use of research scholarship (descriptive research, quantitative investigations and qualitative investigations) as their basis. However, almost one-fifth (17.46%) of such reports originate from personal reflection. Research scholarship (descriptive research, quantitative investigations and qualitative investigations) also provides the empirical rock bed for the vast majority (79.20%) of recommended content reports published in *Teaching Sociology*. In contrast to recommended practice reports, only two of the 24 articles coded as recommended content reports arise from personal reflection. Table 3.10 supports these observations.

3.2.4   Institutional Affiliation of Authors

In *Scholarship Reconsidered: Priorities for the Professoriate* (1990), Boyer stressed the importance of colleges and universities defining their missions and aligning their faculty reward systems with this mission. Accordingly, Boyer (1990) asserted that the domain of scholarship emphasized by a college or university should align with its espoused mission. Although he contended that some faculty might engage in all four domains of scholarship, he viewed the scholarship of teaching as befitting the teaching-oriented mission of liberal arts colleges (baccalaureate colleges and universities). Boyer also viewed the scholarship of teaching as suitable for comprehensive colleges and universities (master's colleges and universities).

We coded the institutional affiliation of the first authors of the coded articles using categories of the Carnegie Classification of Institutions (2015). We used all three levels of the category of doctoral universities: R1-highest research activity, R2-higher research activity, and R3-moderate research activity. For the institutional categories of masters colleges and universities, baccalaureate colleges and universities, associate's colleges we collapsed the subcategories of these categories and assigned only the broader institutional category to the first author.

Because recommended practice reports and recommended content reports stand as the dominant types of articles among the 425 coded articles of this Inventory, we center our attention on the institutional affiliation of the first authors of these two types of articles. Table 3.11 exhibits the cross tabulation of type of article with the institutional type of the first author.

We note from Table 3.11 that first authors at doctoral granting universities with the highest level of research activity publish the greatest percentage of recommended practice articles (28.41%), followed by first authors at primarily master's granting universities (19.56%). First authors at primarily bachelor's granting institutions publish less than 10% of recommended practice reports (9.23%). If we combine the three subcategories of doctoral universities, we find that first authors at such universities produce 45% of the recommended practice reports.

For recommended content reports, we observe that first authors at primarily master's granting universities publish the greatest proportion (20.16%) of such articles followed very closely by first authors at doctoral granting universities with the highest level of research activity (18.55%). First authors at primarily bachelor's granting institutions (12.9%) produce a slightly greater percentage of recommended content reports than they do recommended practice reports. However, by aggregating the three subcategories of doctoral universities, we find that first authors at such universities produce 35.48% of recommended content articles.

We also note from Table 3.11 that first authors from doctoral universities of higher and highest levels of research activity (3 articles) are as likely to publish personal accounts of change as are authors from primarily bachelor's and master's granting institutions (3 articles) combined. Moreover, first authors from primarily bachelor's and master's granting institutions combined publish one more personal

Table 3.11 Cross tabulations for type of article and institution type of first author, full sample

	Personal account of change	Personal narrative	Recommended-content report	Recommended-practices report	None of the above categories	Total
Associate's granting institutions	0 0.00	0 0.00	2 1.61	4 1.48	1 8.33	7 1.65
Primarily bachelor's granting institutions	1 12.50	1 10.00	16 12.90	25 9.23	0 0.00	43 10.12
Primarily master's granting universities	2 25.00	4 40.00	25 20.16	53 19.56	1 8.33	85 20.00
Doctoral universities—moderate research	0 0.00	0 0.00	8 6.45	17 6.27	0 0.00	25 5.88
Doctoral universities—higher research	1 12.50	2 20.00	13 10.48	28 10.33	1 8.33	45 10.59
Doctoral universities—highest research	2 25.00	2 20.00	23 18.55	77 28.41	8 66.67	112 26.35
International university or other institution	2 25.00	1 10.00	28 22.58	59 21.77	1 8.33	91 21.41

US Company or Governmental institution	0	0	9	4	0	13
	0.00	0.00	7.26	1.48	0.00	3.06
Special focus institution	0	0	0	4	0	4
	0.00	0.00	0.00	1.48	0.00	0.94
Total	8	10	124	271	12	425
	100.00	100.00	100.00	100.00	100.00	100.00
N	425					

Column percentages listed under counts

Table 3.12 Cross tabulations for journal and institution type of first author, full sample

	Bioscene	Journal of Chemical Education	Teaching History	Teaching Sociology	Total
Associate's granting institutions	0	4	0	3	7
	0.00	1.36	0.00	3.06	1.65
Primarily bachelor's granting institutions	4	28	1	10	43
	22.22	9.49	7.14	10.20	10.12
Primarily master's granting universities	7	49	6	23	85
	38.89	16.61	42.86	23.47	20.00
Doctoral universities—moderate research	1	15	1	8	25
	5.56	5.08	7.14	8.16	5.88
Doctoral universities—higher research	1	28	1	15	45
	5.56	9.49	7.14	15.31	10.59
Doctoral universities—highest research	3	75	1	33	112
	16.67	25.42	7.14	33.67	26.35
International university or other institution	1	84	0	6	91
	5.56	28.47	0.00	6.12	21.41
US company or Governmental institution	0	9	4	0	13
	0.00	3.05	28.57	0.00	3.06
Special focus institution	1	3	0	0	4
	5.56	1.02	0.00	0.00	0.94
Total	18	295	14	98	425
	100.00	100.00	100.00	100.00	100.00
N	425				

Column percentages listed under proportions

narrative article (5 articles) than do first authors from doctoral universities from higher and highest levels of research activity (4 articles).

Institutional affiliation of authors of articles published in each of the four teaching-focused journals used herein shapes another pertinent focus of our attention. Table 3.12 displays a cross tabulation of the four journals by institutional affiliation of the first author.

For *Bioscene,* first authors at primarily bachelor's (n = 4) and primarily master's granting universities (n = 7) generated 11 of the 18 coded articles of this journal. First authors at doctoral universities of all three types combined produced another five articles. Table 3.12 supports these observations.

By aggregating the three subcategories of doctoral universities, we learn that first authors at such universities produce almost 40% (39.99%) of the coded articles of the *Journal of Chemical Education*. From Table 3.12, we also notice that first authors at primarily bachelors and primarily master's granting universities pooled together generated slightly more than 25% of these articles.

Of the 14 coded articles of *Teaching History,* first authors at primarily bachelor's and primarily master's granting universities merged together produced seven of these articles. First authors at doctoral universities of all three types conjoined produced another three articles. Table 3.12 supports these assertions.

First authors at doctoral universities of the highest level of research activity produced more than a third (33.67%) of the articles published by *Teaching Sociology*. Moreover, first authors at primarily bachelors and primarily master's granting universities combined produced an identical proportion (33.67%) of these articles. However, if we aggregate the three subcategories of doctoral universities the first authors of these universities generate the majority of articles (57.14%) appearing in *Teaching Sociology*. These observations find support in Table 3.12.

Having considered the types of articles, types of analyses, types of analyses juxtaposed to the types of articles, and the institutional affiliation of authors of the coded articles, we turn our attention to the topical focus of articles. The topics pursued by the articles we coded constitute possible candidates for engagement in a scholarship of integration centered on the contents of these articles. We provide further elaboration in the section that follows.

3.2.5 Topical Focus of Articles

Under the section "Classification of Articles," we delineate the possible topical foci of articles published in SOTL journals. Of these possible foci, we center our attention on a report of a new teaching approach, a report on author-implemented practice or content, and a report on alterations made to a teaching approach as emphases of central importance to the scholarship of teaching and learning. We view them of central importance because of their congruence with the goal of the scholarship of teaching and learning as the development and improvement of pedagogical practice (Braxton et al., 2002). Put differently, new teaching approaches, author-implemented practices, and alterations to a teaching approach work towards the development and improvement of pedagogical practice.

Moreover, we present these three teaching initiatives as candidates for a scholarship of integration centered on articles that describe them. As stated elsewhere in this chapter, the scholarship of integration entails the placement of the content of these articles into a larger intellectual pattern (Boyer, 1990) as well as the integration of content of these articles into a large body of concepts and facts (Halpern et al., 1998). The outcomes of a scholarship of integration focused on these three teaching initiatives could result in the development of a knowledge base for pedagogical scholarship. However, such a knowledge base should rest on a rock-bed of empirical

Table 3.13 Crosstab for type of analysis and new teaching approach, full sample

	No	Yes	Total
None of the above categories	14	0	14
	100.00	0.00	100.00
	14.14	0.00	3.29
Descriptive	27	242	269
	10.04	89.96	100.00
	27.27	74.23	63.29
Literature review	6	5	11
	54.55	45.45	100.00
	6.06	1.53	2.59
Mixed methods	8	11	19
	42.11	57.89	100.00
	8.08	3.37	4.47
Personal reflection	14	22	36
	38.89	61.11	100.00
	14.14	6.75	8.47
Qualitative	13	18	31
	41.94	58.06	100.00
	13.13	5.52	7.29
Quantitative	17	28	45
	37.78	62.22	100.00
	17.17	8.59	10.59
Total	99	326	425
	23.29	76.71	100.00
	100.00	100.00	100.00
Observations	425		

Row percentages listed under raw counts; column percentages listed under row percentages

research or as Weimer calls it "research scholarship (2006, p.42)." Therefore, the following two questions emerge: What types of analyses underpin articles that report a new teaching approach, an author-implemented practice or alterations to a teaching approach? Does the type of analyses underlying such articles vary across the four SOTL journals? We address these questions in the following paragraphs.

3.2.5.1 New Teaching Approach

From Table 3.13, we note that 326 (76.71%) of the articles coded report a new teaching approach. We also observe that research scholarship (descriptive, quantitative investigations and qualitative investigations) underpins an immense proportion (88.34%) of those articles that report a teaching approach.

Table 3.14 Crosstab for type of analysis and subcategory new teaching approach in *Bioscene*

	No	Yes	Total
Descriptive	5	1	6
	83.33	16.67	100.00
	35.71	25.00	33.33
Mixed methods	2	2	4
	50.00	50.00	100.00
	14.29	50.00	22.22
Personal reflection	1	1	2
	50.00	50.00	100.00
	7.14	25.00	11.11
Quantitative	6	0	6
	100.00	0.00	100.00
	42.86	0.00	33.33
Total	14	4	18
	77.78	22.22	100.00
	100.00	100.00	100.00
Observations	18		

Row percentages listed under raw counts; column percentages listed under row percentages

In the case of Bioscene, only four of the coded articles report a new teaching approach. As indicated by Table 3.14, descriptive research (1 article), mixed methods (2 articles) and personal reflection (1 article) underlie these four articles.

The *Journal of Chemical Education* presents a different picture given that 259 of the 295 coded articles in this journal report a new teaching approach. Of these 259 articles, research scholarship (descriptive, quantitative investigations and qualitative investigations) supplies the underlying bases for 94.59% of these articles. Table 3.15 supports these assertions.

Only two of the 14 coded articles appearing in *Teaching History* report a new teaching approach. Personal reflection stands as the undergirding type of analysis for these two articles. Table 3.16 affords support for this observation.

For *Teaching Sociology,* 61 of the 98 coded articles published in this SOTL journal report a new teaching approach. Research scholarship (descriptive, quantitative investigations, and qualitative investigations) underpins more than two-thirds (68.85%) of these articles reporting a new teaching approach. However, slightly more than one fifth (21.31%) of these articles originates from personal reflection. Table 3.17 affords support for these observations.

3.2.5.2   Author—Implemented Practice

Of the 425 coded articles, Table 3.18 shows that 259 (60.94%) of them report an author-implemented practice. From Table 3.18, we also observe that research scholarship (descriptive, quantitative investigations and qualitative investigations)

Table 3.15 Crosstab for type of analysis and subcategory new teaching approach in *Journal of Chemical Education*

	No	Yes	Total
None of the above categories	5	0	5
	100.00	0.00	100.00
	13.89	0.00	1.69
Descriptive	14	212	226
	6.19	93.81	100.00
	38.89	81.85	76.61
Literature review	5	5	10
	50.00	50.00	100.00
	13.89	1.93	3.39
Mixed methods	1	3	4
	25.00	75.00	100.00
	2.78	1.16	1.36
Personal reflection	3	6	9
	33.33	66.67	100.00
	8.33	2.32	3.05
Qualitative	4	9	13
	30.77	69.23	100.00
	11.11	3.47	4.41
Quantitative	4	24	28
	14.29	85.71	100.00
	11.11	9.27	9.49
Total	36	259	295
	12.20	87.80	100.00
	100.00	100.00	100.00
Observations	295		

Row percentages listed under raw counts; column percentages listed under row percentages

provides the foundation for an immense proportion (85.72%) of these articles reporting an author-implemented practice.

For *Bioscene*, 12 of the 18 coded articles reports an author-implemented practice. Moreover, research scholarship (descriptive and quantitative investigations) affords the basis for more than two thirds (66.6%) of such articles. From Table 3.19, we also note personal reflection underlies one of these 12 articles that reports an author-implemented practice.

Almost all of the coded articles (97.1%) published in *The Journal of Chemical Education* that report an instructor-implemented practice rest on a foundation of research scholarship (descriptive, quantitative investigations and qualitative investigations). Moreover, a sizeable majority (58.31%) of the articles appearing in this Journal report an author-implemented practice. Table 3.20 affords support for these observations.

Articles that report an author-implemented practice account for 6 of the 14 coded articles published in *Teaching History*. In stark contrast to the *Journal of Chemical*

Table 3.16 Crosstab for type of analysis and subcategory new teaching approach in *Teaching History*

	No	Yes	Total
None of the above categories	5	0	5
	100.00	0.00	100.00
	41.67	0.00	35.71
Literature review	1	0	1
	100.00	0.00	100.00
	8.33	0.00	7.14
Personal reflection	6	2	8
	75.00	25.00	100.00
	50.00	100.00	57.14
Total	12	2	14
	85.71	14.29	100.00
	100.00	100.00	100.00
Observations	14		

Row percentages listed under raw counts; column percentages listed under row percentages

Table 3.17 Crosstab for type of analysis and subcategory new teaching approach in *Teaching Sociology*

	No	Yes	Total
None of the above categories	4	0	4
	100.00	0.00	100.00
	10.81	0.00	4.08
Descriptive	8	29	37
	21.62	78.38	100.00
	21.62	47.54	37.76
Mixed methods	5	6	11
	45.45	54.55	100.00
	13.51	9.84	11.22
Personal reflection	4	13	17
	23.53	76.47	100.00
	10.81	21.31	17.35
Qualitative	9	9	18
	50.00	50.00	100.00
	24.32	14.75	18.37
Quantitative	7	4	11
	63.64	36.36	100.00
	18.92	6.56	11.22
Total	37	61	98
	37.76	62.24	100.00
	100.00	100.00	100.00
Observations	98		

Row percentages listed under raw counts; column percentages listed under row percentages

Table 3.18 Crosstab for type of analysis and subcategory author-implemented practice, full sample

	No	Yes	Total
None of the above categories	14	0	14
	100.00	0.00	100.00
	8.43	0.00	3.29
Descriptive	84	185	269
	31.23	68.77	100.00
	50.60	71.43	63.29
Literature review	8	3	11
	72.73	27.27	100.00
	4.82	1.16	2.59
Mixed methods	8	11	19
	42.11	57.89	100.00
	4.82	4.25	4.47
Personal reflection	13	23	36
	36.11	63.89	100.00
	7.83	8.88	8.47
Qualitative	17	14	31
	54.84	45.16	100.00
	10.24	5.41	7.29
Quantitative	22	23	45
	48.89	51.11	100.00
	13.25	8.88	10.59
Total	166	259	425
	39.06	60.94	100.00
	100.00	100.00	100.00
Observations	425		

Row percentages listed under raw counts; column percentages listed under row percentages

Education, personal reflection provides the foundation for 5 of these 6 articles that report an author-implemented practice. Table 3.21 provides support for these assertions.

Table 3.22 shows that the vast majority (70.41%) of the coded articles of *Teaching Sociology* report an author-implemented practice. Moreover, research scholarship (descriptive, quantitative investigations and qualitative investigations) offers the foundation for more than two-thirds (68.12%) of these articles. However, about twenty percent (20.29%) of these articles spring from personal reflection.

3.2.5.3 Alterations Made to a Teaching Approach

In strong contrast to the other two focal teaching initiatives, articles reporting alterations made to a teaching approach stand decidedly as a small minority of the 425 coded articles. Specifically, 31 or 7.29% of the 425 coded articles report alterations

Table 3.19 Crosstab for type of analysis and subcategory author-implemented practice in *Bioscene*

	No	Yes	Total
Descriptive	2	4	6
	33.33	66.67	100.00
	33.33	33.33	33.33
Mixed methods	1	3	4
	25.00	75.00	100.00
	16.67	25.00	22.22
Personal reflection	1	1	2
	50.00	50.00	100.00
	16.67	8.33	11.11
Quantitative	2	4	6
	33.33	66.67	100.00
	33.33	33.33	33.33
Total	6	12	18
	33.33	66.67	100.00
	100.00	100.00	100.00
Observations	18		

Row percentages listed under raw counts; column percentages listed under row percentages

made to a teaching approach. However, a sizeable fraction (61.29%) of these articles rest on a foundation of research scholarship (descriptive, quantitative investigations and qualitative investigations). Table 3.23 provides support for these assertions.

Only three of the 18 coded articles of *Bioscene* report alterations made to a teaching approach. Moreover, research scholarship (descriptive research) underlies two of these three articles. Table 3.24 corroborates these statements.

Articles that report alterations made to a teaching approach also make up a small proportion (19 of 295) of the coded articles of *The Journal of Chemical Education*. Moreover, research scholarship (descriptive, quantitative investigations and qualitative investigations) provides the underpinning for 15 of these 19 articles. See Table 3.25 for supporting data.

Personal reflection underlies the only article that reports alterations made to a teaching approach of the 14 coded articles of *Teaching History*. Table 3.26 supports that observation.

Like the other three SOTL journals, a small fraction (N=8, 8.16%) of the 98 articles coded for *Teaching Sociology* report alterations made to a teaching approach. Of these eight articles, personal reflection offers the basis for four of them. Table 3.27 supports these assertions.

Table 3.20 Crosstab for type of analysis and subcategory author-implemented practice in *Journal of Chemical Education*

	No	Yes	Total
None of the above categories	5	0	5
	100.00	0.00	100.00
	4.07	0.00	1.69
Descriptive	77	149	226
	34.07	65.93	100.00
	62.60	86.63	76.61
Literature review	8	2	10
	80.00	20.00	100.00
	6.50	1.16	3.39
Mixed methods	4	0	4
	100.00	0.00	100.00
	3.25	0.00	1.36
Personal reflection	6	3	9
	66.67	33.33	100.00
	4.88	1.74	3.05
Qualitative	9	4	13
	69.23	30.77	100.00
	7.32	2.33	4.41
Quantitative	14	14	28
	50.00	50.00	100.00
	11.38	8.14	9.49
Total	123	172	295
	41.69	58.31	100.00
	100.00	100.00	100.00
Observations	295		

Row percentages listed under raw counts; column percentages listed under row percentages

3.2.6 Limitations of the Inventory

We note four limitations to this Inventory. These limitations moderate the conclusions and recommendations for further research we advance. These limitations are as follows.

The first limitation pertains to the selection of four teaching-focused journals representing the academic disciplines of biology, chemistry, history and sociology. According to Biglan's (1973) classification schema of academic subject matter areas, these four disciplines do include both soft or low consensus disciplines (history and sociology) and hard or high consensus disciplines (biology and chemistry); however, all four of these disciplines do hold a pure rather than applied orientation. Thus, the Inventory we present in this chapter pertains only to articles published in *Bioscene*, *The Journal of Chemical Education*, *Teaching History* and *Teaching Sociology*.

The second limitation concerns the time-period we used to classify the articles of the four teaching-focused journals. We confined our review to a span of 5 years between 2012 and 2016. Consequently, the Inventory we present pertains only to the

Table 3.21 Crosstab for type of analysis and subcategory author-implemented practice in *Teaching History*

	No	Yes	Total
None of the above categories	5	0	5
	100.00	0.00	100.00
	62.50	0.00	35.71
Literature review	0	1	1
	0.00	100.00	100.00
	0.00	16.67	7.14
Personal reflection	3	5	8
	37.50	62.50	100.00
	37.50	83.33	57.14
Total	8	6	14
	57.14	42.86	100.00
	100.00	100.00	100.00
Observations	14		

Row percentages listed under raw counts; column percentages listed under row percentages

Table 3.22 Crosstab for type of analysis and subcategory author-implemented practice in *Teaching Sociology*

	No	Yes	Total
None of the above categories	4	0	4
	100.00	0.00	100.00
	13.79	0.00	4.08
Descriptive	5	32	37
	13.51	86.49	100.00
	17.24	46.38	37.76
Mixed methods	3	8	11
	27.27	72.73	100.00
	10.34	11.59	11.22
Personal reflection	3	14	17
	17.65	82.35	100.00
	10.34	20.29	17.35
Qualitative	8	10	18
	44.44	55.56	100.00
	27.59	14.49	18.37
Quantitative	6	5	11
	54.55	45.45	100.00
	20.69	7.25	11.22
Total	29	69	98
	29.59	70.41	100.00
	100.00	100.00	100.00
Observations	98		

Row percentages listed under raw counts; column percentages listed under row percentages

Table 3.23 Crosstab for type of analysis and subcategory alteration made to a teaching approach, full sample

	No	Yes	Total
None of the above categories	14	0	14
	100.00	0.00	100.00
	3.55	0.00	3.29
Descriptive	257	12	269
	95.54	4.46	100.00
	65.23	38.71	63.29
Literature review	10	1	11
	90.91	9.09	100.00
	2.54	3.23	2.59
Mixed methods	15	4	19
	78.95	21.05	100.00
	3.81	12.90	4.47
Personal reflection	29	7	36
	80.56	19.44	100.00
	7.36	22.58	8.47
Qualitative	27	4	31
	87.10	12.90	100.00
	6.85	12.90	7.29
Quantitative	42	3	45
	93.33	6.67	100.00
	10.66	9.68	10.59
Total	394	31	425
	92.71	7.29	100.00
	100.00	100.00	100.00
Observations	425		

Row percentages listed under raw counts; column percentages listed under row percentages

5-year period between 2012 and 2016. We also coded only articles focused on undergraduate instruction in higher education. This restriction forms the third limitation to this Inventory.

Our fourth limitation involves the moderate degree of agreement among the three coding authors for the type of article we obtained. However, one of the three coding authors coded 92 percent of the articles. For the other eight percent of the articles coded, the type of article designated might vary depending on the coder. Nevertheless, we regard this particular limitation as largely blunted given that one individual coded 92 percent of the articles.

Table 3.24 Crosstab for type of analysis and subcategory alteration made to a teaching approach in *Bioscene*

	No	Yes	Total
Descriptive	4	2	6
	66.67	33.33	100.00
	26.67	66.67	33.33
Mixed methods	3	1	4
	75.00	25.00	100.00
	20.00	33.33	22.22
Personal reflection	2	0	2
	100.00	0.00	100.00
	13.33	0.00	11.11
Quantitative	6	0	6
	100.00	0.00	100.00
	40.00	0.00	33.33
Total	15	3	18
	83.33	16.67	100.00
	100.00	100.00	100.00
Observations	18		

Row percentages listed under raw counts; column percentages listed under row percentages

3.3 Conclusions

We derived six conclusions from the configuration of findings reported in this chapter. Taken together, these six conclusions provide the defining contours of an Inventory of the scholarship of teaching and learning literature bounded by the four teaching-focused journals we selected and the 5-year time period for review of the articles in these four journals.

1. Weimer (2006) delineated four different approaches to the scholarship of teaching and learning: personal accounts of change, recommended-practices reports, recommended-content reports, and personal narratives. In our classification schema, we labeled these approaches as types of articles. Of these four types of articles, recommended-practices reports and recommended-content reports predominate as the most frequently occurring types of article. Taken together, these two types of articles account for 93% of the articles appearing in the four SOTL journals combined. However, recommended-practice reports occur much more frequently (64% of articles coded) than recommended-content reports (29%). In contrast, personal narratives and personal accounts of change rarely find their way into print in these four SOTL journals at an aggregated level. *This pattern leads us to conclude that articles focused on instructional methods (recommended practice reports) dominate the pedagogical scholarship literature.* Articles focused on instructional methods contribute to the development and refinement of pedagogical practice, the goal of the scholarship of teaching (Braxton et al., 2002).

Table 3.25 Crosstab for type of analysis and subcategory alteration made to a teaching approach in *Journal of Chemical Education*

	No	Yes	Total
None of the above categories	5	0	5
	100.00	0.00	100.00
	1.81	0.00	1.69
Descriptive	216	10	226
	95.58	4.42	100.00
	78.26	52.63	76.61
Literature review	9	1	10
	90.00	10.00	100.00
	3.26	5.26	3.39
Mixed methods	3	1	4
	75.00	25.00	100.00
	1.09	5.26	1.36
Personal reflection	7	2	9
	77.78	22.22	100.00
	2.54	10.53	3.05
Qualitative	11	2	13
	84.62	15.38	100.00
	3.99	10.53	4.41
Quantitative	25	3	28
	89.29	10.71	100.00
	9.06	15.79	9.49
Total	276	19	295
	93.56	6.44	100.00
	100.00	100.00	100.00
Observations	295		

Row percentages listed under raw counts; column percentages listed under row percentages

Table 3.26 Crosstab for type of analysis and subcategory alteration made to a teaching approach in *Teaching History*

	No	Yes	Total
None of the above categories	5	0	5
	100.00	0.00	100.00
	38.46	0.00	35.71
Literature review	1	0	1
	100.00	0.00	100.00
	7.69	0.00	7.14
Personal reflection	7	1	8
	87.50	12.50	100.00
	53.85	100.00	57.14
Total	13	1	14
	92.86	7.14	100.00
	100.00	100.00	100.00
Observations	14		

Row percentages listed under raw counts; column percentages listed under row percentages

Table 3.27 Crosstab for type of analysis and subcategory alterations made to a teaching approach in *Teaching Sociology*

	No	Yes	Total
None of the above categories	4	0	4
	100.00	0.00	100.00
	4.44	0.00	4.08
Descriptive	37	0	37
	100.00	0.00	100.00
	41.11	0.00	37.76
Mixed methods	9	2	11
	81.82	18.18	100.00
	10.00	25.00	11.22
Personal reflection	13	4	17
	76.47	23.53	100.00
	14.44	50.00	17.35
Qualitative	16	2	18
	88.89	11.11	100.00
	17.78	25.00	18.37
Quantitative	11	0	11
	100.00	0.00	100.00
	12.22	0.00	11.22
Total	90	8	98
	91.84	8.16	100.00
	100.00	100.00	100.00
Observations	98		

Row percentages listed under raw counts; column percentages listed under row percentages

2. Our findings indicate that research scholarship (descriptive research analyses, quantitative investigations, and qualitative investigations) prevails as the most frequent type of analysis used in articles that comprise the scholarship of teaching and learning literature whereas personal reflection infrequently occurs except in the SOTL journal of *Teaching History. Thus, we conclude that the pedagogical scholarship literature springs mostly from research using "established research protocols"* (Weimer, 2006, p. 43) *rather than from the personal experiences of practitioners.*

3. This particular conclusion consists of three interrelated conclusions. We previously reported that the overwhelming majority (87.10%) of recommended-practice reports make use of research scholarship and that less than ten percent (7.01%) of recommended-practice reports spring from personal reflections. This pattern of findings leads *us to conclude that the articles focused on instructional methods (recommended-practice reports) that dominate the pedagogical scholarship primarily rest on a bed of empirical research (research scholarship).*

   We also reported that research scholarship (descriptive research, quantitative and qualitative investigations combined) provides the basis for the vast majority (77.42%) of recommended content reports whereas personal reflection infrequently (8.06%) underlies recommended content reports. *Hence, we conclude*

that articles recommending content for a particular course or academic discipline also rest on a foundation of empirical research (research scholarship).

This pattern of findings gives rise to the third conclusion of this cluster of conclusions. *We conclude that Weimer's* (2006) *contention that recommended-practice reports and recommended-content reports constitute types of wisdom of practice scholarship (see e.g., p. 40) requires serious revision, as they do not flow from the wisdom of practice. They should remain as types of articles but not conflated with type of analysis.*

4. Our configuration of findings indicates that research scholarship provides the primary foundation for recommended practice reports published in *Bioscene,* in the *Journal of Chemical Education* and in *Teaching Sociology*. In contrast, personal reflection predominates as the type of analysis underpinning recommended practice reports in *Teaching History*. Consequently, *we conclude that articles centered on instructional methods that rest on a foundation of research scholarship predominate in teaching-focused journals of two high and one low consensus academic discipline with the discipline of history as an exception. The established disciplinary research protocols hold force in the disciplines of biology, chemistry, and sociology, but not in history, as we gather from the prevalence of personal reflections in Teaching History.*

5. As stated elsewhere in this chapter, Boyer (1990) ascribed the scholarship of teaching as the domain of scholarship best aligned with the teaching-oriented mission of liberal arts colleges (baccalaureate colleges and universities). He also regarded the scholarship of teaching as appropriate for comprehensive colleges and universities (master's colleges and universities). Our pattern of findings indicates that first authors at doctoral universities of highest, high and moderate levels of research activity combined produce 45% of the recommended practice reports. Nevertheless, first authors at primarily master's granting universities publish almost 20% (19.56%) of recommended practice piece. However, authors at primarily bachelor's granting institutions publish less than 10% of recommended practice reports (9.23%). Although first authors at primarily bachelor's granting institutions and master's granting universities follow to some degree Boyer's prescription for domain emphasis, first authors at doctoral universities deliver the bulk of recommended practice reports.

Moreover, our configuration of findings indicates that first authors at the three subcategories of doctoral universities combine more than a third (35.48%) of recommended-content articles. As in the case of recommended-practice reports, first authors at primarily master's granting universities also generate about 20% (20.16%) of recommended-content reports. Moreover, first authors at primarily bachelor's granting institutions published more than ten percent of these articles (12.90%). Though first authors at primarily bachelor's granting institutions and master's granting universities follow to some degree Boyer's prescription for domain emphasis, first authors at doctoral universities produce a greater proportion of recommended-content reports.

Despite Boyer's prescriptions for institutional emphasis placed on the scholarship of teaching for primarily bachelor's granting institutions and master's

granting universities, *we conclude that first authors affiliated with doctoral universities generate a larger share of both recommended-practice and recommended-content reports than first authors in primarily bachelor's granting institutions and master's granting universities.* This conclusion resonates with the observation of Braxton et al. (2002) that faculty in doctoral granting universities tend to produce more scholarship than their counterparts in primarily bachelor's granting institutions and master's granting universities

6. Given that both recommended-practice reports and recommended-content reports spring from research scholarship, *we conclude that a knowledge base of pedagogical scholarship might exist* within the context of the four teaching-focused journals used herein. However, the realization of this possibility depends on engagement in the scholarship of integration by scholars of the academic profession in general and of the scholarship of teaching and learning in particular. In addition to a review of the content of articles that recommend instructional methods and content for a course or an academic discipline, articles describing new teaching approaches, author-implemented practices, and alterations to a teaching approach provide additional possibilities for engagement in a scholarship of integration focused on the content of these articles. The outcomes of such a review might also contribute to a knowledge base of pedagogical scholarship.

Aside from these six specific conclusions, we put forth an overarching conclusion. This overarching conclusion concerns the usefulness of the classification of both the types of articles and types of analyses that we used in this Inventory. In terms of types of articles, this classification schema accounted for 413 of the 425 coded articles. As indicated by Table 3.2, only three percent (N = 12) of the coded articles were classified as not fitting any of the four types of articles delineated by the classification schema we used. A similar pattern exists for type of analysis as we failed to classify 14 of the 425 coded articles into one of the six types of analyses of our classification schema. Table 3.4 supports this assertion. These specifics afford robust support for the usefulness of our classification schema. This classification system takes the form of an extension of Weimer's classification schema she described in her 2006 volume *Enhancing Scholarly Work on Teaching and Learning: Professional Literature that Makes a Difference*. We offer our classification system as a heuristic for future research on the literature of the scholarship of teaching and learning or of pedagogical scholarship.

3.3.1 Recommendations for Further Research and Scholarship

We offer four recommendations for future research. Our first three recommendations acknowledge the heuristic value of the classification system used in this Inventory whereas the fourth recommendation centers attention on our call for engagement in the scholarship of integration centered on articles that report a new teaching

approach, report an author-implemented practice or content, and report on alterations made to a teaching approach.

1. As previously stated, the four teaching-focused journals we selected circumscribe the defining demarcations of the Inventory of the scholarship of teaching and learning literature we offer. Accordingly, we recommend that future efforts to extend the classification approach we used should center attention on teaching-focused journals of applied academic disciplines. Biglan (1973) lists engineering, accounting, and finance as examples of applied academic disciplines. Some possible teaching-focused journals for such applied disciplines include *Issues in Accounting Education,* the *Journal of Accounting Education,* The *Journal of Financial Education,* and the *Journal of Engineering Education.*

2. In our fourth conclusion, we posited that history stands as an exception to our conclusion that articles centered on instructional methods predominantly rest on a foundation of research scholarship in the teaching-focused journals of biology, chemistry and sociology. We surmised that personal reflections might prevail in *Teaching History* because the established research protocols of biology, chemistry and sociology do not hold force in the discipline of history. Accordingly, we recommend that future research using the classification schema used in this Inventory include the teaching-focused journals of academic disciplines such as English, foreign languages and philosophy. Possible journals include *College English*, *Research in the Teaching of English*, *Language Learning Journal*, and *Teaching Philosophy*. The frequency of personal accounts of change and personal narratives might increase through engagement in this recommendation for further research.

3. Our first two recommendations pertain to teaching-focused journals of academic disciplines. However, there are also a number of teaching-focused journals that do not focus on any particular discipline. These journals include *Active Learning in Higher Education*, *College Teaching*, *Diversity Digest*, *Innovate—Journal of Online Education* and the *Journal on Excellence in College Teaching. We recommend that future research apply the classification schema used in this Inventory to these journals.*

4. We provide three Appendices to this chapter. These appendices list bibliographic information for articles in *Bioscene*, the *Journal of Chemical Education*, and *Teaching Sociology*. We selected these listed articles because they provide reports on a new teaching approach (Appendix A), report an author-implemented practice or content (Appendix B), or report on alterations made to a teaching approach (Appendix C). Research scholarship also underlies these reports. We provide these Appendices to enable scholars of the academic profession in general, and scholars of the scholarship of teaching and learning in particular, to engage in a scholarship of integration centered on the content of these articles.

3.3.2 Closing Thoughts

Instructional methods and content for a particular course or academic discipline define the central focus of the body of pedagogical scholarship that emerges from articles published in the teaching-focused journals of *Bioscience: Journal of College Biology Teaching*, The *Journal of Chemical Education*, *Teaching History* and *Teaching Sociology*. With the exception of *Teaching History*, research scholarship underpins the articles of this body of pedagogical scholarship. Other bodies of pedagogical scholarship may exist with different defining characteristics of article type and type of analysis. These possible bodies of scholarship might emanate from the teaching-focused journals of academic disciplines such as English, foreign languages and philosophy, as well as from the teaching-focused journals of applied academic disciplines such as engineering, accounting, and finance. Further research by scholars of the academic profession in general and the scholars of teaching and learning in particular should focus on the nature of pedagogical scholarship in additional clusters of academic fields such as these.

Appendices

Appendix A

Article includes new teaching approach

Bioscene
- Kudish, P., Schlag, E., & Kaplinsky, N. J. (2015). An Inquiry-Infused Introductory Biology Laboratory That Integrates Mendel's Pea Phenotypes with Molecular Mechanisms. *Bioscene: Journal of College Biology Teaching*, *41*(1), 10–15.
- MacLaren, R. D., Schulte, D., & Kennedy, J. (2012). Field Research Studying Whales in an Undergraduate Animal Behavior Laboratory. *Bioscene: Journal of College Biology Teaching*, *38*(1), 3–10.
- McCabe, D. J., & Knight, E. J. (2016). Null Models for Everyone: A Two-Step Approach to Teaching Null Model Analysis of Biological Community Structure. *Bioscene: Journal of College Biology Teaching*, *42*(2), 16–25.

Journal of Chemical Education
- Aller Pellitero, M., Álvarez Lamsfus, C., & Borge, J. (2012). The Belousov–Zhabotinskii Reaction: Improving the Oregonator Model with the Arrhenius Equation. *Journal of Chemical Education*, *90*(1), 82–89.
- Barbera, J. (2013). A psychometric analysis of the chemical concepts inventory. *Journal of Chemical Education*, *90*(5), 546–553.

- Galloway, K. R., & Bretz, S. L. (2015). Development of an assessment tool to measure students' meaningful learning in the undergraduate chemistry laboratory. *Journal of Chemical Education*, *92*(7), 1149–1158.
- Grasse, E. K., Torcasio, M. H., & Smith, A. W. (2015). Teaching UV–Vis Spectroscopy with a 3D-Printable Smartphone Spectrophotometer. *Journal of Chemical Education*, *93*(1), 146–151.
- Harper-Leatherman, A. S., & Miecznikowski, J. R. (2012). O true apothecary: How forensic science helps solve a classic crime. *Journal of Chemical Education*, *89*(5), 629–635.
- He, Y., Swenson, S., & Lents, N. (2012). Online video tutorials increase learning of difficult concepts in an undergraduate analytical chemistry course. *Journal of Chemical Education*, *89*(9), 1128–1132.
- Keeler, J. M., & Koretsky, M. D. (2016). Surprises in the Muddy Waters of High-Enrollment Courses. *Journal of Chemical Education*, *93*(11), 1830–1838.
- Kirton, S. B., Al-Ahmad, A., & Fergus, S. (2014). Using Structured Chemistry Examinations (SChemEs) As an Assessment Method To Improve Undergraduate Students' Generic, Practical, and Laboratory-Based Skills. *Journal of Chemical Education*, *91*(5), 648–654.
- Kolk, K. V. D., Beldman, G., Hartog, R., & Gruppen, H. (2011). Students using a novel web-based laboratory class support system: a case study in food chemistry education. *Journal of Chemical Education*, *89*(1), 103–108.
- Laredo, T. (2013). Changing the first-year chemistry laboratory manual to implement a problem-based approach that improves student engagement. *Journal of Chemical Education*, *90*(9), 1151–1154.
- Libman, D., & Huang, L. (2013). Chemistry on the go: review of chemistry apps on smartphones. *Journal of chemical education*, *90*(3), 320–325.
- Mottishaw, J. D., Erck, A. R., Kramer, J. H., Sun, H., & Koppang, M. (2015). Electrostatic Potential Maps and Natural Bond Orbital Analysis: Visualization and Conceptualization of Reactivity in Sanger's Reagent. *Journal of Chemical Education*, *92*(11), 1846–1852.
- Pence, H. E., & Williams, A. J. (2016). Big data and chemical education. *Journal of Chemical Education*, *93*(3), 504–508.
- Saloranta, T., Lönnqvist, J. E., & Eklund, P. C. (2016). Transforming Undergraduate Students into Junior Researchers: Oxidation–Reduction Sequence as a Problem-Based Case Study. *Journal of Chemical Education*, *93*(5), 841–846.
- Schlotter, N. E. (2012). A statistics curriculum for the undergraduate chemistry major. *Journal of Chemical Education*, *90*(1), 51–55.
- Sostarecz, M. C., & Sostarecz, A. G. (2012). A conceptual approach to limiting-reagent problems. *Journal of Chemical Education*, *89*(9), 1148–1151.
- Tomasik, J. H., LeCaptain, D., Murphy, S., Martin, M., Knight, R. M., Harke, M. A., . . . & Acevedo-Polakovich, I. D. (2014). Island explorations: discovering

effects of environmental research-based lab activities on analytical chemistry students. *Journal of Chemical Education*, *91*(11), 1887–1894.

- Vanderveen, J. R., Martin, B., & Ooms, K. J. (2013). Developing tools for undergraduate spectroscopy: an inexpensive visible light spectrometer. *Journal of Chemical Education*, *90*(7), 894–899.
- Ye, L., Oueini, R., & Lewis, S. E. (2015). Developing and implementing an assessment technique to measure linked concepts. *Journal of Chemical Education*, *92*(11), 1807–1812.
- Zurcher, D. M., Phadke, S., Coppola, B. P., & McNeil, A. J. (2016). Using Student-Generated Instructional Materials in an e-Homework Platform. *Journal of Chemical Education*, *93*(11), 1871–1878.

Teaching Sociology
- Arabandi, B., Sweet, S., & Swords, A. (2014). Testing the Flat World Thesis: Using a Public Dataset to Engage Students in the Global Inequality Debate. *Teaching Sociology*, *42*(4), 267–276.
- Becker, S., & Paul, C. (2015). "It Didn't Seem Like Race Mattered": Exploring the Implications of Service-learning Pedagogy for Reproducing or Challenging Color-Blind Racism. *Teaching Sociology*, *43*(3), 184–200.
- Crowe, J. A., Silva, T., & Ceresola, R. (2015). The Effect of Peer Review on Student Learning Outcomes in a Research Methods Course. *Teaching Sociology*, *43*(3), 201–213.
- Grauerholz, L., & Bubriski-McKenzie, A. (2012). Teaching about Consumption The "Not Buying It" Project. *Teaching Sociology*, *40*(4), 332–348.
- Hochschild Jr, T. R., Farley, M., & Chee, V. (2014). Incorporating sociology into community service classes. *Teaching Sociology*, *42*(2), 105–118.
- Huggins, C. M., & Stamatel, J. P. (2015). An Exploratory Study Comparing the Effectiveness of Lecturing versus Team-based Learning. *Teaching Sociology*, *43*(3), 227–235.
- Irby-Shasanmi, A., Oberlin, K. C., & Saunders, T. N. (2012). Teaching with Movement: Using the Health Privilege Activity to Physically Demonstrate Disparities in Society. *Teaching Sociology*, *40*(2), 123–141.
- Khanna, N., & Harris, C. A. (2015). Discovering Race in a "Post-Racial" World: Teaching Race through Primetime Television. *Teaching Sociology*, *43*(1), 39–45.
- Latshaw, B. A. (2015). Examining the Impact of a Domestic Violence Simulation on the Development of Empathy in Sociology Classes. *Teaching Sociology*, *43*(4), 277–289.
- McCabe, J. (2013). Making Theory Relevant: The Gender Attitude and Belief Inventory. *Teaching Sociology*, *41*(3), 282–293.

- Nell Trautner, M., & Borland, E. (2013). Using the Sociological Imagination to Teach about Academic Integrity. *Teaching Sociology*, *41*(4), 377–388.
- Norris, D. R. (2013). Beat the Bourgeoisie: A Social Class Inequality and Mobility Simulation Game. *Teaching Sociology*, *41*(4), 334–345.
- Noy, S. (2014). Secrets and the Sociological Imagination: Using PostSecret. com to Illustrate Sociological Concepts. *Teaching Sociology*, *42*(3), 187–195.
- Osnowitz, D., & Jenkins, K. E. (2014). The Theory Forum: Teaching Social Theory through Interactive Practice. *Teaching Sociology*, *42*(3), 245–250.
- Parrotta, K. L., & Buck, A. R. (2013). Making Marx Accessible: Understanding Alienated Labor through Experiential Learning. *Teaching Sociology*, *41*(4), 360–369.
- Pelton, J. A. (2013). "Seeing the Theory Is Believing" Writing about Film to Reduce Theory Anxiety. *Teaching Sociology*, *41*(1), 106–120.
- Strangefeld, J. A. (2013). Promoting Active Learning: Student-Led Data Gathering in Undergraduate Statistics. *Teaching sociology*, *41*(2), 199–206.
- Upright, C. (2015). Bringing Color into the Living Room: Analyzing "TV Guide" Covers, 1953 to 1997. *Teaching Sociology*, *43*(3), 214–226.
- Whitley, C. T. (2013). A Picture Is Worth a Thousand Words: Applying Image-Based Learning to Course Design. *Teaching Sociology*, *41*(2), 188–198.
- Wright, E. (2012). Why, Where, and How to Infuse the Atlanta Sociological Laboratory into the Sociology Curriculum. *Teaching Sociology*, *40*(3), 257–270.

Appendix B

Article includes author-implemented practice

Bioscene
- Basey, J. M., Maines, A. P., Francis, C. D., & Melbourne, B. (2014). Impacts of digital imaging versus drawing on student learning in undergraduate biodiversity labs. *Bioscene: Journal of College Biology Teaching*, *40*(2), 15–21.
- Berkes, C., & Chan, L. L. Y. (2015). Investigation of Macrophage Differentiation and Cytokine Production in an Undergraduate Immunology Laboratory. *Bioscene: Journal of College Biology Teaching*, *41*(2), 3–10.
- Gillie, L., & Bizub, A. L. (2012). In Darwin's Footsteps: An On and Off-Campus Approach to Teaching Evolutionary Theory and Animal Behavior. *Bioscene: Journal of College Biology Teaching*, *38*(1), 15–21.
- Infanti, L. M., & Wiles, J. R. (2014). "Evo in the News:" Understanding Evolution and Students' Attitudes toward the Relevance of Evolutionary Biology. *Bioscene: Journal of College Biology Teaching*, *40*(2), 9–14.

- Janssens, P., & Waldhuber, M. (2012). Experimental Analysis of Cell Function Using Cytoplasmic Streaming. *Bioscene: Journal of College Biology Teaching*, *38*(1), 11–14.
- Kudish, P., Schlag, E., & Kaplinsky, N. J. (2015). An Inquiry-Infused Introductory Biology Laboratory That Integrates Mendel's Pea Phenotypes with Molecular Mechanisms. *Bioscene: Journal of College Biology Teaching*, *41*(1), 10–15.
- Lappas, C. M. (2012). The effect of CGS21680 Treatment on Thioglycollate-Induced Peritonitis: An Introduction to Immunopharmacology. *Bioscene: Journal of College Biology Teaching*, *38*(2) 3–9.
- MacLaren, R. D., Schulte, D., & Kennedy, J. (2012). Field Research Studying Whales in an Undergraduate Animal Behavior Laboratory. *Bioscene: Journal of College Biology Teaching*, *38*(1), 3–10.
- Soto, J. G., & Everhart, J. (2016). Transformation of a Traditional, Freshman Biology, Three-Semester Sequence, to a Two-Semester, Integrated Thematically Organized, and Team-Taught Course. *Bioscene: Journal of College Biology Teaching*, *42*(2), 3–15.
- Smith, M. J., Shaffer, J. J., Koupal, K. D., & Hoback, W. W. (2012). Laboratory Measures of Filtration by Freshwater Mussels: An Activity to Introduce Biology Students to an Increasingly Threatened Group of Organisms. *Bioscene: Journal of College Biology Teaching*, *38*(2), 10–15.
- Stanford, J. S., & Duwel, L. E. (2013). Engaging Biology Undergraduates in the Scientific Process through Writing a Theoretical Research Proposal. *Bioscene: Journal of College Biology Teaching*, *39*(2), 17–24.

Journal of Chemical Education
- Andraos, J., & Hent, A. (2015). Useful material efficiency green metrics problem set exercises for lecture and laboratory. *Journal of Chemical Education*, *92*(11), 1831–1839.
- Bauer, C. F., & Cole, R. (2012). Validation of an assessment rubric via controlled modification of a classroom activity. *Journal of Chemical Education*, *89*(9), 1104–1108.
- Benedict, L. A., Champlin, D. T., & Pence, H. E. (2013). Exploring transmedia: the rip-mix-learn classroom. *Journal of Chemical Education*, *90*(9), 1172–1176.
- Carmel, J. H., Jessa, Y., & Yezierski, E. J. (2014). Targeting the development of content knowledge and scientific reasoning: Reforming college-level chemistry for nonscience majors. *Journal of Chemical Education*, *92*(1), 46–51.
- Cruzeiro, V. W. D., Roitberg, A., & Polfer, N. C. (2016). Interactively Applying the Variational Method to the Dihydrogen Molecule: Exploring Bonding and Antibonding. *Journal of Chemical Education*, *93*(9), 1578–1585.
- Finch, L. E., Hillyer, M. M., & Leopold, M. C. (2015). Quantitative analysis of heavy metals in children's toys and jewelry: a multi-instrument, multitechnique

exercise in analytical chemistry and public health. *Journal of Chemical Education*, *92*(5), 849–854.

- Glover, S. R., Sewry, J. D., Bromley, C. L., Davies-Coleman, M. T., & Hlengwa, A. (2013). The Implementation of a Service-Learning Component in an Organic Chemistry Laboratory Course. *Journal of Chemical Education*, *90*(5), 578–583.
- Halstead, J. A. (2012). Teaching the Spin Selection Rule: An Inductive Approach. *Journal of Chemical Education*, *90*(1), 70–75.
- Hibbard, L., Sung, S., & Wells, B. (2015). Examining the effectiveness of a semi-self-paced flipped learning format in a college general chemistry sequence. *Journal of Chemical Education*, *93*(1), 24–30.
- Hoyer, C. E., & Kegerreis, J. S. (2013). A Primer in Monte Carlo Integration Using Mathcad. *Journal of Chemical Education*, *90*(9), 1186–1190.
- Jacobs, D. L., Dalal, H. A., & Dawson, P. H. (2015). Integrating Chemical Information Instruction into the Chemistry Curriculum on Borrowed Time: The Multiyear Development and Evolution of a Virtual Instructional Tutorial. *Journal of Chemical Education*, *93*(3), 452–463.
- McCollum, B. M., Regier, L., Leong, J., Simpson, S., & Sterner, S. (2014). The effects of using touch-screen devices on students' molecular visualization and representational competence skills. *Journal of Chemical Education*, *91*(11), 1810–1817.
- Morizot, O., Audureau, E., Briend, J. Y., Hagel, G., & Boulc'h, F. (2014). Introducing the Human Element in Chemistry by Synthesizing Blue Pigments and Creating Cyanotypes in a First-Year Chemistry Course. *Journal of Chemical Education*, *92*(1), 74–78.
- Phipps, L. R. (2013). Creating and teaching a web-based, university-level introductory chemistry course that incorporates laboratory exercises and active learning pedagogies. *Journal of Chemical Education*, *90*(5), 568–573.
- Priest, S. J., Pyke, S. M., & Williamson, N. M. (2014). Student perceptions of chemistry experiments with different technological interfaces: a comparative study. *Journal of Chemical Education*, *91*(11), 1787–1795.
- Rodrigues, R. P., Andrade, S. F., Mantoani, S. P., Eifler-Lima, V. L., Silva, V. B., & Kawano, D. F. (2015). Using Free Computational Resources To Illustrate the Drug Design Process in an Undergraduate Medicinal Chemistry Course. *Journal of Chemical Education*, *92*(5), 827–835.
- Schiltz, H. K., & Oliver-Hoyo, M. T. (2012). Physical Models That Provide Guidance in Visualization Deconstruction in an Inorganic Context. *Journal of Chemical Education*, *89*(7), 873–877.
- Thomas, A. C., Boucher, M. A., & Pulliam, C. R. (2015). Qualitative to quantitative and spectrum to report: an instrument-focused research methods course for first-year students. *Journal of Chemical Education*, *92*(3), 439–443.
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Teaching Sociology
- Becker, S., & Paul, C. (2015). "It Didn't Seem Like Race Mattered": Exploring the Implications of Service-learning Pedagogy for Reproducing or Challenging Color-Blind Racism. *Teaching Sociology*, *43*(3), 184–200.
- Bramesfeld, K. D., & Good, A. (2015). The Game of Social Life: An Assessment of a Multidimensional Poverty Simulation. *Teaching Sociology*, *43*(2), 92–103.
- Chin, L. G., & Gibbs Stayte, P. (2015). Can Human Subject Pool Participation Benefit Sociology Students?. *Teaching Sociology*, *43*(1), 27–38.
- Crowe, J. A., Silva, T., & Ceresola, R. (2015). The Effect of Peer Review on Student Learning Outcomes in a Research Methods Course. *Teaching Sociology*, *43*(3), 201–213.
- Delucchi, M. (2014). Measuring student learning in social statistics: A pretest-posttest study of knowledge gain. *Teaching Sociology*, *42*(3), 231–239.
- Ghoshal, R. A., Lippard, C., Ribas, V., & Muir, K. (2013). Beyond Bigotry: Teaching about Unconscious Prejudice. *Teaching Sociology*, *41*(2), 130–143.
- Grauerholz, L., & Settembrino, M. (2016). Teaching Inequalities: Using Public Transportation and Visual Sociology to Make It Real. *Teaching Sociology*, *44*(3), 200–211.
- Howard, J. R., Novak, K. B., Cline, K., & Scott, M. B. (2014). Another Nibble at the Core: Student Learning in a Thematically-Focused Introductory Sociology Course. *Teaching Sociology*, *42*(3), 177–186.
- Huggins, C. M., & Stamatel, J. P. (2015). An Exploratory Study Comparing the Effectiveness of Lecturing versus Team-Based Learning. *Teaching Sociology*, *43*(3), 227–235.
- Jafar, A. (2016). Student Engagement, Accountability, and Empowerment: A Case Study of Collaborative Course Design. *Teaching Sociology*, *44*(3), 221–232.
- Khanna, N., & Harris, C. A. (2015). Discovering Race in a "Post-Racial" World: Teaching Race through Primetime Television. *Teaching Sociology*, *43*(1), 39–45.
- Messinger, A. M. (2012). Teaching content analysis through Harry Potter. *Teaching Sociology*, *40*(4), 360–367.
- Mueller, J. C. (2013). Tracing Family, Teaching Race: Critical Race Pedagogy in the Millennial Sociology Classroom. *Teaching Sociology*, *41*(2), 172–187.
- Olsen, L. D. (2016). "It's on the MCAT for a Reason" Premedical Students and the Perceived Utility of Sociology. *Teaching Sociology*, *44*(2), 72–83.
- Parrotta, K. L., & Buck, A. R. (2013). Making Marx Accessible: Understanding Alienated Labor through Experiential Learning. *Teaching Sociology*, *41*(4), 360–369.

- Picca, L. H., Starks, B., & Gunderson, J. (2013). "It Opened My Eyes" Using Student Journal Writing to Make Visible Race, Class, and Gender in Everyday Life. *Teaching Sociology*, *41*(1), 82–93.
- Rondini, A. C. (2015). Observations of Critical Consciousness Development in the Context of Service Learning. *Teaching Sociology*, *43*(2), 137–145.
- Strangefeld, J. A. (2013). Promoting Active Learning: Student-Led Data Gathering in Undergraduate Statistics. *Teaching sociology*, *41*(2), 199–206.
- Upright, C. (2015). Bringing Color into the Living Room: Analyzing "TV Guide" Covers, 1953 to 1997. *Teaching Sociology*, *43*(3), 214–226.
- Windsor, E. J., & Carroll, A. M. (2015). The Bourgeoisie Dream Factory: Teaching Marx's Theory of Alienation through an Experiential Activity. *Teaching Sociology*, *43*(1), 61–67.

Appendix C

Articles that contain an alteration made to a teaching approach

Bioscene
- Burton, R. S. (2014). Readability, Logodiversity, and the Effectiveness of College Science Textbooks. *Bioscene: Journal of College Biology Teaching*, *40*(1), 3–10.
- McCabe, D. J., & Knight, E. J. (2016). Null Models for Everyone: A Two-Step Approach to Teaching Null Model Analysis of Biological Community Structure. *Bioscene: Journal of College Biology Teaching*, *42*(2), 16–25.
- Metzger, K. J. (2015). Collaborative Teaching Practices in Undergraduate Active Learning Classrooms: A Report of Faculty Team Teaching Models and Student Reflections from Two Biology Courses. *Bioscene: Journal of College Biology Teaching*, *41*(1), 3–9.

Journal of Chemical Education
- Bauer, C. F., & Cole, R. (2012). Validation of an assessment rubric via controlled modification of a classroom activity. *Journal of Chemical Education*, *89*(9), 1104–1108.
- Duis, J. M., Schafer, L. L., Nussbaum, S., & Stewart, J. J. (2013). A process for developing introductory science laboratory learning goals to enhance student learning and instructional alignment. *Journal of Chemical Education*, *90*(9), 1144–1150.
- Glaser, R. E., Delarosa, M. A., Salau, A. O., & Chicone, C. (2014). Dynamical Approach to Multiequilibria Problems for Mixtures of Acids and Their Conjugated Bases. *Journal of Chemical Education*, *91*(7), 1009–1016.
- Gregory, R. B., & Lauber, M. (2012). Whoosh Bottle Safety, Again: What About What Is Inside?. *Journal of Chemical Education*, *89*(5), 620–623.

- Grove, N. P., Cooper, M. M., & Cox, E. L. (2012). Does mechanistic thinking improve student success in organic chemistry?. *Journal of Chemical Education*, *89*(7), 850–853.
- Johnson, A. T. (2014). A prospective method to guide small molecule drug design. *Journal of Chemical Education*, *92*(5), 836–842.
- Kendhammer, L., Holme, T., & Murphy, K. (2013). Identifying differential performance in general chemistry: Differential item functioning analysis of ACS General Chemistry trial tests. *Journal of Chemical Education*, *90*(7), 846–853.
- Logan, J. L., Quiñones, R., & Sunderland, D. P. (2014). Poster presentations: Turning a lab of the week into a culminating experience. *Journal of Chemical Education*, *92*(1), 96–101.
- Mutambuki, J., & Fynewever, H. (2012). Comparing Chemistry Faculty Beliefs about Grading with Grading Practices. *Journal of Chemical Education*, *89*(3), 326–334.
- Nelson, D. J., Kumar, R., & Ramasamy, S. (2015). Comparing Carbonyl Chemistry in Comprehensive Introductory Organic Chemistry Textbooks. *Journal of Chemical Education*, *92*(7), 1171–1177.
- Paik, S. H. (2015). Understanding the Relationship Among Arrhenius, Brønsted–Lowry, and Lewis Theories. *Journal of Chemical Education*, *92*(9), 1484–1489.
- Raker, J., Holme, T., & Murphy, K. (2013). The ACS Exams Institute undergraduate chemistry anchoring concepts content map II: Organic Chemistry. *Journal of Chemical Education*, *90*(11), 1443–1445.
- Ryan, M. D., & Reid, S. A. (2015). Impact of the flipped classroom on student performance and retention: a parallel controlled study in general chemistry. *Journal of Chemical Education*, *93*(1), 13–23.
- Schwartz, P., & Barbera, J. (2014). Evaluating the content and response process validity of data from the chemical concepts inventory. *Journal of Chemical Education*, *91*(5), 630–640.
- Tellinghuisen, J. (2015). Using least squares for error propagation. *Journal of Chemical Education*, *92*(5), 864–870.

Teaching Sociology
- Grauerholz, L., & Settembrino, M. (2016). Teaching Inequalities: Using Public Transportation and Visual Sociology to Make It Real. *Teaching Sociology*, *44*(3), 200–211.
- Picca, L. H., Starks, B., & Gunderson, J. (2013). "It Opened My Eyes" Using Student Journal Writing to Make Visible Race, Class, and Gender in Everyday Life. *Teaching Sociology*, *41*(1), 82–93.
- Prince, B. F., Kozimor-King, M. L., & Steele, J. (2015). An Old Tool Reexamined Using the Star Power Simulation to Teach Social Inequality. *Teaching Sociology*, *43*(4), 301–309.
- Stein, R. E., Colyer, C. J., & Manning, J. (2016). Student Accountability in Team-based Learning Classes. *Teaching Sociology*, *44*(1), 28–38.

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Chapter 4
The History of Lesbian, Gay, Bisexual, Transgender, Queer Issues in Higher Education

Karen Graves

> The Woolley-Marks Papers are not a record of some private embarrassment, but rather the brave statement of two women important in the history of higher education in this country. As professional historians, we respectfully and urgently request that the Papers be treated with the same care and openness that have characterized the handling of such Papers as those of Edith Wharton and Franklin Roosevelt or any number of other manuscript collections which contain sensitive material which have been used responsibly by scholars to give us history of great value (as cited in Fields, n.d.).

In 1976 historians at Mount Holyoke College petitioned President David Truman, asking that restrictions on access to the papers of the college's most pivotal president, Mary Woolley (1901–1937), be lifted. Truman and his immediate predecessor, President Richard Gettell (1957–1968), were concerned that two sets of Woolley's papers would rekindle a controversy at the college that stretched back four decades (Fields, n.d.). One set, the records of the Committee of Nine, traced the actions of the Board of Trustees in appointing President Roswell Ham (1937–1957) as Woolley's successor, making him the first man to lead the college. Woolley, who had reinvigorated the national reputation of Mount Holyoke during her 36 years of leadership, was surprised and outraged at the decision. She left South Hadley on 27 July 1937, never to return to the college. Then, in 1975 after extensive correspondence between President Woolley and English professor Jeannette Marks surfaced, President Truman directed that archival staff allow those recently acquired materials "be seen by no one" (cited in Fields, n.d.) However, Anna Mary Wells, Mount Holyoke '26, had already had access to the collection and in 1976 requested permission to cite the Woolley papers in her forthcoming biography of Marks and Woolley. When the initial request was denied, Wells became an unlikely pioneer in the study of lesbian, gay, bisexual, transgender, queer (LGBTQ) issues in the history

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of higher education. As she noted in the foreword to *Miss Marks and Miss Woolley*, opening the box containing the Woolley-Marks correspondence "radically altered" her approach to the dual biography, as well as "the feeling of the college authorities about it" (Wells, 1978, p. viii).

The historians at Mount Holyoke who petitioned the president for access to the Woolley-Marks correspondence were ahead of the curve in arguing that histories of sexual minorities occupy an important place in academic scholarship, and should be addressed with openness and respect. Jonathan Katz had just published his landmark *Gay American History* (1976), and Foucault's *History of Sexuality* (1978) had not yet been translated into English. The battle over access to the Woolley-Marks papers occurred well in advance of most colleges adopting lesbian and gay studies in the curriculum.[1] Martha Nussbaum's (1992) account of the difficulties she and her colleagues at Brown University encountered in introducing lesbian and gay studies in the mid-1980s provides evidence of the sort of academic hostility to scholarship on sexuality that characterized the early years of this work. She drew parallels between the challenges in establishing women's studies programs and lesbian and gay studies, but emphasized that "On this one issue of sexual orientation...the straight academy's (and above all the straight male academy's) fear of contagion was so deep that it was rare indeed to find support for those claims of justice, or for the closely related claims of scholarly inclusiveness" (Nussbaum, 1992, p. 32). In her hallmark style, Nussbaum argued with clarity that support for the new studies was rooted, most importantly, in scholarly integrity concerning the pursuit of truth and understanding. She cited, as an example, David Herlihy's work as a founding member of the Women's Studies Committee at Harvard and his contributions to the collective effort to add lesbian and gay studies to the curriculum at Brown. The esteemed historian placed scholarly critique and reason above curricular tradition bound by social prejudice, as evidenced by his support of John Boswell's graduate study that culminated in one of the landmark works (1980) in gay history.

For her part, Wells had simply set out to write a biography of Mary Emma Woolley, notable Mount Holyoke president whose historical record appeared curiously slim by the 1970s. Woolley's prominence in women's education history was without question, having achieved national recognition for her work in higher education, women's organizations, and peace and disarmament talks. In 1930, *Good Housekeeping* editors listed her among 12 "greatest living women in America" (Wells, 1978, p. 211). Woolley's own educational trajectory—graduate of Wheaton Seminary in Norton, Massachusetts, among the first class of women admitted to Brown University, A.B. 1894, M.A. 1895, and professor at Wellesley College—reflected the changing terrain of women's higher education in the late-nineteenth century. Certainly Woolley was a worthy candidate for a biographer interested in exploring the first decades of women's higher education in the United States. Wells

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[1]Eaklor (2008) reports that the University of Nebraska offered the first gay studies course in a college curriculum in 1970 and California State University, Sacramento established the first gay studies program 2 years later.

was aware that the circumstances surrounding Woolley's departure from the college in 1937 would require careful consideration and was prepared to "slide gracefully over it at the end" of the book (Wells, 1978, p. viii).

Wells also knew about the 55-year relationship between Woolley and Jeannette Marks that began when Marks was Woolley's student at Wellesley. It was common knowledge on campus in the 1920s when Wells was a student at Mount Holyoke, if not necessarily cause for much comment. In her study Wells drew on material in the Wellesley and Mount Holyoke archives to document the reciprocal nature regarding the influence of women's relationships on women's colleges and the ways in which women's academic communities affected individual women's relationships. She was not prepared for the contents of the crate opened in the Mount Holyoke archives in 1975, however, soon to be off limits to researchers. Wells explained she was "shocked and embarrassed" by the letters packed in "neat brown paper packages labeled with initials and dates. . . .letters in the packages in their original envelopes, addressed in Miss Woolley's now-familiar hand or Miss Marks' difficult scrawl, stamped and postmarked" (Wells, 1978, p. ix). For the purposes of historiography, Well's foreword is perhaps now the most enlightening part of the biography. It provides a glimpse of how the author of the first significant book dealing with LGBTQ themes in the history of higher education struggled to make sense of evidence of intimacy in the lives of her subjects.

One cannot dismiss Wells' unsubstantiated claims that the Woolley-Marks "relationship began in the childlike ignorance of sexual matters in which many young women of their generation were kept" (1978, p. x) or that "professional women of their generation. . .abjured sex" (p. xii). But it is important to note, too, that Wells reflected upon her own prejudices in a way that highlights the unrest of a generation of scholars on the cusp of new ways of thinking about sexuality. "It seemed to me impossible to ignore or suppress the content of the letters, impertinent to continue to read them, and quite unthinkable to publish them. . . . I had supposed myself to be open-minded and tolerant about sexual deviation, but it now appeared that I was not at all when it occurred in women I admired and respected" (Wells, 1978, p. ix). While readers, then and now, rightfully take issue with some of the language and assumptions in Wells' analysis, her criticism of efforts to keep a lid on the "shameful secret" at Mount Holyoke was on point: "the conspiracy of silence was not working" (Wells, 1978, pp. x–xi). Thus, the reluctant scholar took her place in the debate just heating up among women's historians concerning appropriate terminology for women who loved women in earlier periods (Chambers-Schiller, 1979). Wells did not describe Woolley and Marks as lesbians because she considered the term pejorative and inaccurate, implying a necessary connection to particular types of physical expression of affection (p. x). Wells was assessing the subject from the standpoint of a person who came of age in the 1920s, a critical period in the transformation of how Americans thought about sexuality, while in the midst of another significant turning point regarding how Americans thought about sexuality.

In retrospect it appears that Wells was right about two important points. First, while taking pains to expose her own lack of tolerance regarding the sexuality of Marks and Woolley, Wells was, nonetheless, more broadminded than many of her

contemporaries, Mount Holyoke alumnae and fellow scholars alike (see, for example, Kendall, 1976, pp. 131–143). Wells could see that any responsible biography of Woolley or Marks would have to feature their relationship as a central theme, and rather than abandon the writing project she brought the contents of the archival crate out for scholarly discussion. Second, Wells was cognizant of the historian's understanding of perspective. Noting that "a new generation will see the facts in a new light," Wells explained, "I cannot hope to justify the lovers' self-denial to the young any more than to justify their love to the old, but I have told their story to the best of my ability" (1978, p. xii).

Wells' biography of *Miss Marks and Miss Woolley* was the opening chapter in a line of scholarship on LGBTQ history in higher education. Four decades on, work remains relatively sparse in this field of study. But things have changed substantially at Mount Holyoke since Mary Ann Wells cracked into the Woolley-Marks correspondence. Restrictions on the collection were removed in 1990, and in 2012 Head Archivist Leslie Fields (n.d.) began the process of cataloguing the 38 boxes of material. Student curators Megan Haaga, '15, Jennie Ochterski, '15, and Carolina Palmer, '15 prepared an exhibit, "Mary Woolley & Jeannette Marks: Life, Love, & Letters" (n.d.) for the Mount Holyoke College Archives and Special Collections, that now can be accessed online. In 1999, Mount Holyoke College opened what would become known as the Jeannette Marks Cultural Center to serve members of the college community who identify as sexual and gender minorities, and allies (The Jeannette Marks Center, n.d.). Today the Woolley-Marks legacy is widely recognized as "history of great value," at Mount Holyoke College and beyond (cited in Fields, n.d.).

In 2012, I published a historiographical essay assessing the field of LGBTQ education history, elaborating on the text I delivered the previous year as Vice President of Division F: History and Historiography in the American Educational Research Association. There wasn't much to report on, and one of the questions I addressed then was why education historians have been relatively late in incorporating questions of sexuality into their work. Although LGBTQ research in the history of education has unfolded in patterns similar to the broader field of LGBTQ history, education historians were not among the grassroots activists who labored on local history projects "to uncover history that the academy had neglected, or perhaps, resisted" (Graves, 2012, p. 478). Citing William Pinar's claim that homophobia "is especially intense in the field of education" (1998, p. 2), I argued that Colleges of Education were not welcoming spaces for scholars who focused on the queer history of education. In addition, evidence regarding perceptions of sexuality, elusive for most historians, is particularly difficult to find when the subjects are students, teachers, or professors living and working under strict public scrutiny. Finally, education historians, particularly in the United States, have been slow to incorporate theory, explicitly, into their scholarship. This tendency has done little to bridge the gap between history of education research and queer studies. To date, there is no landmark work in the history of higher education to parallel Jackie Blount's 2005 volume, *Fit To Teach*, a comprehensive history of lesbian and gay school workers in the United States. Blount began this study before lesbian and gay

archives had established a strong institutional presence, and before the advent of ready access to online resources. Gathering relevant primary sources was, in and of itself, a significant contribution to the history of teachers. But Blount's central argument—that those who desire others of the same sex or otherwise transgress gender norms have always been among America's educators—established a critical theoretical framework for LGBTQ education history. In a corollary analysis, Blount examined why these educators had to maintain a relatively low profile throughout much of the twentieth century. More than any other scholar, Blount has shown that schools have held, among other primary concerns, a fierce commitment to regulating the sexuality of the nation.

This historiographical essay surveys histories of higher education that have examined LGBTQ issues as a central theme, or included substantial analysis of LGBTQ issues as part of a larger argument. The focus is decidedly on the experiences of sexual minorities in higher education, as students, professors, or administrative staff, and related issues. The scope of the study does not encompass broader issues relating to gender and sexualities, except as such research intersects with LGBTQ history. Throughout the essay, I use the terms "lesbian," "gay," "homosexual," "queer," "bisexual," and "transgender" as they surface in particular historical moments, and address historiographical debates about terminology as part of the analysis. It is widely understood that "gender expression, sexual behavior, attraction, and identity are each separate and distinct domains" (Wimberly, 2015, p. 5; Graves, 2012) and that the multiple definitions regarding sexuality are fluid, embraced by some and not others, and have changed over time. Therefore, I am using the term "LGBTQ" as a general categorization common to research in the field. One should note, however, that very little scholarship in the history of higher education explicitly addresses bisexual or transgender students, professors, or issues, and publications that embrace queer theory have only recently emerged in the literature.

I started compiling the bibliography of sources that constitute this review a decade ago, and have added to it as new work is published in the history of education. Since so few books have been published in this area, it is important to include journal publications in a review of the field. In 2016, I ran a targeted search, beginning with *Exe Libris*: the UK History of Education Society's Online Bibliography. This is a comprehensive search engine for scholarship in the history of education that includes 56 UK historical journals, *ANZHES Journal* (the journal of the Australian and New Zealand History of Education Society), *History of Education Review*, *History of Education Quarterly* (the journal of the United States History of Education Society), and *Paedagogica Historica* (the journal of the International Standing Conference for the History of Education). The following list of keywords resulted in just one article addressing LGBTQ issues in higher education history: "homosexuality," "gay," "lesbian," "transgender," "same sex," "queer," "sexuality," "purge." This recent search reinforced an observation I had already made: most published research on LGBTQ issues in the history of higher education does not appear in history of education journals. One must look elsewhere, so I ran a search of the same keywords on the EBSCO database, specifically targeting the following search engines: Academic Search Complete, America: History & Life, Education

Full Text, Education Research Complete, Gender Studies Database, Historical Abstracts, LGBT Life with Full Text, and Women's Studies International. In this search I crossed the keywords listed above with "higher education" and "history," yielding a number of hits but only four articles on LGBTQ issues in higher education history.

To begin my analysis of the literature, I separated the resulting bibliography into three parts: books, articles, and films on the history of higher education that address LGBTQ issues as a central theme; books and articles that either incorporate LGBTQ issues in higher education in broader LGBTQ histories or address historical themes in broader treatments of LGBTQ issues in higher education; books and articles that examine life histories of people in higher education, either through biographies, surveys, or other reflections on college experiences. I then organized the material into sections that present a thematic overview of the literature, beginning with early work that simply established the presence of LGBTQ people in the academy. In that section, I examine biographies that informed our understanding of women's relationships in late-nineteenth- and early-twentieth-century colleges and their connections to women's claims on educational, political, and social rights during that period. Dilley's (2002) typology of male sexual identity, *Queer Man on Campus*, and Shand-Tucci's (2003) study of the ways in which Harvard men over the course of a century came to understand and express their sexuality were useful contributions that followed roughly two decades later. At the same time, Beemyn (2003a) published an article in the first issue of the *Journal of Gay & Lesbian Issues in Education* that included a short overview of transgender history and referenced recent experiences of three college students.

Sexual politics shifted in the middle decades of the twentieth century so that by the post-World War II era "mere survival ruled the day" (Bernstein, 2002, p. 542) for gay men and lesbians, on campus and off. Government officials at federal, state, and local levels manically embraced a wide-sweeping strategy of repression of sexual minorities that included arrests, forced hospitalization, loss of jobs, blackmail, surveillance, and physical attack (Graves, 2015). Thus, this essay's second section reviews the series of purges which attacked the very presence of LGBTQ people on college campuses during the Cold War. The most intense and concentrated of those witch hunts occurred in Florida, between 1956 and 1965. Research on the Florida Legislative Investigation Committee published between 1992 and 2014 (Braukman, 2012; Graves, 2006, 2009; Poucher, 2014a; Schnur, 1992, 1997; Sears, 1997) is the most developed scholarship on this topic, and constitutes a considerable part of the bibliography on the history of LGBTQ issues in higher education. Historians have documented other purges, some occurring before the Cold War, at Harvard, Dartmouth, Smith, Illinois, Michigan, Missouri, Wisconsin, Texas, Southern Mississippi, and UCLA (Feinberg and Odeshoo, 2000; "Hunting Homosexuals at Southern Miss: 1955–1965," 2016; Martin, 1994; Nash and Silverman, 2015; Syrett, 2007; Tsang, 1977a, 1977b; Weiler, 2007; Wright, 2005).

At about the same time that historians turned their attention to research on gay purges at colleges and universities, others were beginning to analyze LGBTQ students' efforts to organize on campuses. This work, detailed in the third section,

appeared as journal articles and book chapters; no full-length treatment has yet been published. Similarly, historical scholarship on gender and sexuality that intersects with LGBTQ themes in higher education, the topic of the final section, appears most often as part of larger works addressing notions of masculinity in European universities and American fraternities, and the sexual revolution that transformed U.S. culture in the 1960s and 1970s (Bailey, 1999; Friedman, 2005; Syrett, 2009; Weber, 2008).

In 2011, preeminent gay historian John D'Emilio addressed the members of the History of Education Society meeting in Chicago, encouraging scholars to take up a new challenge in writing LGBTQ history. As the field entered its fourth decade it was time, he said, to think about how LGBTQ history contributes to an increased understanding of broader questions of historical significance. Looking back over the trajectory of research on LGBTQ history in higher education, one can appreciate the difficult work historians began in the 1970s that established a foundation for future study. It was no small thing to document the presence of LGBTQ people in the academy, drawing fragments of evidence from personal correspondence and the ways in which people lived their lives. As Cold War restrictions drew tighter around gay men and lesbians falsely accused of posing a deviant threat to the social and political order, investigative committees, court records, and news reports left a trail of interrogation transcripts, official sanctions, policies, and laws for historians to interpret in the decades to come.[2] The repression gave rise to gay rights groups and, later, student organizations that produced their own policy documents, publications, and other primary sources that historians have turned to, along with an increasing reliance on interviews, to examine the changing landscape of LGBTQ issues in higher education. Throughout, historians have weighed the impact of contemporary scholarly and popular literature in science, medicine, psychology, religion, law, and education, among other fields, on changing cultural norms regarding sexuality. In the last decade, historical scholarship on LGBTQ issues in higher education has relied more on queer theory in framing questions for analysis. To paraphrase the Queer Nation (60) rallying cry of the 1990s, education historians have made it clear over the last few decades that "we're here" in higher education. It falls to an emerging generation of scholars to articulate in richer detail what it means, and has meant, to be queer in the academy.

4.1 Establishing a Presence

> ...[T]he aim of my research, while physically most ambitious, was intellectually quite modest—to simply recover and present a significantly large, wide-ranging collection of historical documents concerning ... Gay American history. ... After several years of research, working alone, with quite meager financial resources, I was able to uncover

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[2]Karen Harbeck's 1997 landmark work, *Gay and lesbian educators: Personal freedoms, public constraints,* is a useful starting point for analyzing the legal terrain during this period.

evidence of a vast, subterranean world of same-sex relations, coexistent with the ordinary historical universe. I now believe it will one day be possible to write a comprehensive, analytical, narrative chronicle of the homosexual American experience, but only after Gay history is legitimized, after it becomes a cooperative enterprise, after more research is undertaken and more evidence collected.... This book is significantly not a product of academia; it does not play it safe; it is rough at the edges, radical at heart (Katz, 1976, pp. 6, 8).

It is fitting to remember how desolate the scholarly landscape of LGBTQ history was in 1976 when Jonathan Katz published *Gay American History*. Historians' turn to social history had barely begun when Katz "single-handedly created a subfield of American history" (Downs, 2016, n.p.). Well, not exactly single-handed, as Katz himself was the first to point out. Part of the impetus for his work came from the Gay Socialist Action Project, a group of activists and intellectuals who met regularly at John D'Emilio's New York apartment to discuss critiques of power structures ranging from Marx to feminist and critical race theorists of the moment. Downs (60) reports that the group was "searching for a new theoretical framework for what it meant to be gay and for instructions on how to launch a revolution" (n.p.). Katz came to appreciate the critical importance of documenting one's history, as a buffer against changing political winds. "If you think of yourself as some sort of psychological mutant or biological freak, you have an ahistorical way of looking at yourself. Gays have a history, a society. And it's very important to me to show not only the ways in which gays have been oppressed, but the ways in which they have survived and resisted" (as cited in Downs, 2016, n.p.).

Katz (1976) referenced more than 25 colleges, universities, and medical schools in his 690-page volume, although in most cases that involved simply noting the institutions as part of a person's educational biography or as sites for anti-gay "research." Some of these brief reports, however, staked new ground that other historians would explore in later years. Most of these addressed same-sex relationships involving students or faculty, for example, Antoinette Brown and Lucy Stone at Oberlin, Ralph Waldo Emerson and Martin Gay at Harvard, women attending Johns Hopkins Medical School—"apparently a hotbed of Lesbianism and feminism" in the early 1900s—and, Bryn Mawr President M. Carey Thomas' relationships with Mary Gwinn and Mary Garrett (Katz, 1976, p. 645, n. 9). Bertrand Russell's autobiography provided the window into the Thomas-Gwinn-Garrett triangle, an example of how much of LGBTQ history is preserved through sources hostile to the subject. Katz observed that Russell probably would not have recalled the relationship at all, absent the conflict between Gwinn and Thomas adding, "a great many homosexually relevant documents come to portray problematic episodes in the lives they recorded" (Katz, 1976, p. 59).

Katz effectively parlayed shreds of available information into a documentary history that has stood the test of time. His writing was carefully structured to guard against reaching beyond the evidence. For example, noting that Henry David Thoreau "often explores and tries to sum up the meaning and quality of his intimate interactions with men—that special love-friendship which is a recurrent theme of his writing," Katz wrote that "it would not have been unusual if Thoreau had found one

special friend among his Harvard schoolmates" (1976, p. 481). This is a theme that Shand-Tucci elaborated on in his 2003 book, *The Crimson Letter: Harvard, Homosexuality, and the Shaping of American Culture*.

Katz drew attention to a few primary sources that would, in later years, serve as foundational elements in the emerging historiography of LGBTQ issues in higher education. His section on English socialist Edward Carpenter, for instance, opened a portal to work that explores discourse on sexuality at Oxbridge (Dowling, 1994; Weber, 2008). Carpenter, best remembered for his early articulation of homosexuality in positive terms, contrasted different climates regarding perceptions of sexuality. He observed, "We must remember, too, how different, the atmosphere on all these matters was then [1891] (especially in the U.S.A.) from what it is now [1924] in the centres of modern culture, and in places like Oxford and Cambridge and London, where you can nowadays talk as freely as you like, and where sex variations and even abnormalities are almost a stock subject of conversation" (as cited in Katz, 1976, p. 365). In 1994, Dowling pointed readers to the way that Greek studies at Oxford in the Victorian Era operated as "homosexual code" to justify male same-sex love, while making it clear that "'homosexuality' eventually emerged as a positive social identity only through a slow process of cultural transformation taking place over centuries" (p. xiii). Taddeo (1997) picked up the story in the Edwardian Era with an analysis on the "New Style of Love" practiced by the Cambridge Apostles, a version of male love that "separated the lower from the Higher forms of sodomy, the body from the soul, and passion from love" (p. 201). It was a version of manly love that claimed class and gender privilege, and male superiority. Quinn and Brooke (2011) argued that Edward Carpenter and John Addington Symonds rejected this aristocratic reading of homosexuality and, instead, embraced a democratic, more inclusive sexuality. Quinn and Brooke concluded, "Different versions of homosexuality could buttress different versions of socialism; to talk about sex—as ever—was also to be talking about politics" (2011, p. 696).

In another section Katz introduced readers to Katharine Bement Davis' 1929 report, *Factors in the Sex Life of Twenty-Two Hundred Women*, a study that included two chapters on homosexuality. Blount (2005) drew from this work to establish the fact that significant numbers of women educators in the early-twentieth century experienced intense emotional and/or sexual relationships with women, a point she notes that Davis made in generally positive terms.

Katz also highlighted incidents regarding gay and lesbian purges that others would analyze more thoroughly, including dismissals from Smith College (Martin, 1994; Shand-Tucci, 2003) and universities in Florida (Braukman, 2012; Graves, 2006, 2009; Poucher, 2014a; Schnur, 1992, 1997; Sears, 1997). Recently, Katz has been instrumental in recording details on the "hunt for homosexuals" at Southern Mississippi University from 1955 to 1965, and is organizing a nationwide database (60) at *OutHistory.org* to document the university purges. Homophobic impulses did not always win the day, however. Gardner Jackson recalled from his student days at Amherst (1915–1916) that Robert Frost asked President Meiklejohn to fire his colleague in the English department, Stark Young, on the basis of Young's homosexuality (Katz, 1976). Evidently, there were other areas of conflict between the

professors, and Meiklejohn refused to dismiss Professor Young, presumably due to his competence as a teacher. Although President Lowell would take a drastically different approach in the next few years at Harvard (Wright, 2005), purges of gay and lesbian faculty had not yet become as aggressive as during the Cold War (detailed in the next section).

Some sections in *Gay American History* underscore the point that Blount (2005) and others have since developed: gender transgressions often provoked more fury in schools and universities than same-sex desire. Katz reported on the case of a student at Cornell who was expelled in the 1880s for attending a concert with another woman dressed in a man's suit. According to a recollection by Cornell alumna Ellen Coit Brown, '82, the expelled student was eventually reinstated at the university and graduated. While she ended up living a "long and exemplary life," the woman's "companion who wore the man's suit never appeared at college again but faded into anonymity" (Brown cited in Katz, 1976, p. 231).

While it would fall to others (for example, Boswell, 1980; Chauncey, 1994; Cook, 1977; D'Emilio, 1983; D'Emilio & Freedman, 1988; Duberman, Vicinus, & Chauncey, Jr., 1989; Faderman, 1981; Kennedy & Davis, 1993) to break into the academic ranks, Katz's painstaking work assured that generations of LGBTQ people would come to know they have a history.

Historians who study nineteenth- and twentieth-century women's colleges were the first to write on LGBTQ issues in higher education. Prominent work includes Wells' biography (1978) of Jeannette Marks and Mary Woolley, Judith Schwarz's 1979 article on Katharine Lee Bates and Katharine Coman, Patricia Palmieri's path-breaking research on the community of women faculty at Wellesley (1983, 1995), Helen Lefkowitz Horowitz's biographical study of M. Carey Thomas (1992, 1994), and Nancy Sahli's influential article, "Smashing: Women's Relationships Before the Fall" (1979). The imprint of women's history and feminist theory on these beginnings is evident; Sahli's and Schwarz's articles appeared in women's studies journals, and Carroll Smith-Rosenberg's foundational article (1975) appeared on the first pages of the first issue of *Signs: Journal of Women and Culture in Society*.

Smith-Rosenberg's "The Female World of Love and Ritual" remains a requisite reference in lesbian, women's, and gender history, describing the network of intimate, supportive relationships that girls and women developed in the nineteenth century. Smith-Rosenberg encouraged her readers to "view sexual and emotional impulses as part of a continuum or spectrum of affect gradations strongly effected by cultural norms and arrangements, a continuum influenced in part by observed and thus learned behavior" (1975, pp. 28–29). Her research revealed that, in different historical contexts, people have more or less freedom to move across the spectrum from heterosexuality to homosexuality. Whether or not historians chose to label emotional, sensual, and sexual relationships between people of the same sex in the past as "lesbian" or "gay," however, was another question. Given that "[w]omen's colleges were important sites in defending social constructionists' claims that historical forces shaped the possibilities that led women to claim a lesbian identity," education historians have had a central role in this debate (Graves, 2012, p. 479).

Alison Oram and Annmarie Turnbull's introduction to *The Lesbian History Sourcebook* (2001) addresses this question in clear fashion. They articulate the complexity of the issue, first, by explaining that "lesbian" encompasses many meanings and identities, ranging from "feminist woman-identified-woman (emphasizing community and politics) to a specifically sexual definition (emphasizing powerful eroticism and transgression)" (Oram & Turnbull, 2001, p. 1). Since these meanings have changed over time and women rarely claimed a lesbian identity until recent decades, we cannot *simply* apply a concept or language from one time to another. Rather, historians must "enter into the culture of the past as best we can, and understand the social and economic constraints within which women could express or act out love and desire for other women, while at the same time recognizing that our questions, concerns and interests, and the interpretations we make of women in the past, have arisen in our specific historical circumstances" (Oram & Turnbull, 2001, p. 1). Oram and Turnbull's definition of lesbian requires some evidence of a broad sense of eroticism, whether indicated by sexual practices, transgressing gender roles, or women's consciousness of their feelings toward other women. They add that the scholarly discourse on how to "define lesbianism historically" has been most useful in underscoring "the diversity and ephemerality of historical evidence of desire between women," not that it has led to a stable definition of the term (Oram & Turnbull, 2001, p. 2). Leila Rupp (1989) offered a comparable set of guidelines, cautioning that one bear in mind that identity and sexual behavior are discrete elements, sexual behavior is only one factor in a relationship, definitive evidence of sexual behavior is hard to come by, and what does exist is often misinterpreted. In her collective biography of Wellesley faculty from 1875 to 1930, Palmieri adopted a similar stance, describing the Seven Sisters college "as a community of women-committed women," adding that such an approach "acknowledges the elements of love, physical affection, and openly sexual behavior in some Wellesley marriages and reserves the term *lesbian* for women who have consciously claimed that identity" (Palmieri, 1995, p. 138).

Judith Schwarz did not hesitate to refer to Wellesley professors Katharine Lee Bates and Katharine Coman as "a devoted lesbian couple" in her 1979 biographical sketch (p. 59). Consciously striking out to contribute to what she perceived as a nearly non-existent history of independent women, Schwarz acknowledged the concerns that historians have about referring to "long-dead women" as lesbians. Yet the term, for Schwarz, meant much more than an implication of overt sexual acts. Citing Phyllis Lyon's definition of a lesbian as "a woman whose primary erotic, psychological, emotional, and social interest is in a member of her own sex," Schwarz argued that the more important concern was to "discover and analyze how these women lived their lives outside of the standard comforts and socially approved protection of a male-female relationship" (Schwarz, 1979, p. 60). Although her analysis centers on Bates and Coman, Schwarz referenced Vida Scudder and Florence Converse, Margaret Sherwood and Martha Shackford, and Jeanette Marks and Mary Woolley as other couples in the Wellesley orbit who left evidence of the kind of mutually supportive, vital relationships that sustained professional women in the early-twentieth century. The biographical studies by

Schwarz (1979), Horowitz (1992, 1994), and Wells (1978) provide glimpses into the early functioning of the women's colleges by some of their most acclaimed leaders, and at times, some insight into how the women, themselves, thought about their life choices. Schwarz reports, for instance, that when a friend described "free flying spinsters" as a "fringe on the garment of life," Professor Bates responded, "I always thought the fringe had the best of it. I don't think I mind not being woven in" (as cited in Schwarz, 1979, p. 65).

Prior to the release of her 1994 biography of Bryn Mawr President M. Carey Thomas, Helen Lefkowitz Horowitz published an article in the *Journal of American History* (1992) in which she argued that Thomas created her self-identity through reading. Deeply immersed in the biographical study, Horowitz knew that it was not easy to access the private thoughts that guided Thomas in her personal relationships. "Thomas was a formidable public figure," Horowitz explained, "who sheathed herself in the conventions of her era" (Horowitz, 1992, p. 69). Based on juxtaposed readings of Thomas' letters and diary with the poetry and fiction she read, Horowitz aimed to develop "an understanding of how a Quaker daughter born in the constricted world of mid-nineteenth-century Baltimore could emerge by her early twenties as a free-thinking woman capable of pursuing an independent course in Europe to attain the Ph.D. and of passionately loving another woman" (1992, p. 72). Horowitz argued that a method that envisions reading as a social experience as well as a private act can be a useful tool in reconsidering our notions of women's love for other women, and claimed a new perspective on women's same-sex love. "Carey Thomas and the women of her circle were not part of either the world of sentimental friendship or that of lesbianism. They did not take their primary cues from prescriptive literature. They were not passive victims of male definitions. They sought out and read works of fiction and poetry, written largely by men, that opened them to a sensuous world of eroticism between women. They actively and willingly chose the passionate sensibility of 'nous autres'" (Horowitz, 1992, p. 91). Similar to the position she had taken in 1984 (pp. 187–197), Horowitz explicitly noted that she avoided using the terms "lesbian" and "sexual" in her study of M. Carey Thomas since Thomas did not consider that women's feelings for each other had a sexual basis until she read the work of sexologists in the 1890s. Horowitz preferred to describe Thomas as "a passionate woman who reveled in aesthetic delights and formed intense, loving commitments to other women" (Horowitz, 1992, p. 94).

Sahli (1979) claimed Blanche Cook's definition of lesbian, "[w]omen who love women, who choose women to nurture and support and to create a living environment in which to work creatively and independently" (as cited on p. 17), in her exploration of changing perceptions of women's relationships at the end of the nineteenth century. She cited women's enrollment in coeducational and women's colleges as one of the significant social changes that had an impact on shifting notions of acceptable behavior among women. Living and working together at the colleges, women students and professors shared a commitment to claiming new educational, social, and political opportunities. They joined together to combat the sexist backlash to these advances as expressed by opponents of higher education for women. Sahli cited excerpts from Dr. Edward Clarke's popular text, *Sex in*

Education: or, A Fair Chance for the Girls, that castigated college-educated women for abandoning what he thought was women's proper bearing: "There are those who write and act as if their object were to assimilate woman as much as possible to man, by dropping all that is distinctively feminine out of her, and putting into her as large an amount of masculineness [sic] as possible. . . .There may be some subtle physiological basis for such views; for many who hold and advocate them are of those, who, having passed middle life without the symmetry and development that maternity gives, have drifted into the hermaphroditic condition that sometimes accompanies spinsterism" (as cited in Sahli, 1979, p. 20).

Sahli relied upon women's correspondence, college documents, reports of the Association of Collegiate Alumnae, and publications in the emerging field of sexology to support her argument that aspects of the nineteenth-century feminist movement converged with the publication of new scientific theories on sexuality to alter public perception of women's relationships. She makes a case that the feminist movement "subverted the heightened emotional commitment which had typified women's relationships during most of the nineteenth century" in conjunction with consciously honing their rational, intellectual capacities as part of their collegiate training (1979, p. 26). This occurred in parallel with the development of psychiatric and other prescriptive literature that sought to define and control acceptable sexual behavior. Sahli's review (pp. 23–25) remains a useful overview of the emergence of this literature base.

What may have been most striking to readers, however, when this piece was published in 1979, was the rich primary source evidence that delineated the central concept captured in the article's title. Alice Stone Blackwell's 1882 description provides a classic definition of "smashing": "I could hardly have believed that the things they told were not exaggerations, if Maria Mitchell hadn't told me, when I was visiting at Vassar, what a pest the 'smashing' was to the teachers there—how it kept the girls from studying, & sometimes made a girl drop behind her class year after year. . . .they write each other the wildest love-letters, & send presents, confectionery, all sorts of things, like a real courting of the Shaksperian [sic] style. If the 'smash' is mutual, they monopolize each other & 'spoon' continually, & sleep together & lie awake all night talking instead of going to sleep; & if it isn't mutual the unrequited one cries herself sick & endures pangs unspeakable. . . .The coeducational colleges don't suffer much from 'smashes.'. . .There are plenty of cases of 'particular friends,' but few or none of 'smashes'" (as cited in Sahli, 1979, p. 22). Evidence of smashing permeated primary source material such as correspondence, diaries, campus and other contemporary publications, and many historians addressed the phenomenon in their work. Jana Nidiffer's short essay on smashing that appears in Linda Eisenmann's 1998 *Historical Dictionary of Women's Education in the United States* provided a concise overview of the concept. Defined as "a version of same-sex romantic friendships among college women of the late nineteenth century characterized by rituals of declaring love and courting," smashing was initially perceived as a harmless rite of passage (Nidiffer, 1998b, p. 378). However, once the writings of prominent sexologists began to filter through society, smashing was recast as a deviant expression of sexuality "and it disappeared by World War I"

(Nidiffer, 1998b, p. 378). Other work beyond the scope of this essay's focus on higher education addresses student same-sex relationships in English public schools and boarding schools (Blount, 2005; Blount & Anahita, 2004; Bullough & Bullough, 1980; de S. Honey, 1977; Gathorne-Hardy, 1977; Vicinus, 1984).

The presence of women who loved women on nineteenth-century college campuses was firmly established in the biographical studies by the historians noted above. Lillian Faderman drew upon this work in writing her ambitious 1981 cultural history, *Surpassing the Love of Men: Romantic Friendship and Love Between Women from the Renaissance to the Present*. In that volume she included a description of the Marks-Woolley relationship, citing Wells' 1978 biography and Schwartz's 1979 essay on Bates and Coman, among other sources (Burgess, 1952; Finch, 1947; Kendall, 1976; Scudder, 1937). In her 1991 social history of lesbian life in twentieth-century America, Faderman synthesized research on "The Educated 'Spinster'" (pp. 13–18) and "The Metamorphosis of Romantic Friendship" (pp. 18–22), offering an overview of themes that circulated regarding women's higher education in the nineteenth century: the emergence of the women's colleges, criticisms of women's higher education, marriage statistics, Boston marriages, and smashes, referencing experiences at Bryn Mawr, Cornell, Oberlin, Smith, Wellesley, and Yale. She expanded on this work in 1999, devoting a section of *To Believe in Women: What Lesbians Have Done for America* to the history of women's higher education. The title, in fact, referenced a letter to Bryn Mawr President M. Carey Thomas from an alumna who wrote, "I have forgotten everything I learned at Bryn Mawr, but I still see you standing in chapel and telling us to believe in women" (as cited in Faderman, 1999, frontispiece). In these chapters Faderman provides general overviews of the work of Mary Lyon and Zilpah Grant, Sophia Packard and Harriet Giles, Lucy Salmon and Adelaide Underhill, and other education leaders who established intimate partnerships, claiming "many of the early female academics were virtually case studies of sexual inversion, seemingly right out of the pages of sexological tomes" (Faderman, 1999, p. 186). She discussed smashes and Wellesley marriages, and devoted a chapter each to M. Carey Thomas and Mount Holyoke President Mary Woolley. The prominence of women's partnerships at Wellesley College led women to adapt the term, "Boston marriages" to describe "lifelong relationships of deep significance" that fostered "verbal and physical expressions of love" (Palmieri, 1995, p. 137). In her discussion of Boston marriages, Nidiffer notes that these relationships "were known to be monogamous, long-term life choices for women. . . . Having grown up socialized to treasure women's friendships and women's values, the letters and diaries of participants in Boston marriages indicate that they had found 'kindred spirits' and discovered the full satisfactions of family life in their living arrangements" (Nidiffer, 1998a, p. 53). In her 1915 book on *The Women's Movement,* Jessie Taft wrote, "Everywhere we find the unmarried women turning to other women, building up with them a real home, finding in them the sympathy and understanding, the bond of similar standards and values, as well as the same aesthetic and intellectual interests, that are often difficult of realization in a husband, especially here in America where business crowds out culture" (as cited in Nidiffer, 1998a, p. 54). Like the overt crushes experienced by young women,

however, the phenomenon of Boston marriages would not last. Faderman discussed the sea change in women's colleges in the middle decades of the twentieth century, when domestic science curricula encroached on the liberal arts curriculum, percentages of women holding professorships and administrative positions dropped, and the heterosexual imperative intensified to the point where "women were warned against desiring both a serious education and the love of another woman" (Faderman, 1999, p. 240). Theories promulgated by sexologists at the turn of the twentieth century had been taken up by psychiatrists, such as the one who declared that female homosexuals were often "intellectual and cultured, though sexually infantile" (as cited in Faderman, 1999, p. 240). That is, he considered homosexuality a sign of arrested development. Faderman explained that shifting attitudes toward same-sex desire reflected a wider distribution of the sexologists' theories that went beyond the medical establishment and were echoed in the popular press.

Two books that address women's higher education in the South (Farnham, 1994; Jabour, 2007) also took up the theme of romantic friendship. Contrasting higher education for women in the southern states with women's education in the North, Farnham challenged the regional bias that defined southern education as inferior. Rather, she endeavored to show how "basically conservative agendas produced an advance in women's education" (Farnham, 1994, pp. 6–7) for the privileged class even as educators adapted both formal and informal curricula to fit dominant versions of gender in the South. Part of this argument focused on romantic friendships, common in the South as well as the North. The rituals of female romantic friendships, patterned on heterosexual love, were similar in both regions but Farnham detected a "distinctive stamp" in the evidence she examined (1994, p. 155). She found that women tended to engage in short-term, serial relationships due to shifting attractions and physical separation when one of the pair would leave school. Farnham argued that the serial nature of romantic friendships and the image of the Southern belle actually made them "opposite sides of the same coin, both leaving a trail of broken hearts" (1994, p. 161). Farnham's discussion of the extent to which physical affection occurred in female life in the South in general set a new context for the questions historians have raised about romantic friendships, particularly whether they could be characterized as lesbian relationships. She concluded that it was "more than likely that several things were going on"—simply engaging in a trendy practice, seeking affection to reduce the pain of familial ties left behind, joining a high status group of friends—but for some, "romantic friendships had a broader meaning" (Farnham, 1994, p. 165). But these women, too, had to live within the conventions of their society. Since southern women did not have access to the same range of economic opportunities as women in the North, this had an impact on their life possibilities, diminishing one's prospect for a "Charleston" marriage. Farnham observed, "Unlike the North, a lesbian culture failed to spread among these women, because they were unable to parlay their educations into occupations that could provide independent incomes sufficient to permit the development of communities of women" (1994, p. 4, 166).

Jabour's more recent study (2007) confirms that romantic friendships were "an important aspect of school life in the Old South," writing that the "female

community of the female academy was the primary reference point for southern schoolgirls" (p. 71). Jabour described the female friendships she studied as highly romantic, perhaps erotic, involving physical displays and intense emotional connections. They enabled young women to find self-fulfillment in the form of academic achievement and to develop a self-in-relation, all the while allowing for "a temporary reprieve from the demands of conventional southern womanhood" (Jabour, 2007, p. 76).

Women's relationships with each other prompted college officials to consider the social implications of building and campus design (Horowitz, 1984) and turned up in popular novels and short stories in the 1890s and early 1900s on student life at women's colleges (Inness, 1994). Horowitz argued that the architecture of women's dormitories, enormous buildings where "room arrangements hid much from view," bedeviled college authorities trying to "curb an autonomous student life" (1984, p. 68). Crushes and sexual relationships ran alongside political organization in the gamut of behaviors that college officials hoped to contain. In her study, "Mashes, Smashes, Crushes, and Raves: Woman-to-Woman Relationships in Popular Women's College Fiction, 1895–1915," Inness argued that "these fictional crushes can act as a barometer of changing social attitudes toward women's homoaffectionate relationships at the turn of the century" (1994, p. 49). Although not a new feature of college life in the 1890s, crushes fell under more scrutiny after the publication of Havelock Ellis's "The School-Friendships of Girls" (1897) and "it became increasingly difficult for people not to identify a homoaffectionate crush as abnormal" (Inness, 1994, p. 53). Interestingly, Jeannette Marks adopted this stance in an unpublished 1908 essay, "Unwise College Friendships," (Faderman, 1981; Wells, 1978) and revisited it in *A Girl's Student Days and After* (1911). Inness (1994) and Horowitz both argued that "the burgeoning of an independent student culture at the women's colleges of the 1890s" provoked more administrative control (p. 55).

Margaret Gibson (1998) exposed a critical inconsistency in her study of the vast medical literature of the late-nineteenth and early-twentieth centuries used to dampen enthusiasm for women's higher education. She noted a weak link in a series of assumptions regarding perceptions of the lesbian intellect. As Gibson explained, writers who assumed that masculine intellect was superior to feminine intellect, and that lesbians were masculine, were left to conclude that lesbians possessed superior intellect. This flew in the face of the notion that lesbians were degenerate. Gibson's argument provided fine-grain detail on how "the specter of an intelligent, sexually deviant woman became a threat to the status of any ambitious woman" (1998, p. 87). The medical classification of homosexuality that emerged in the late-nineteenth century breathed new life into Edward Clarke's earlier claims regarding women's education, masculinity, and degeneracy, especially as the schoolgirl crushes were gaining more attention. These concerns reached the point that "even the desire of a woman to attend college could indicate her latent or active homosexuality" to some, a notion that persisted decades into the twentieth century (Gibson, 1998, p. 89).

Deborah Olsen (2000) found that heterosexual images took on strategic importance in promotional literature designed by Mount Holyoke, Smith, and Wellesley

Colleges to boost enrollment and donations during the late 1940s. As top-tier institutions increasingly opened admissions to women in the post-war years, officials at the women's colleges looked for ways to "avoid association with such 'radical' ideas or traditions as feminism, 'careerism,' lesbianism, a separate women's culture or communities of women" (Olsen, 2000, p. 419). One of four techniques that Olsen (2000) identified in the promotional literature was a "heavy reliance upon heterosexual images, including frequent references to the presence of men on campus and an emphasis upon the 'feminine' qualities of students" (p. 434). For instance, photographs of male professors and students dating men became much more prominent in fund-raising appeals. Presidents and professors took pains to distance their colleges from "Ivory tower" references, leading Olsen to wonder if the wording might have been code for communities of women. Statements assured potential applicants that there was a good supply of single dormitory rooms, and one president, for instance, was quoted as stating: "Wellesley's 'ivory tower' has clear windows and outward swinging doors" (as cited in Olsen, 2000, p. 435). The erasure of lesbians, feminists, and academic communities of women that Olsen detected through her examination of college promotional literature was certainly not as harsh as the purges that would follow. Nonetheless, it proved an effective method of bolstering heterosexual culture on campus. Rather than promoting ignorance of lesbian sexuality directly, as a strategic ploy, this tactic was grounded in political geography as described by Proctor in his important book on *Agnotology* (2008). Sometimes ignorance results not simply from a vacuum of knowledge, or a more direct suppression of information; it can also stem from a selective choice. Proctor explained, "inquiry is always selective. We look *here* rather than *there*; ...the decision to focus on *this* is therefore invariably a choice to ignore *that*. Ignorance is a product of inattention...." (Proctor, 2008, p. 7). By mid-twentieth century, the apparent presence of lesbian and gay people on college campuses was fading.

Douglas Shand-Tucci (2003) launched a bold attempt to recover, not just a gay presence but a gay sensibility at Harvard, arguing that for over a century Harvard-connected gay men had an inordinate influence on the shaping of American culture. The work, written in a style that reflects the connections of an insider, relies upon secondary sources, cultural and literary history, personal and relayed narratives to produce a volume valuable for its many points of information regarding prominent gay lives. Shand-Tucci articulated the challenge faced by the first generation of gay historians: "Charting those currents, difficult to locate and sometimes thankless to detect, powerful as they are, because they are so deeply hidden, is for me the most worthy task of any historian alert to his calling" (2003, p. 5). He constructed his thesis around archetypes represented by Walt Whitman and Oscar Wilde, the warrior and the aesthete, "each an actual, indeed personal, presence in Harvard Yard in historical time, each a key vector, as scholars of Proust might put it, in psychological time ever since..." (Shand-Tucci, 2003, p. 11). Moving through chronological time and the organizational structures of "home" and "away," Shand-Tucci offers typologies centered, first, on the themes of pederasty, aristocracy, secrecy, and guilt; then, politics, repression, rage, prophecy, and "a greater emphasis on sex" (2003, p. 176); and finally, polemic, therapy, insight, and more sex. By the end of his 400-page

study, Shand-Tucci succeeds in making a case for a gay sensibility, asking "If, indeed, there is a Harvard sensibility, or a Boston sensibility, or a Jewish or an American or a Southern or a New York or a medieval or modern sensibility, or a leftist or a rightist or a warrior or an aesthete sensibility—are there not also sexual, as there are ethnic and vocational and period and regional and gender, sensibilities? Is there not a gay sensibility" (2003, p. 347). What is less clear, is whether the impact these subjects had on American culture was due to a gay sensibility rather than their Harvard connections.

Other scholarship that has helped to establish the historical presence of LGBTQ people in higher education utilizes surveys and oral history, drawing on interviews, recollections, and personal commentary. Patrick Dilley's study (2002, 2005) of non-heterosexual college men from 1945 to 2000 is, perhaps, the best known of this work. *Queer Man on Campus* is a qualitative typological study that makes use of interviews, historical context (concentrated primarily in Chapter 6), student identity development theories, and queer theory to understand how men "who do not identify as heterosexual make sense of their lives in college" (Dilley, 2002, p. 4). Dilley developed a typology of seven patterns of identity: three of these—homosexual (1940s to 1960s), gay (1960s to present), and queer (1980s to present)—emerged over time, he argues, while another four types—normal, closeted, parallel, and denying—were evident across the scope of his study. As part of an effort to clarify distinctions, Dilley explained, "Whereas a closeted student understood his identity to be a secret, a homosexual believed his identity to be a private matter, and a gay collegian conceived of his identity in social terms, a queer man found the very notion of his identity to be public in nature and discourse" (2002, pp. 119–120). Dilley's use of the term "non-heterosexual" throughout invites confusion and critique on the grounds that it implies a sense of inferiority that he does not intend. Rather, for him the term serves as a signifier that the men he interviewed "uniformly conceptualize [d] heterosexuality as a fixed, monolithic quality, . . .separate and distinct from their own sexuality" (2002, p. 9). Historians of higher education are likely to be most interested in the student narrative chapters that offer insight into perceptions and memories regarding the campus environment, fraternities and gay student groups, and sexual behavior, among other issues.

Anne MacKay's (1993) anthology of lesbian and gay experiences at Vassar College, *Wolf Girls at Vassar*, provides a rich source of 41 student recollections representing students from the class of 1934 to the class of 1990. MacKay's own recollection, "Being Gay at Vassar," was rejected by the *Vassar Alumnae Magazine* in 1970, but when alumnae/i began organizing the Lesbian and Gay Alumnae/i of Vassar College two decades later, the *Vassar Quarterly* was ready to publish a different essay, "Breaking the Silence: A Message about Being Homosexual." Both pieces are included in an appendix to *Wolf Girls* (MacKay, 1993), a book that records the responses MacKay received from Vassar alumnae/i wanting to share their own recollections about life at college as a lesbian or gay man. In a brief introduction MacKay addresses key themes that emerge from the recollections—the ways in which students, their families, and college officials dealt with their sexuality; the processes and time it took for women, in particular, to discover their sexual

identities; and a range of feminist perspectives that one might expect to find at one of the Seven Sister colleges over the course of a few decades. MacKay (1993) then provided a short overview of lesbian history at the college, discussing smashes and Boston marriages in the early years, the joy women experienced in their new-found independence, and administrators' concerns when they found that only 409 of 1082 Vassar graduates had married by 1895 (p. 7). She described the 1930–1950 frame as a period of silence, the 1950–1970 period as repressive, and identified the 1970–1990 decades with a resurgence of feminism. The introduction serves as a fine frame for the recollections that follow.

E. Patrick Johnson incorporates a section on homosex at Historically Black Colleges and Universities (HBCUs) in his 2008 collection of life histories of black gay men of the South. John Howard adopted "homosex" as a term to delineate "sexual activities of various sorts between two males" (1999, pp. xviii–xix). Based on interviews with men who attended HBCUs in Georgia, Louisiana, Mississippi, North Carolina, and Tennessee, Johnson speculated that the universities may have been more tolerant regarding homosexuality in the 1950s and 1960s than they are today. He explained that, "regardless of an institution's attitude toward homosexuality, gay men create their own communities within a larger black student body. Sometimes they are incorporated into the fabric of student life at an HBCU, and sometimes they are cordoned off into their own discrete and discreet organizations" (Johnson, 2008, p. 285).

While not a historical analysis, Toni McNaron's *Poisoned Ivy* (1997) may be of interest to historians concerned with tracing institutional change for lesbians and gay professors in the last decades of the twentieth century. McNaron describes the study as a hybrid report/narrative that incorporates insights from her 30 years of experience as a lesbian professor at the University of Minnesota as well as findings from 304 questionnaires collected from lesbians and gay men who had worked for at least 15 years in the academy. The resulting narrative presents higher education as a space characterized by gradual change, with many institutions still holding to unyielding prejudice against LGBTQ people. In the concluding chapter, McNaron offers a case study of a liberal arts college in California as a model of integration and equity. Looking to the future, she highlights accounts that underscore the point that a successful academic life requires a sense of comfort with one's self-identity. The personal perspective that serves as a theoretical frame throughout most of the book returns at the end with a force, as McNaron offers a clear visualization of the "difficult place" lesbian and gay academics still occupied at the end of the twentieth century: "We are asked to inhabit a middle ground between exhilaration and watchfulness, between the beginnings of ease and the necessity for alertness, between appropriate gratitude to colleagues and administrators who are working to improve our environments and continued pressure on such people to do even more. If we can manage this political and emotional balancing act, the academy will never be able to go back to the dismal and cruel state scores of people like me found in 1964" (McNaron, 1997, p. 213).

While Dilley, Johnson, MacKay, and McNaron offer reminisces that aid historians in capturing elements of the past that shed light on the college experiences of

LGBTQ students and faculty, John Howard's (1999) history of queer life in Mississippi features personal narratives alongside other sources of the historian's trade that allow him to make observations about queer life in college. Similar to Johnson, Howard found that "homosexual couples were frequently acknowledged—and occasionally accepted" in the years after World War II (1999, p. 66). He notes that the college environment—in the dorms, unions, and quads much more than in classrooms—allowed for the kind of open, sometimes hostile, conversation that increased awareness of homosexuality for queer and straight students alike. Faculty were rarely heard from on the matter, and administrators throughout the region set up stakeouts in campus restrooms from time to time to suppress homosexual activity. In spite of this climate, Howard found that "male college students constructed worlds of same-sex desire and intimacy, love and camaraderie" through "friendship ties, queer residential quarters, campus cruising areas, and off-campus networks of house parties and nightclubs" (1999, p. 69).

In the afterword to *Lonely Hunters: An Oral History of Lesbian and Gay Southern Life, 1948–1968*, prominent gay rights activist Barbara Gittings reflected upon the secrecy that enveloped LGBTQ life in the post-war years: "Lesbians and gay men back then put a lot of effort into building their secret, good lives. They lived in their small secret compartments which may have been fun inside, but they couldn't go beyond them. Exposing themselves put their world at risk. . . . The problem, though, was not only in the price paid for this secrecy but that you didn't leave a good legacy for the next generation of gay people" (as cited in Sears, 1997, p. 259). Gittings' pre-Stonewall civil rights work was instrumental in launching the gay rights movement that would embolden people to come out, and begin speaking openly about their lives. The benefit to LGBTQ history was beyond measure. Historians of higher education should take note. As interviews in oral history collections are gathered to supplement archival records at colleges and universities, the history of LGBTQ people in higher education will become increasingly visible.

4.2   The Purges

> The story of Martha Dean is not part of official histories of UCLA. The fact that her story has been forgotten and the extent to which it may have been deliberately erased raise significant historical questions. The history of gay men and lesbians in colleges and universities in the United States is only now being written, in large part because the evidence of their lives has been suppressed, destroyed, or ignored. . . .These events took place more than fifty years ago, but the questions they raise about civil liberties, the disciplinary effect of sexual norms, the compliance of universities with those who seek to deny full civil rights to all, and the power of the state to create a climate of suspicion and fear of those deemed 'other,' are still powerful and important today (Weiler, 2007, p. 496).

In one of the earliest publications to address gay and lesbian purges at colleges and universities, James Schnur (1992) placed his analysis in the context of academic freedom. He was one of the scholars petitioning for public access to the records of the Florida Legislative Investigation Committee (FLIC), one of several state bodies

formed in reaction to U.S. Supreme Court directives to desegregate schools. Schnur captured the objectives of the FLIC succinctly: its purpose was to "investigate any person or organization that violated customs and traditions preserving racial segregation" (1997, p. 133). In 1992, Florida citizens approved a constitutional amendment that expanded access to public records in the state, a change in law that made FLIC records available for examination. Although historians had already studied some political aspects of FLIC, known popularly as the Johns Committee (see, for example, Lawson, 1989; Stark, 1985), access to the committee's files revealed a rich set of sources regarding systematic persecution of homosexuals during the Cold War.[3]

Before the extent of the state's purge of gay and lesbian students, teachers, and professors was fully known, Schnur detailed the Johns Committee's 1962 investigation of the University of South Florida. The committee had descended on the Tampa campus to investigate not only homosexuals, but also suspected communists and professors who had assigned "questionable" texts. The investigation, an exercise in blatant civil rights violations, was a fiasco and began to turn the tide of public sentiment against the Johns Committee. USF President John Allen threw a wrench into the FLIC investigative machinery by demanding that it conduct hearings in public and tape record the proceedings. Allen was walking a fine line, trying to guard institutional autonomy while avoiding the worst of the anti-intellectual actions of the investigative committee and the Board of Control that maintained oversight over higher education in the state. As Schnur (1992) reports, Allen could only achieve so much through these compromising efforts.

One of the controversies involved newly hired assistant professor of English, Sheldon Grebstein, who had assigned Norman Podhoretz's "The Know-Nothing Bohemians" to an advanced writing class. Although the essay had become a popular text in universities across the country, Charley Johns demanded Grebstein's dismissal for assigning "profane" literature that Johns deemed immoral. Allen responded by suspending Grebstein, an action that provoked the academic community in Florida into action. Individually and through the auspices of the American Association of University Professors (AAUP), American Association of University Women (AAUW), and USF alumni associations, faculty, students, and alumni demanded that the basic tenets of academic freedom be honored. The Tampa branch of the AAUW proved particularly effective in confronting the Johns Committee (Graves, 2006). President Allen accepted a faculty committee's recommendation to rescind Grebstein's suspension, but still censured the professor for failing to promote "a proper moral tone" (Schnur, 1992, p. 13). Before the end of the year Grebstein resigned to accept an academic post in New York. In an interview three decades later, Schnur found that Grebstein recalled his encounter with the Johns Committee as an "ennobling" experience, one that "alerted him to the precarious nature of the

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[3]Informally, FLIC was known by the name of State Senator Charley Johns, a co-sponsor of the bill that established the committee and one of its most ardent members.

academy in American life" and reinforced the point that "the university community must forever remain vigilant" (p. 14).

No evidence has surfaced to suggest that the gay and lesbian "witnesses" called before the Johns Committee referred to their interrogations as ennobling. Early analysis of the gay purge (Beutke & Litvack, 2000; Schnur, 1997; Sears, 1997) described "Florida's homophobic witch-hunts" as a "microcosm for cold war crackdowns throughout the nation" (Schnur, 1997, p. 156). Schnur's essay, "Closet Crusaders: The Johns Committee and Homophobia, 1956–1965," provided a comprehensive overview of the subject, from its original authorization as a legislative body designed to suppress the civil rights movement to its demise in 1965. Regarding its foray into higher education, the committee dispatched staff to the University of Florida in 1958 to launch an undercover investigation of homosexuality; using tactics of surveillance, entrapment, and intimidation, investigators pressured scores of students and faculty to name others for the committee to interrogate. The initial investigation set off an appropriations cycle in which the Johns Committee parlayed its findings from the homosexual purge into biennial reports to the Florida Legislature, which voted to extend the committee's authorization in 1959, 1961, and 1963. The committee moved its operation from the campus at Gainesville and announced that it was extending its investigation to encompass educational institutions throughout the state.

Although the committee's reckless swagger at USF triggered a critical shift in its standing with the public, the critical blow to the Johns Committee came with its 1964 publication, *Homosexuality and Citizenship in Florida*. The committee had written the report to expose the public to "the rapid spread and insidious aspects of homosexuality" (as cited in Schnur, 1997, p. 150). The committee's unsophisticated analysis of homosexuality was accompanied by a glossary of sexual terms presented in crude language and suggestive photographs. In a surprise to Johns Committee members, the public was outraged that their tax dollars financed such a publication. Committee member C.W. "Bill" Young, who would go on to become Florida's longest-serving member of the United States Congress ("C.W. Bill Young, Longtime Florida Congressman, Dies at 82," 2013), warned Floridians not to "stick [their] heads in the sand" and defended what came to be known as the Purple Pamphlet by adding, "The legislature has responsibilities to the public to expose these people who have been preying on young people" (as cited in Schnur, 1997, p. 150). The document intensified the national spotlight trained on the Johns Committee, embarrassed their supporters, drew critique from quarters as diverse as the States Attorney of Dade County and members of the Mattachine Society, and distanced committee members from political colleagues. Schnur reported that the Johns Committee began destroying some records, locked other records away in a closet, and burned photographs that might discredit the committee's work. Charley Johns and others resigned from the committee after the release of the Purple Pamphlet, and the Florida legislature did not extend the committee's charter in 1965.

Sears (1997) addressed the history of the Johns Committee in two chapters in the first of his oral history volumes on lesbian and gay southern life. Drawing from FLIC records in the Florida State Archives, news accounts, and interviews, he narrated the

events from the perspectives of faculty and students caught up in the anti-gay investigation. Sears' summary was both concise and chilling: "During its reign of terror against homosexuals, the Committee employed networks of paid informants, plainclothes police, private detectives, and state administrators using interrogation and entrapment, blackmail and harassment, innuendo and rumor, and threat and intimidation to flush out the homosexuals. The institutional outcome was the dismissal, suspension, expulsion, or resignation of hundreds of university professors and students, public school teachers, and administrators in Florida. Wrecked careers and failed marriages, loss of self-esteem and reputation, suicide, alcoholism, and drug abuse were some of the costs" (1997, p. 58).

Recollections from those involved, narrated decades after the Johns Committee closed shop, render the significance of this history in vivid detail. One professor described the experience as "a fearful time. Every waking moment—fear. Fear of disgrace. Fear of losing my job. Fear of no money. It was awful. It was a horrible experience. It was all conspiratorial; at times, I felt like I was in a chapter of a Dostoevsky novel" (as cited in Sears, 1997, p. 75). A student recounted details regarding her expulsion from Florida State University, describing a process that became standard operating procedure. Summoned from history class, the student sat across from the Dean of Women who began, "We have had a report that you are a lesbian" (as cited in Sears, 1997, p. 89). The Dean went on—it will go on your permanent record; expulsion was likely. In this case the student's dorm mates signed a petition to protest her expulsion and the Dean offered a chance to stay at school, as long as the student met weekly with the school psychologist and accepted a reassigned roommate selected by college officials. Much of this history is incorporated into Beutke and Litvack's short documentary on the Johns Committee's purge of homosexuals, *Behind Closed Doors* (2000).

Within the last decade, three books and a new documentary film have been produced on the Johns Committee. *And They Were Wonderful Teachers* (Graves, 2009) explores the Johns Committee purge of gay and lesbian teachers at the elementary and secondary levels. Although teachers whose sexuality was questioned or exposed were summarily dismissed across most of the twentieth century, Graves argues that the intensity and scope of the Johns Committee purge set it apart from other examples of anti-gay persecution. She provides a detailed analysis of how the Johns Committee probed into the personal lives of members of a profession at the center of American culture, and charts the transfer of oversight of schoolteachers' sexuality back to the state Department of Education as the legislative mandate for the investigative committee was waning. Unlike other historians who have written on the Johns Committee, Graves explicitly situates this history in the context of education history, making the argument that teachers, long perceived as guardians of the dominant ideology, have been particularly vulnerable to anti-gay discrimination. This very fact makes the history of teaching a critically important element in a broader view of LGBTQ history. To help secure this point, Graves contrasts schoolteachers' experiences with the Johns Committee with the experiences of civil rights activists and the university investigations.

Communists and Perverts under the Palms (Braukman, 2012) is the most comprehensive study of the Johns Committee, tracing the committee's trajectory from a post-*Brown* stance of massive resistance to an all-encompassing defense of conservative cultural values. Braukman places her work in the context of historical studies on massive resistance, segregation, anti-communism, and homosexuality in order to underscore the centrality of sexuality in the contested landscape of the mid-twentieth century. She traverses this terrain with great skill, allowing readers to consider the university investigations in light of other political struggles of the period. Braukman explicitly framed her approach as "tak[ing] the committee at its word" regarding their fears of political subversion and sexual perversion, in order to better "understand the committee's agenda and its supporters' views of a changing world" (2012, pp. 12, 15).

The most recent publication in the Johns Committee historiography, however, constructs its narrative from the other side of the interrogation table. Judith Poucher (2014a) selected five pivotal "witnesses" from the Johns Committee records and examined their lives—before and after they encountered the committee—to identify key characteristics that enabled them to resist unchecked state power. While the individuals represent different areas of investigation the Johns Committee pursued over its 9-year existence, three of the five provide insight into various elements of higher education history. Virgil Hawkins was called before the committee because he attempted to desegregate the University of Florida Law School. Sigismond Diettrich, Acting Chair in the Division of Geography and Geology, was forced to resign from the University of Florida as a result of the undercover investigation of homosexuality. Director of Student Personnel Margaret Fisher did her best to guard the integrity of the University of South Florida when she faced the Johns Committee in 1962. While all of these individuals' encounters with the Johns Committee have been analyzed in previous work, Poucher adds depth and fresh perspective to the story. *The Florida Historical Quarterly* featured a multi-part review of Johns Committee scholarship, with Poucher (2014b), Graves (2014), Schnur (2014), and Braukman (2014) commenting on each other's work.

In 2012, a class of undergraduate students at the University of Central Florida produced an award-winning documentary on the Johns Committee, produced and directed by professors Robert Cassanello and Lisa Mills. Their film features interviews with two former students who confronted the Johns Committee at the University of Florida and Florida State University, as well as John Tileston, a retired University of Florida police officer who assisted the Johns Committee in its investigations. PBS stations have aired the film, bringing the history of the Johns Committee to a wider audience.

Shortly after scholarly publications on the Johns Committee began to surface, a writer for *The Harvard Crimson* came upon a reference to "Secret Court Files, 1920" in the Harvard University archives. Intrigued, the reporter sought permission to review the files but was denied because they addressed student disciplinary matters. A team of writers at the student newspaper persisted with the request, given that the files at that time were well over 80 years old and, presumably, beyond the scope of student records policies. The redacted files were released and *Crimson* staff set about

to uncover more details about *Harvard's Secret Court* (Paley, 2002; Wright, 2005). In relatively short time, the reporters constructed a clear outline of events concerning the 1920 purge of homosexuals at Harvard. An editor at St. Martin's Press approached William Wright, biographer and Yale man, with the invitation to expand upon the *Crimson*'s thorough coverage of the incident, leading to his 2005 publication. Similar to Shand-Tucci's (2003) book on homosexuality at Harvard, *Harvard's Secret Court* was a narrative penned for a popular audience.

The arc of the story began with the May 1920 suicide of Harvard student Cyril Wilcox. Wright constructed dialogue to take readers through the main elements: the Wilcox family discovering Cyril's body, his brother's pursuit of the gay men at Harvard who formed Cyril's network of friends, family pressure on Harvard officials to investigate. President A. Lawrence Lowell appointed a "Secret Court" headed by Acting Dean of Harvard College Chester Greenough, and including University Regent Matthew Luce, Head of the Department of Hygiene Dr. Roger Lee, Assistant Dean Edward R. Gay, and Assistant Dean Kenneth Murdock. On 1 June, the Harvard Administrative Board approved Lowell's plan, already underway, to investigate, establish "guilt" of engaging in homosexual activity, and collect names of all Harvard men involved (Wright, 2005). Rather than sully themselves with the task, the Board let final arbitration rest with President Lowell. The Court's main methods of gathering information seemed to rely on a proctor taking note of activities and names of students engaged in "suspicious" behavior in Perkins Hall, and following up on information contained in an anonymous letter, signed only as "'21." The pattern of interrogation was to become a familiar one. More than 30 men were summoned to appear before the Court, casting a net wide enough to include both men who had engaged in sex with other men, as well as their friends and acquaintances. Men under interrogation "submitted to the most excruciating and intrusive questions about their sexual histories with both men and women, the extent of their friendships with other students, the degrees of involvement with town boys, the sleepovers in off-campus apartments" (Wright, 2005, p. 53). The Court declared 14 men guilty, including five not affiliated with the college. One recent alumnus had his Harvard record expunged as a result of his appearance before the Court, and an Assistant Professor was fired. The Court classified the undergraduates in two categories—those who were "confirmed" homosexuals and those who were "guilty" by association; all were expelled. Two of the latter group were eventually readmitted to the college, graduated, and went on to lead the kind of successful lives Harvard expects of its graduates. In addition to Wilcox, two of the expelled students committed suicide and two others who appeared before the Court died early deaths. Wright supplied intricate details of these cases and assessed the proceedings in light of dominant moral and medical perspectives of the day. Finding Harvard guilty of the "worst sort of ignorance," Wright determined that the "ignorance and bigotry can be explained and, to a degree, forgiven. The lack of compassion cannot" (2005, p. 266).

While Wright presents Harvard's "1920 antigay tribunal" as "a cautionary parable of a powerful institution run amok," (2005, p. 269), Syrett (2007) plumbed a contemporary Dartmouth College case for an understanding of how homosocial and

rural spaces contributed to the growth of a homosexual community. Similar to Wright's study of Harvard, most of the evidence available to Syrett comes from the college officials who were charged with punishing Dartmouth students who, in the early 1920s, spent their free time in a house in an area of rural Vermont known as Beaver Meadow. "[F]ree from the regulatory eyes of their faculty, they had parties, stayed up late, drank alcohol, and had sex" (Syrett, 2007, p. 9). Syrett explained that the men shared a couple of characteristics. Not unusual for the time at men's colleges, many of them regularly took the women's parts in school plays. Also, many of the students belonged to Epsilon Kappa Phi, a local fraternity in the process of applying to the national Delta Upsilon fraternity. By 1925, two co-owners of the house in Beaver Meadow had attracted suspicion, "accused of making a 'parade of their effeminacy' and of having embraced an 'aesthetic' way of life" (as cited in Syrett, 2007, p. 11). Shortly thereafter, Dartmouth students complained to President Hopkins about the behavior of the students who partied in Vermont. Hopkins wrote letters to the students' advisors, directing them to step up their own oversight of the group. He called the students to his office, and expelled one for violating Prohibition-Era alcohol restrictions. Two recent graduates were beyond the President's disciplinary reach but resigned their fraternity membership when asked to do so. The president also consulted with psychiatrists and, beginning the next year, Dartmouth College productions imported women to play female roles in the plays. Syrett argues that this history is noteworthy because of the insight it provides into the perceptions these men had of their own identities, "what we might understand as queer" (2007, p. 12). And, unlike most LGBTQ history, the Dartmouth case offers early evidence regarding the formation of queer identities in rural spaces. "How is it," Syrett asks, that "these men commandeered their fraternity for the purposes of gay sex, queer socializing, and female impersonation" in the middle of the 1920s when heterosexual behavior was increasingly engaged on college campuses (2007 p. 15)? He suggests the answer has to do with the range of definitions of masculinity that were expressed in the different fraternities on campus, and the fact that performing women's parts in plays only became problematic when the action was linked to emerging homosexual identities. While Syrett would go on to develop these themes at length in his 2009 publication on fraternities, the story of the Dartmouth men in the 1920s "suggests that there may well be many other gay Arcadias yet to be found" in archives across the nation (2007, p. 16).

In "Under the President's Gaze," Gidney (2001) examined other forms of surveillance of homosexual students. The focus of her analysis was a World War II letter written by a male college student in Canada who had recently been released from an internment camp. Gidney's study explored the ways in which "religious imperatives continued to inform evolving conceptions about morality and sexuality well into the twentieth century" (p. 37). She did not provide names of the student or his university, to preserve anonymity. During a period when immigration officials vetted correspondence, a letter in which the student expressed a general appreciation for the male body raised concerns. Of equal importance, evidently, were references that suggested to officials that the student was lazy. "Concerned about the moral fibre of the student," the director of the Immigration Branch contacted the President of the

student's university, who launched a secret investigation into the student's character (Gidney, 2001, p. 36). Gidney devoted much of the article to an overview of the 1941 Hazen Conference on religion and life, a gathering of faculty, presidents and deans of women in Canada that provides both context and insight into how mid-twentieth-century college administrators preferred to shape the conduct of students. When the student was confronted with claims regarding his moral character, he responded that his comments on the male body were of a general nature, and stated that he had never engaged sexually with a man. He referenced his dates with women as evidence of his heterosexuality and, thus, good conduct. The president followed up with more inquiries and, finding it "almost practically impossible for a pervert, who can be as often a medical case as a purely moral problem, to live in a men's residence for a year without giving rise to some suspicions," dismissed the charges against the student (as cited in Gidney, 2001, p. 53). Noting the confluence of psychology, medical, and moral language in the president's deliberations, Gidney interpreted this case as further evidence that the university was a prime site for production and regulation of sexuality and morality.

Brief accounts of gay purges appeared in early gay publications and the journal, *Radical Teacher* (Tsang, 1977a, 1977b; Martin, 1994). The fullest treatment of an individual case, and what it reveals about the disciplinary impact of sexual norms in higher education, is Weiler's (2007) analysis of Martha Deane's forced retirement from UCLA in 1955. Weiler chronicles the relative ease with which Deane, one of only two women who were full professors at the university at the time, was dismissed after nearly three decades at the university for the "crime" of "having sexual relations with another woman in her own home" (2007, p. 472). This is not to say that colleagues, students, and alumni did not support Deane. The Committee on Privilege and Tenure voted to exonerate her, the Dean of the School of Education expressed his complete confidence in Deane, and a group of women faculty met with her regularly over the course of her suspension, donating $100 or so a month over the 3-year period while she received no salary.

Weiler's account not only preserves a history of an accomplished educator; it "illustrates the intertwining of Cold War hysteria, sexual anxieties, and homophobia that characterized life in the United States in the early 1950s" (2007, p. 495). Like other historians working in this field, Weiler found that evidence in this case was "fragmentary and difficult to discover" (2007, p. 477). The structure of the essay serves as a model for scholars working on similar projects, facing similar challenges. Although the primary sources consisting mainly of administrative records and oral histories provided few direct responses to why Deane was fired, they did reveal "personal animosities, antagonism toward powerful women in university professor-ships, and a fear of lesbian sexuality" that Weiler juxtaposed with the broader context to produce a clear analysis (2007, p. 492). The expertly rendered narrative ends with a piercing explanation of why this history matters: "Despite her efforts to defend herself, her distinguished career, and the quiet support of her friends and colleagues, in the end Martha Deane lost her job, a job which was more than just a way to make a living, but was a central part of her identity. Although she

reconstructed her life, she never recovered her position as a professor, the center of her intellectual life" (Weiler, 2007, pp. 495–496).

Nash and Silverman's (2015) recent essay is a significant contribution to the historiography on gay purges in higher education. They study three incidents in the 1940s in which students and/or faculty presumed to be homosexual were forced out of the Universities of Texas, Wisconsin, and Missouri. As the authors point out, there is "a small amount of existing literature on homosexuality and campus life," and none of that research examines "the immediate post-War period" (Nash & Silverman, 2015, p. 442). This is a critical gap, as the "same unproven and irrational accusations" made against others in the mid-twentieth century could not be pressed against college students (Nash & Silverman, 2015, pp. 442–443). Unlike elementary and secondary schoolteachers, college students were not burdened with society's expectations to serve as role models for children. Unlike employees of the U.S. State Department, college students were not perceived as high security risks. In addition to posing questions about the justifications college officials gave for purging gay and lesbian students and faculty, Nash and Silverman are pushing the field to determine the extent of gay purges at colleges and universities, as well as the ways in which gay students resisted the charges leveled against them. In this piece, they re-establish the nearly forgotten role of an anti-gay agenda in the firing of the President at the University of Texas in 1944, a reminder to historians of the insights that can be gained by taking another look at stories we think we know. They analyzed a student's argument for reinstatement to the University of Missouri, a campaign that stands out from others in its demand for due process and critique of heavy-handed interrogation techniques. One imagines that the expelled student hoped such an argument, steeped in democratic discourse, might bend the decision in his favor in a Cold War context. In another critical development, the authors traced a paper trail from the University of Wisconsin to the University of Missouri to sketch an outline of the new "administrative machinery" college officials developed in the 1940s to deal with homosexual students. Importantly, this evidence points to a "sea change in administrative responses to homosexuality on campuses between the ad hoc 'secret court' of Harvard in the 1920s and the building of permanent administrative machinery in the 1940s" (Nash, & Silverman, 2015, p. 458). By mid-century administrators had established organizational structures that enabled a systematic approach to removing homosexuals from campus.

Dilley (2002) traversed half a century of higher education history to illustrate the various ways university officials have "exercised strict control over the sexual mores" of students since World War II (p. 410). In this essay, he supplemented interview data collected for his larger study *Queer Man on Campus* with memoirs, archival documents, and case law to identify the range of policies and practices utilized in universities across the United States to suppress LGBTQ identities on college campuses. As Dilley summarized, in the period between 1940 and 1970, students were expelled on the basis of "deviant," "lewd," or "homosexual" conduct; suspicion of homosexuality; or, on the basis of association with homosexuals. Other sanctions, such as notations on transcripts or officials' refusal to write letters of recommendation were imposed on LGBTQ students who were allowed to remain at

their universities. College officials engaged in covert methods of control, staking out restrooms, for example, between 1940 and 1990. Prescribed therapy gradually began to replace expulsions beginning in the 1950s and continuing through the 1970s. "On-campus treatment became a method of controlling students' concepts of how their sexuality was a part of their lives, as well as allowing administrators a closer locus of supervision over physical or social expressions of the students' sexuality" (Dilley, 2002, p. 419). Opposition to student assembly and free speech emerged on the heels of cultural changes in the 1970s, as students fought to organize on campus, followed by legal battles to secure funding and equal recognition for their organizations within student government. Dilley cautioned that, while this brief history of university control of LGBTQ students can be read as progressing from exclusion to integration, a more accurate reading acknowledges that "elements of control, regulation, and even suppression play out in new ways and in new arenas" (2002, p. 427).

4.3 Organizing

> Gay liberation offers revealing insights into the dynamics of social change, into how the struggle of an oppressed group for recognition does not occur in a vacuum but is dependent upon other forces at work in society (D'Emilio, 1992, p. 120).

Making Trouble (1992) provides a suitable starting point for a review of what has been written on LGBTQ student and faculty organizations in higher education. This collection of John D'Emilio's essays and speeches written over the course of two decades is infused with historical analysis, political argument, and autobiographical reflection. The essays that constitute the section on the university in this book are, in a sense, primary documents marking the emergence of gay liberation in the academy as they were written by a key player in that movement. The historian's perspective is provided in D'Emilio's introductory statements for each chapter. A brief overview of some of the chapters illuminates critical guideposts in gay and lesbian organizing in the academy.

D'Emilio wrote the introduction to the published proceedings of the first conference of the Gay Academic Union (GAU), held in New York City in 1973. The GAU had branched off from the more radical Gay Liberation Front, an offshoot in the movement that brought lesbians and gay men together to confront discrimination in their work. The GAU had almost an accidental beginning, traced to an informal gathering of gay faculty, graduate students, a writer, and a film director. The meeting, as D'Emilio recalled, was transformative. "Exhilaration is, perhaps, too weak a word. . . . We talked in highly personal terms of the difficulties of being gay in a university setting, how we coped with being in the closet, if that was the case, or what sort of reaction coming out had engendered. . . . Perhaps most enlightening, however, was the discovery that our academic training, regardless of discipline or particular research interests, allowed each of us to contribute something of substance, some insight, to the discussion" (D'Emilio, 1992, p. 121). In this essay, D'Emilio devotes a good deal of attention to the intense debate on sexism that arose

within the gay liberation movement, indeed, within the GAU. Over the course of a few meetings, the GAU passed a proposal to amend its statement of purpose, to include as the first goal "to oppose all forms of discrimination against all women in academia" (as cited in D'Emilio, 1992, p. 124). A second proposal, guaranteeing women fifty percent of the voting power, was defeated but a compromise that required equal gender representation in a steering committee was accepted. D'Emilio remembers the tenor of the debate as "appalling," noting, "sexism goes beyond intellect" (1992, p. 124). The GAU conference was conceived as a means to increase membership. It was, D'Emilio wrote at the time, "a resounding success. . . . Three hundred gay academics, women and men, working together, sharing ideas, feeling good, and proud to be gay" (1992, p. 127).

In 1983, Oberlin College held a conference to recognize the 150th anniversary of its founding as the first coeducational institution in higher education and invited D'Emilio to address issues regarding homosexuality in the context of celebrating equal access to education. D'Emilio presented an overview of the brief history of LGBTQ issues in higher education, with attention to student groups, faculty, and scholarship. He noted that when the first gay student group organized at Columbia University in 1967, the students all signed the membership roll using pseudonyms. He remembered that students at New York University in 1970 had to occupy a university building for a week just to move the administrative process needed to get approval for a gay dance. Looking back at two decades of activism, D'Emilio regarded "the spread of gay student groups and their victories in court [as] important indicators of progress. These organizations provide critical peer support for young women and men at a difficult stage in their coming out. They also provide an opportunity to break down stereotypes among the majority student population. In many ways, they serve as a training ground for lesbian and gay youth who will later become proud advocates of gay equality in society at large" (D'Emilio, 1992, p. 131). D'Emilio observed that gay and lesbian faculty were slower to organize and had, thus far, experienced less success than students due to discrimination in hiring and promotion. He acknowledged progress in the publica-tion of gay and lesbian scholarship but added, "we are still at the level of tokenism, and not simply because it takes a long time to research and write a book. The same pressures that keep gay and lesbian faculty members in the closet also discourage them, as well as graduate students, from doing work on homosexuality" (D'Emilio, 1992, p. 134).

This pressure was a theme D'Emilio returned to as part of a 1989 roundtable published in the *Journal of American History*. The Organization of American Historians (which in 2017 began awarding the annual John D'Emilio LGBTQ History Dissertation Award) had assembled scholars who could speak to "the ways the organized profession of American history has responded to the challenges that people with different identities, commitments, and agendas have brought to research and teaching in American history" (as cited in D'Emilio, 1992, p. 138). D'Emilio reflected on the high stakes of his task, the transformational moment when he embarked upon his dissertation study that would result in his ground-breaking book, *Sexual Politics, Sexual Communities* (1983), the importance of strategizing

one's moves in the field, and the reception of early scholarship in LGBTQ history as "audience and author celebrated the product. To understand this reaction requires the recognition that, at least in the 1970s and 1980s, the doing of gay and lesbian history has been more than a form of intellectual labor (as it probably will be for some time hence). It was transforming, for both the doer and the receiver, and in the social context of those decades, inherently political. . . .[F]or my generation and for cohorts both older and younger, the absence of self-affirming words and images and the cultural denial of our very existence made any kind of history a profound, subversive revelation" (D'Emilio, 1992, pp. 142–143). D'Emilio went on to address the significant difficulties under which the early research was produced—lacking institutional affiliation and teachers' salaries to support summer research, exclusion from grants and fellowships, and difficulties getting access to primary and secondary resources. He called upon professors to bring LGBTQ issues into the curriculum, realizing that the content in our courses shapes the landscape of the profession for the next generation of scholars.

Two of the chapters in *Making Trouble* (1992) address the emergence of gay and lesbian studies in higher education. In 1989, D'Emilio gave a speech at the opening celebration for the lesbian and gay studies department at San Francisco City College, the first such program to be established in the United States. He took the occasion to reflect upon his long friendship with the program's inaugural chair, Jack Collins, and placed this institutional step forward into the context of a politics of knowledge. "If there is any lesson of the 1960s that remains engraved in my consciousness, it is that there most definitely is a 'politics of knowledge.' The research we do, the questions we ask, the results that we publish, and the courses that we teach all reflect a view of the world, of our society, and of human nature. Our social characteristics, our values, and the vantage point from which we gaze at society shape the conclusions we reach. And the ideas that we put forward in print or in the classroom help to reproduce, or to modify, or to subvert, the order of things. That makes the work of the university political" (D'Emilio, 1992, 158). In 1989–1990, Pennsylvania State University sponsored a series of lectures on gay and lesbian studies. D'Emilio gave the concluding lecture, a talk in which he assessed the current state of the new field. In this piece he briefly elaborated, again, on the politics of knowledge, the historical context of the moment, the contours of the field as it was developing, and then offered observations about strategic decisions that would have to be made as the scholarship moved forward.

D'Emilio concluded the university section of his book with a three-page reflection on a theoretical insight that occurred to him at a 1988 graduation party for one of his students, a gay man whose celebration, on the surface, looked quite typical. Here, though, the assembled family and friends quite unassumingly accepted the graduate's "gayness—not abstractly, but in the concrete form of his lover and his friends" (D'Emilio, 1992, p. 178). This made the prominent gay historian realize that while conscious, deliberate efforts at social change are absolutely necessary, the relatively unremarkable actions of individuals as they go about their lives also make a critical difference in the sweep of history. He imagined, "throughout the United States, hidden from public view, equally profound changes are occurring in the lives of

countless numbers of people. It is not only a story of gay lives, but one that also includes our families, friends, neighbors, and coworkers. The many, many instance of coming out. . .are reweaving the social fabric" (D'Emilio, 1992, p. 178).

Robert Martin, one of the co-founders of the Student Homophile League (SHL) at Columbia University, wrote in 1992 that "the historical memory of student groups, with their rapid turnover, is notoriously short, but there is a great deal of which to be proud" (p. 258). His memoir on this first gay student organization in the United States is an important supplement to the analyses historians have written on college gay and lesbian student groups. Martin explained how he and fellow student Jim Millham adapted lessons they learned from Frank Kameny and members of the New York branch of the Mattachine Society to organize the SHL at Columbia. Martin envisioned that Columbia would be the founding chapter of a confederation of gay student groups at colleges across the nation. After gathering a small group of interested students, Martin and Millham enlisted the support of an important ally, Chaplain John Dyson Cannon, described by Martin as "an Episcopal priest of great courage, unshakable devotion to his ideals, wisdom and a gentle understanding of the needs of gay students" (1992, p. 259). Chaplain Cannon would be dismissed from Columbia 4 years later. Martin set up a meeting with university administrators and counselors in fall 1966 to pitch the idea of the SHL. Kameny came up from Washington, DC to address the group. Martin recalls a good deal of opposition.

The next step in the application process, however, presented a more direct problem. The Committee on Student Organizations at Columbia required organizations seeking university recognition to submit a membership list. Since few people in 1967 were willing to identify themselves with a homosexual organization, the student group functioned underground for a time, relying on funding from Philadelphia's *Drum* magazine, the West Side Discussion Group, and ONE's New York chapter. In retrospect, Martin noted that the underground period "gave us valuable time to discuss issues, to formulate an ideology as it were, among ourselves, to educate ourselves and work on group cohesion" (1992, p. 259). In spring 1967, Martin approached student leaders of other student groups at Columbia, asking if they would lend their names as *pro forma* members of SHL. This early example of intergroup solidarity lifted the first gay student group in the nation off the ground as SHL was formally recognized by Columbia University in April 1967. Martin's initial press release on SHL's formation was virtually ignored for about a week until the *New York Times* ran a story proclaiming, "COLUMBIA CHARTERS HOMOSEXUAL GROUP;" (as cited in 1992, p. 260) then the news broke around the world.

SHL's objectives in the early years were to educate the campus, work for gay rights, and provide counseling services to students. Martin reports that membership ranged from 15 to 30 students, and was mixed in terms of orientations, gender, and race. With little faculty support, SHL ran a series of dorm discussions, held forums with invited speakers, and issued statements on various civil rights issues regarding homosexuality. Martin claims an intellectual influence on what came to be known as "gay liberation" 2 years later, after Stonewall, writing "Any historian of the ideas of the gay movement who neglects the pioneering intellectual work of SHL has missed

a key element of gay history" (1992, p. 260). Soon other SHL chapters appeared on the campuses of Cornell and New York University, and students established similar groups at Boston area colleges, Rutgers, and the University of Minnesota. Martin also makes a case that the Columbia SHL initiated the first gay demonstration in New York. In 1968 the group prepared to attend the Columbia Medical School's panel discussion on homosexuality, and when word got out, the organizers of the panel decided to limit attendance to medical students. SHL wrote position statements for the event and, as they were distributing the flyers, medical students offered SHL students their tickets. Martin recalls that, since every member of the audience had a copy of SHL's statement, the question-answer period was more on point than had been expected. During the 1970s the SHL focus on political activism slipped away, and was replaced with a different kind of energy—dances, parties, and dorm raps.

Beemyn (2003b) agrees that gay student activism at Columbia, Cornell, and other universities "played a critical role in laying the groundwork that would enable a militant movement to emerge following the [Stonewall] riots" (p. 205). Beemyn's analysis focuses, primarily, on the second SHL, founded at Cornell University in May 1968. Although there was a gay social network at Cornell, most were not willing to be identified with the SHL, even using pseudonyms, so student response to Jearld Moldenhauer's initial organizing efforts for a SHL chapter was slow and cautious. Moldenhauer tapped Reverend Daniel Berrigan, associate director for service at Cornell United Religious Works at the time, to serve as the group's advisor. The Cornell Scheduling, Coordination, and Activities Review Board agreed to recognize SHL without the usual required membership list, and the small group focused on increasing membership in the 1968–1969 school term. The Cornell SHL emphasized it was not an all-gay group; indeed, it claimed more heterosexual members in its first year than LGBTQ students. This inclusivity allowed some cover for LGBTQ students who were reluctant to join for fear of being outed. As SHL membership grew, so did division in the ranks over the objectives of the organization. In its second year a split developed between those who wanted to emphasize civil liberties and educational work and those who saw SHL as a social group that nurtured gay culture.

The 1969 Cornell student uprisings and then the Stonewall Riot tipped the scale toward a more activist SHL. The group formed alliances with Students for a Democratic Society at Cornell and started running zaps, "sessions at which openly homosexual people would answer students' questions, trying to raise public consciousness about homosexuality" (as cited in Beemyn, 2003b, p. 218). Activism intensified in 1970 when the Cornell SHL changed its name to the Gay Liberation Front (GLF), invited a banned speaker to campus, and led a successful protest at a local bar against gay discrimination. When the police were called to the protest, one official reportedly told the owner, "[y]ou can't insult these people. You can't just refuse to serve them" (as cited in 2003b, p. 221).

Beemyn notes that by 1971, just 4 years after students at Columbia established the first SHL, there were gay student organizations at more than 175 colleges and universities in the U.S. These groups were significant players in the gay liberation movement; by politicizing sexual identity and building ties to other political

movements, the student groups convinced many nongay activists and activist organizations to support gay rights, developing a progressive coalition whose legacy continues today" (Beemyn, 2003b, p. 222). In addition, the students' action made it possible for more LGBTQ people to come out: ". . .[I]t was a historic moment when the leaders of Cornell's SHL dropped their use of pseudonyms, held open meetings and dances, and began to speak publicly about their sense of pride in being gay. . . . In no small way, these efforts contributed to the development of a large-scale political movement in the years that followed" (2003b, p. 223).

Clawson (2013, 2014) examined the emergence of LGBTQ student groups in Florida universities, giving particular attention to how LGBTQ and straight students perceived the struggle for queer visibility. The first GLF chapter in the South was established at Florida State University (FSU) in 1970. Similar to the approaches taken by Martin (1992) and Beemyn (2003b), Clawson (2013) constructed the study on the FSU student group through an analysis of the activities of its founder, Hiram Ruiz. Clawson highlighted a queer pedagogical theme in this essay on the educational work carried out by college students in the gay liberation struggle, noting "[o] ne of the most important components of the GLF pedagogy was to tell straight people that they were expected to notice and speak about sexual minorities;" this was, citing Audre Lorde, "a crucial component of 'transforming silence into language and action'" (as cited in Clawson, 2013, pp. 143–144).

Although the FSU student senate recognized the GLF in 1970, college officials did not allow the group to use campus facilities. The GLF posted an ad in the college newspaper, the *Florida Flambeau*, declaring their opposition to "'all forms of oppression whether sexual, racial, economic or cultural. We declare our unity with and support for all oppressed minorities who fight for their freedom'" (as cited in Clawson, 2013, p. 145). A group of university employees responded with a letter to the editor of the *Flambeau*, protesting the printing of the GLF ad. They claimed its publication threatened public safety and charged that the GLF advocated the violation of Florida laws prohibiting homosexual acts, still a felony in the state. The *Flambeau* then refused to print a second ad by the GLF. Students in the Tallahassee Women's Liberation and the Malcolm X United Liberation Front responded by supporting the GLF, and FSU student president, Chuck Sherman, charged that refusal to print the ad violated the principle of free speech. In the meantime, Ruiz and the GLF began meeting, first at Ruiz's apartment and then on public space on the FSU campus when Ruiz and his roommates were evicted for being gay. Clawson documented various ways in which the GLF educated FSU and the broader community, and took note of how GLF members, themselves, were educated on transgender issues. Clawson highlighted the educational legacy of this history, claiming that the "GLF members engaged in a queer pedagogy that academia had not invented yet. In their work, their visibility was their teaching, and their curriculum was the opening of gay culture to the wider world" (2013, p. 147).

Clawson's study (2014) of the University of Florida (UF) opened with a strong articulation of its theoretical framework. Queer theory is an appropriate lens for this analysis, Clawson explained, not only because it signals inclusivity and characterizes the actions of the people in the study, but also because it reflects the intent to

"write a history that is *queer*," that is to "focus on liberation, rather than privileging assimilation as an end-goal," to deliberately include "gender queer and trans people," and to acknowledge "the disruption of normalcy that comes with the inclusion of queer issues in society" (2014, p. 210). In an argument driven by a thesis on visibility, it was also important that Clawson offer a clear definition of "the closet," another contested term. Being in or out of the closet is not a binary proposition, the author noted, citing Cris Mayo's explication of the term: "a complex set of negotiations, a complicated set of weighed consequences and benefits, as well as a way of creating spaces for possibilities with others" (as cited in Clawson, 2014, p. 210).

Clawson argued that three particular developments were critical to the emergence of queer student visibility at the University of Florida: a climate of campus protest fueled by the Black freedom struggle and New Left politics; the American Psychological Association's decision to remove homosexuality from its list of mental disorders; and the development of the student affairs profession with its emphasis on student wellbeing. The *Independent Florida Alligator* proved to be a rich primary source in Clawson's study. In 1970, UF student Julius M. Johnson, President of the Gainesville branch of the GLF, began writing letters to the editor, arguing for courses dealing with sexuality and the establishment of a GLF on campus. As a Black man on a predominately white campus, Johnson understood the kind of strategies that could be helpful to a student group with a relatively low profile. He forged alliances between queer students and the Student Mobilization Committee and the Young Socialist Alliance in the effort to marshal resources and gain recognition and legitimacy for queer students. College officials denied the students' request for a charter in 1971, but the students persisted with their educational activities and civil rights demands. Clawson noted that, although the "university had attempted to keep them invisible," the students' "increasing confidence and desire to be seen and heard prevented the fulfillment of the university's agenda" (2014, p. 216). In 1974 the GLF demanded that the Board of Regents strike a paragraph from its policy manual that explicitly defined sex deviation as immoral behavior. The faculty senate voted to support the students' demand, in part because the university was operating under censure from the AAUP for a series of recent firings in violation of academic freedom. Clawson detailed other evidence of the *Alligator* fostering "a campus climate more conducive to queer rights through keeping an editorial focus on queer issues" (2014, p. 218). In 1975 the GLF won its campus charter at UF, after similar groups had been recognized at FSU and the University of South Florida, and only after the group reorganized as the less radical Gay Community Service Center (GCSC). As the GCSC took a more prominent position on campus, it drew harsh attack from various quarters, including religious opponents and fraternities. Between 1975 and 1982, the group reorganized again; the University of Florida Lesbian and Gay Society gained, lost, and then recovered valuable office space in the UF student union, through a series of petitions, protests, and legal battles. Clawson's study clarified "how important a role both queer bravery and straight alliances can play in fostering a safe environment for queer people," a scholarly contribution to a more complete understanding of higher education in the late-twentieth century (2014, p. 227).

Administrators at many universities refused to grant charters for gay student organizations, a tactic that led to numerous legal challenges. Rullman (1991) provided a brief overview of cases involving the University of New Hampshire, Virginia Commonwealth University, Austin Peay State University, the University of Oklahoma, Georgetown University, and the University of Arkansas, noting that courts generally held that such action violates students' First Amendment rights. Reichard (2010) published an extended study of *Associated Students of Sacramento State College v. Butz*, the first case in which free speech and association rights were leveraged to claim LGBTQ students' rights to organize on campus. The 1971 decision created precedent "enabl[ing] other gay and lesbian student organizations to rebut efforts at preventing their organizing on campus with authority a court decision could provide" (Reichard, 2010, p. 633). It is important to note, though, the case was filed on behalf of the Associated Students of Sacramento State College (ASSSC), the student governing body that had initially approved the Society for Homosexual Freedom (SHF) petition for a charter. College President Otto Butz was the one who vetoed the decision. In explaining the students' decision to file the lawsuit, ASSSC President Stephen Whitmore argued that the merits of the case extended beyond the SHF; it involved "the right to freedom of expression, freedom of assembly, and self determination" for all students (as cited in Reichard, 2010, p. 652).

Reichard noted that the case was also significant in regard to another student power movement, the challenge to *in loco parentis*. Toppling that longstanding college doctrine struck another blow at the normative heterosexual campus climate. Sacramento State students and faculty who fought for institutional recognition for SHF had yet another impact on their community that reached beyond the legal victory. Organizing the court challenge "helped transform what had been a mostly underground off-campus 'closed society' into a visible and self-conscious gay-liberation community" (Reichard, 2010, p. 634). Legal scholar Jane Schacter observed that LGBTQ student activism for official recognition on college campuses was a critical challenge to the "'coerced gay invisibility [that] has historically been a central part of gay inequality'" (as cited in Reichard, 2010, p. 674).

In two pieces published in *Oral History Review* (2012, 2016), Reichard discussed the value of oral history in tracing evidence regarding the history of LGBTQ people in higher education: "[P]art of the critical work of queer oral history is to provide a unique view that challenges assumptions and addresses silences within the archival record, including records produced by LGBTQ people themselves. Oral history, in other words, provides a way to expand beyond the limits and silences of those records, revealing what is behind the scenes of how queer historical texts were produced" (2016, p. 101). This is an important methodological approach, he added, particularly for transient groups of people such as LGBTQ students. Reichard's research on the Gay Student Union at UCLA and its newsletter, the *Gayzette*, illustrated the power of combining oral history with archival research to provide critical documentation of student organizing in California in the 1970s. He explained in his 2012 essay how the triangulation of oral history with ephemera of LGBTQ student groups can verify and enhance our understanding of both kinds of evidence.

As an article in the Sacramento State University student newspaper stated in 1978, "A kiosk is an unequaled source of information" (as cited in Reichard, 2012, p. 40). Beyond confirming the importance of flyers, posters, and student-produced newsletters and newspapers for helping LGBTQ students find each other on campus, oral histories "can transform such 'visual traces' of the 1970s queer student histories into more substantive evidence of the social and political climate in which students lived, went to school, and organized" (Reichard, 2012, p. 39).

4.4 Sex and Gender and Identity

> Colleges and universities were often at the forefront of the struggles over the control of sex (Bailey, 1999, p. 49).

In *Sex in the Heartland*, Bailey grounded her study of the late-twentieth-century sexual revolution in Lawrence, Kansas not because it was "representative of America's experience," but because seeing what happened between the coasts illustrates just how fundamental the changes wrought by this social movement were (1999, p. 5). Her research on the University of Kansas (KU) included in-depth analysis of the post-World War II development in sexual science and the ways deans of students responded to rising expectations for more explicit sexual discipline of students. During this period, university officials who confronted homosexuality embraced a psychotherapeutic form of control, adopted from military use during the war. Bailey noted, "Even though it appeared that a system of moral absolutes had been replaced by a much more flexible system of evaluation, the two systems remained enmeshed, with new 'scientific' analyses often used to support the old 'moral' claims" (1999, p. 54). However, Bailey noted, both the psychotherapeutic form of control and a parallel system that reframed regulations concerning students' lives through curricular reform, would eventually collapse, due to the ways in which these approaches undermined the authority of those implementing the rules. "Students would challenge the system of rules about sexual behavior with the very same arguments about responsibility and democratic citizenship that university officials had used to buttress that system. The shift to psychiatric authority, in contrast, did not offer students powerful tools with which to challenge that authority. Instead, it created problems for the administrators and officials themselves by introducing criteria for judgment about sexual behavior that made it difficult to draw clear distinctions between 'right' and 'wrong'" (Bailey, 1999, p. 50).

Bailey's study of the GLF chapter established at KU in 1970 is an excellent example of how local histories can inform our understanding of national movements. She contrasted both the ideological claims and the evidence of work on the ground by the GLF and various women's organizations in Lawrence to explore the roles the gay and women's liberation movements played in the sexual revolution. Bailey's examination of the GLF's battle to gain official university recognition at KU exposed intricacies embedded in the struggle in rich detail, helping one appreciate

the extent to which university, state, and national politics set the context for this struggle that would be revisited in campuses across the nation. It was nothing less than "a story of the difficulty and complexity of effecting social change in a democracy" (Bailey, 1999, p. 179).

Unlike gay and lesbian student groups at other campuses, the GLF at KU did not splinter into political and cultural factions. As its court case for official university recognition played out, the GLF continued to nurture a welcoming community for LGBTQ people not only on campus and in Lawrence, but also reached LGBTQ people throughout the region. Most noteworthy were the dances the GLF held at the student union throughout the 1970s. Bailey observed that the "dances moved gay liberation from abstract concept (First Amendment rights), from words (speakers, seminars, rap groups), from private (what two people do in the privacy of the bedroom) to a very public, embodied fact" (1999, p. 185). LGBTQ issues are central to Bailey's argument that the sexual revolution fundamentally changed what Americans think about power, identity, diversity, and gender.

Other historians have folded LGBTQ issues into broader arguments on gender and higher education. Deslandes (2005) briefly addressed homosexuality as one of the factors that challenged established gender norms in Britain, leading to what he termed a crisis of masculinity for late-nineteenth-century Oxbridge men. He referenced two cases at Cambridge and Oxford to document changes in disciplinary systems that implicated "the marginalization of same-sex desire as a deviant category of human sexuality" after passage of the 1885 Labouchere Amendment to the Criminal Law Amendment Act. However, university privilege served more than once to spare Oxbridge men from local prosecution. As Deslandes observed, "Oxbridge regulations and statutes, extralegal devices that underscored the unique and privileged position of these institutions in British society, constituted a peculiar system of discipline that safeguarded the reputation of the university as much as it punished" (2005, p. 112).

Friedman (2005) and Weber (2008) gave more attention to the topic, each devoting a chapter to student sexuality in their analyses of higher education in Russia, Great Britain and Germany. Friedman studied all-male universities during the reign of Nicholas I to determine if educated Russians experienced changes to prevailing conceptions of masculinity similar to those developments in Western and Central Europe. Through an examination of student memoirs, diaries, and correspondence, Friedman discovered that "close male friendship, nurtured within a broader culture of European Romanticism, marked the coming of age experiences of many students" and offered "a notion of masculinity, which included passionate expression and emotional connection that was at odds with Nicholas's call for obedience and singular loyalty" (p. 75). Officials anxious to promote a particular image of morality in Russian leaders increased their oversight of students' behavior, particularly in the wake of 1835 anti-sodomy legislation. In spite of regulations that dictated distance between beds in students' sleeping quarters and prohibited sleeping together, the university disciplinary system was flexible, allowing second and third chances to students who transgressed its boundaries. Friedman concluded that

"young men encountered, created, and negotiated multiple masculinities," including some romantic friendships that extended into adulthood (2005, p. 140).

Weber (2008) included a comparison of student sexuality at Oxford and Heidelberg in his study of the institutional cultures of the two universities. His larger thesis was to challenge the popular notion that cultural differences in Britain and Germany were a significant factor leading to the outbreak of World War I. Understanding that the predominantly male universities, like military institutions, "produced and replicated national elites," Weber cast the universities as "schools of both manhood and national identity" (2008, p. 139). Through a finely tuned analysis of sexuality in the two student cultures, Weber challenged the easy contrast between a homoerotic Oxford and a "very heterosexual" Heidelberg, finding evidence of homosexuality at both institutions (2008, p. 143). And it was severely sanctioned in England as well as Germany. Observing that "[a]ttitudes toward homosexuality do not shed a particularly good light on either place even compared to earlier times," Weber found it doubtful that notions regarding student sexuality had much to do with diverging senses of nationalism in the years leading to the Great War.

Syrett's (2009) history of fraternities in the United States turns on the axis of changing conceptions of masculinity. Membership exclusions based on class and race have long determined who could claim the status of the fraternity man. By the early decades of the twentieth century, women's increasing presence on campuses and their demands for political and social equality began to shape how the fraternity man defined himself. At the same time, suspicions about homosexuality intensified adherence to the heterosexual norm by which fraternity men gauged their masculinity. As Syrett explained, "masculine men were understood to be heterosexual men; they were defined not only in opposition to women but also in comparison to those men who were thought to be like women: homosexuals" (2009, p. 5). In a chapter titled "Democracy, Drinking, and Violence," Syrett made a strong case that fraternity men running from the specter of homosexuality exploited women, in part, as a means to validate their own heterosexual status. Syrett argued that this "was perhaps the most decisive development in fraternities' history," given the long-term impact it would have on other college students, "particularly women" (2009, p. 5).

Estes (2010) also examined connections between gender and sexuality in "The Long Gay Line," a historical analysis of the role of homosexuality at The Citadel. Stepping into unexplored territory, Estes interviewed gay alumni of the Charleston military institution, most not out to themselves while they were cadets. He found that gay alumni resisted women's enrollment at The Citadel with the same tenacity as straight alumni, and that they relied upon similar definitions of manhood in defense of their position. For gay alumni, The Citadel "built character, deepened a sense of honor, and strengthened the bonds of brotherhood among men. Just as important. . .The Citadel offered unassailable proof of manhood in society that might otherwise doubt or deny it" (Estes, 2010, p. 47). One alumnus argued that an all-male environment allowed more room for homosexual identities to emerge, saying "There's a real easy slippage from a co-ed setting into an enforced heteronomativity or an enforced heterosexuality that can be subverted when one

has a single-gender kind of society" (as cited in Estes, 2010, p. 59). Others simply seemed disappointed to see the single-sex tradition at the school end.

4.5   Conclusion

Although the bibliography upon which this study rests cannot claim to be exhaustive, two points are evident. First, few books have been written that specifically focus on the history of LGBTQ issues in higher education (Dilley, 2002; Dowling, 1994; MacKay, 1993; Shand-Tucci, 2003; Wright, 2005). What we know of this history is often gleaned from a variety of sources. Biographers and education historians have incorporated LGBTQ themes into their biographical and institutional studies (Horowitz, 1984, 1994; Palmieri, 1995, Wells, 1978), and education historians who study LGBTQ issues have incorporated higher education as it informs their work (Blount, 2005; Graves, 2009). In addition, historians who study LGBTQ issues have written work that crosses over into higher education (Bailey, 1999; Braukman, 2012; D'Emilio, 1992; Faderman, 1981, 1991, 1999; Howard, 1999; Johnson, 2008; Katz, 1976; Poucher, 2014a; Sears, 1997), and those who focus on gender issues in higher education have increasingly addressed sexuality in their studies (Deslandes, 2005; Farnham, 1994; Friedman, 2005; Jabour, 2007; Syrett, 2009; Weber, 2008). The balance of what we know about the history of LGBTQ issues in higher education has been recorded in journals, much of it path-breaking work. This raises a second observation: only four articles in this literature base appear in history of education journals. The majority of essays on the history of LGBTQ issues in higher education have appeared in a few anthologies and journals devoted to research in women's and queer studies, education, and history. Scholars, then, must continue to read widely for a fuller sense of LGBTQ education history.

The academy is more welcoming of research in this underdeveloped field than it was even a decade ago. Rather than a lack of interest in LGBTQ history on the part of education historians or the editors of their presses, the current status may reflect a broader problem in the academy, the diminishing institutional presence of education historians, and regard for the humanities in general in higher education. If History Departments and Colleges of Education offer fewer tenure-track lines to education historians, then we face a similar dilemma as that confronted by the early gay historians: too little institutional support in terms of teacher salaries and other resources to maintain scholarly trajectories in LGBTQ education history.[4] And yet, a vast terrain of research is waiting to be explored, work that will benefit from the training, talent, and insight of higher education historians.

Thankfully, we have advanced beyond the days when, as a matter of course, archival crates were slammed shut on researchers studying the lives of LGBTQ

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[4]In "Gendering the history of education" (in press), Lucy Bailey and I made a similar point about gender history.

leaders in the academy. Biographers who study college administrators, professors, and students are better positioned to consider the bearing a person's sexual identity might have had on how they perceived their world, and what they thought possible in their work. With few exceptions (Beemyn, 2003a; Clawson, 2013, 2014), however, we know very little about the college experiences of transgender students, faculty, and staff —and bisexuals seem to appear only as the obligatory "B" in the acronym. Again, with few exceptions (Clawson, 2013, 2014; Johnson, 2008), race analyses are almost totally absent from this historiography. Some accounts address the ways in which gay student groups collaborated with the Black freedom struggle (Beemyn, 2003b; Clawson, 2013, 2014), but much more work needs to be done on the intersections between sexuality, race, and ethnicity.

A similar claim could be made for the need to know more about how gay student organizations collaborated with, profited by, and distanced themselves from the women's liberation movement of the 1970s. Fleeting references appear in some accounts (D'Emilio, 1992), and Bailey addressed the issue in her 1999 study at the University of Kansas. It would be good to follow up at other universities to enhance gender analyses of the early gay rights movement. Also, although women's historians made substantial contributions to the early scholarship on the history of LGBTQ issues in higher education, most of that work focused on the women's colleges at the turn of the twentieth century. Studies of coeducational colleges would enrich what we know about women who loved women during that period—and men who loved men, for that matter. That is, historians might expand their studies to include various types of institutions beyond the Seven Sisters colleges, the Ivy League, and colleges on the West coast. Clawson (2013, 2014) has taken the study South, Bailey (1999) to the Plains, and Dilley continues to study colleges in the Midwest. In addition to geographical diversity, we would do well to think about LGBTQ issues at community colleges, institutions that serve a wider range of students than the traditional 4-year college—perhaps an approach that would enable us to understand more about an understudied population in LGBTQ history in general. Colleges of education are intriguing sites of study, as well, for the insights one might gain about progress, or lack thereof, regarding LGBTQ issues in elementary and secondary schools. And the work that Strunk, Bailey, and Takewell (2014) have published on gay men in Christian colleges suggests that universities affiliated with religious denominations provide rich contexts for historical studies on LGBTQ issues in higher education.

Five areas of study might lend themselves to productive syntheses in works that aim to deliver an overarching narrative of significant events in the queer history of higher education. First, the combination of primary sources, access to interviews, court cases, and a foundation of secondary literature can now support a comprehensive historical analysis of the founding and struggle for recognition of LGBTQ student groups. Michael Hevel is working on a legal history that analyzes this trajectory and related arguments of free speech, the right to assemble, and intellectual freedom.

In a second area of research, other studies might take up an examination of how the student groups, once established, contributed to key political struggles in the

LGBTQ community: funding for AIDS research, overturning sodomy laws, fighting for marriage equality and legal protections against discrimination in the workforce. Related work might examine relevant university research and administrative policy positions on these issues to gauge how involved university personnel have been in these civil rights battles.

Third, as we gain more historical perspective on queer studies courses, programs, and departments, scholars can explore these curricular developments in the context of social justice movements and the shifting university landscape on the threshold of the twenty-first century. Comparisons with other "new studies" of the 1960s and connections to queer theory are likely to expand our knowledge of intellectual shifts in the academy, competing conceptions of the purposes of the university, and curricular politics at the turn of the twenty-first century.

Two other areas of study reach back to the mid-twentieth century and, thus, are less likely to be aided by oral histories. As scholars continue to collect evidence of homosexual purges across the nation and the secondary literature base expands, a comprehensive treatment of the university purges during the Cold War would advance not only higher education history and LGBTQ history, but political history as well. And it is surely the case that there is more to know about the connections that Bailey (1999) began to draw between professional student personnel and the psychotherapeutic control of students. One of the points she noted was that male and female deans appeared to address this aspect of their work in different ways. Kelly Sartorius (2014) is beginning to explore the gendered dynamics that characterized deans' responses to reports regarding students' sexuality.

Jonathan Katz's faith that, someday, the necessary elements would align so that LGBTQ history could take its rightful place in the chronicles of American history has been sustained. LGBTQ history is a legitimate field of study in higher education research, scholarly production over the years has benefitted from cooperative efforts to collect and curate precious primary sources, and scholars representing a range of academic backgrounds have contributed to a secondary literature base that has established some foundational principles and opened new questions for further inquiry. In short, the history of LGBTQ issues in higher education has a place in the academy. Having passed through four decades of research and debate, LGBTQ history is no longer "rough at the edges," but perhaps it will always be "radical at heart" (Katz, 1976, p. 8).

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Chapter 5
Reassessing the Two-Year Sector's Role in the Amelioration of a Persistent Socioeconomic Gap: A Proposed Analytical Framework for the Study of Community College Effects in the Big and Geocoded Data and Quasi-Experimental Era

Manuel S. González Canché

5.1 Introduction

The public two-year or community college sector remains one of the most controversial segments of the U.S. higher education system (Brand, Pfeffer, & Goldrick-Rab, 2014; Dougherty, 1994). On the one hand, these institutions are often criticized for lower rates of degree and credential production despite the fact that they enroll close to 50% of all undergraduate students in the U.S. higher education system (AACC, 2016; González Canché, 2012) while having access to significantly fewer monetary and non-monetary resources (*e.g.*, fewer financial resources, fewer full-time faculty, and fewer students for whom the pursuit of a higher education credential is a full-time endeavor) than their public four-year higher education counterparts (AACC, 2016; Delta Cost, 2012). On the other hand, the community college sector is also viewed as potential mechanism toward closing the persistent socioeconomic gap in the United States by providing an entry point to higher education to a significant portion of all first-generation in college, low-income, ethnic minority and under prepared students (Brand et al. 2014).

Notably, despite its controversial status, federal (*e.g.*, Complete College America), state- (*e.g.*, Tennessee Promise[1]), and city-level (*e.g.*, San Francisco tuition-free plan[2]) initiatives often call upon community colleges to meet market demands for college graduates. This continued emphasis on the community college sector as both

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[1] http://tnpromise.gov/about.shtml

[2] http://money.cnn.com/2017/02/10/pf/college/san-francisco-free-community-college/index.html

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the prominent entry point to higher education for underrepresented students and a source of economic growth by policy- and decision-makers, justifies the study of the effects of this sector on students' educational, occupational, and financial outcomes. Such an analysis is needed to better inform current and future policy decisions. Accordingly, this chapter assesses whether the community college sector can be conceptualized as a way of attaining U.S. economic goals, ameliorating persistent academic and socioeconomic gaps, or both.

5.2 Purpose

The purpose of this chapter is threefold. First, it provides a comprehensive and systematic review of extant research on the educational and occupational outcomes associated with community college attendance. This literature review prioritizes (but is not limited to) comparisons of outcomes attained by students who began college enrollment in the public two- and four-year sectors. The second purpose is to provide a critique of this line of research concerning its methodological rigor by highlighting the emergence of analytic applications that deal not only deal with systematic differences between two- and four-year entrants but also are capable of handling big-data issues (e.g., fitting on "noise" or overfitting[3]). As part of this purpose, an innovative analytic framework is provided for researchers and practitioners to utilize when dealing with comparisons of these student populations. Finally, the third purpose is to apply the proposed analytic framework to analyze a topic that, while timely and relevant, has remained virtually undiscussed in the study the two-year sector effects. Specifically, this section analyzes the effect of initial two-year sector enrollment on undergraduate loan debt accumulation comparing different enrollment pathways and levels of education attainment.

To address this comprehensive purpose, the chapter is comprised of three main sections. The first section provides a description of the origins and role of the community college sector in the United States. It then analyzes and critiques over 50 years of research on the sector effects of community colleges on students' outcomes. This section depicts observed differences between two- and four-year students and highlights the importance of accounting for these differences before estimating the effects of the two-year sector on students' outcomes. The second section proposes an analytic framework that researchers and practitioners may use to compare the effect of beginning college in the public two-year sector as opposed to other sectors of the U.S. higher education system. This section pays close attention to the availability of big and geocoded[4] data at the institution, state, and geographic-

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[3]Overfitting occurs when a model is excessively complex, such as having too many parameters (Harrel, 2015; Zhao et al., 2011).

[4]Geocoded data are the result of identifying the intersection between latitude and longitude coordinates on the earth's surface. The result of this identification process can take the form of a

level and the manners in which analyses of two-year sector effects should proceed in order to minimize issues of self-selection, confoundedness, and omitted variable bias that have permeated previous research. Sections one and two are mapped out in Fig. 5.1, which presents a visual summary of the effects of the community college sector on educational and occupational outcomes along with recommended policy and methodological plans of action. Specifically, Fig. 5.1 begins by showing the two comparison aspects that guided the literature review presented (effect of community college attendance on educational and occupational outcomes) along with the findings and conclusions reached in these two sections of the manuscript. In addition, the figure also contains the questions addressed in the discussion section and next steps and/or plans of action, which offer both methodological implications and practical recommendations that emerge from the literature review presented herein.

The third and final section, entitled "Community College Effects on Undergraduate Loan Cost of Attendance," applies the proposed analytic framework presented in the second section. Specifically, this framework is exemplified in an investigation of the affordability of the community college sector, focusing on its effects on the accrual of student loan debt, a financial outcome that has remained understudied in the literature (González Canché, 2014a, 2014b). As such, this section emphasizes the timeliness and importance of analyzing the effect of initial two-year sector enrollment on undergraduate loan debt accumulation by comparing different enrollment pathways and levels of education attainment. The final section of the chapter discusses challenges and opportunities in the use of big and geocoded data in higher education policy along with future lines of research that involve the use of Geographical Network Analysis (González Canché, 2018) to assess the effects of place in the analysis of factors affecting community college students' outcomes, a topic that remains understudied. Finally, the chapter reassesses the role of the community college sector in (re)producing socioeconomic mobility opportunities in the United States.

5.2.1 Section 1: Previous Research on the Community College Sector and Its Outcomes: A Brief History of the Origins and Role of the Community College Sector in the U.S.

Since their very inception in the early 1900s, public two-year institutions, junior or community colleges, were conceptualized as institutions serving their local communities (Clark, 1960b; Cohen, 1987; Vaughan, 1995). Indeed, these institutions were

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point (e.g., an institution), a polygon (e.g., a county or state), or a line (e.g., a river). Once this information is stored, analysts can use geocoded data to generate maps using geographical information system procedures, and/or to conduct more inferential analysis using spatial statistics or spatial econometric analyses (see more at González Canché, 2014a, 2014b, 2017a, 2016, 2018).
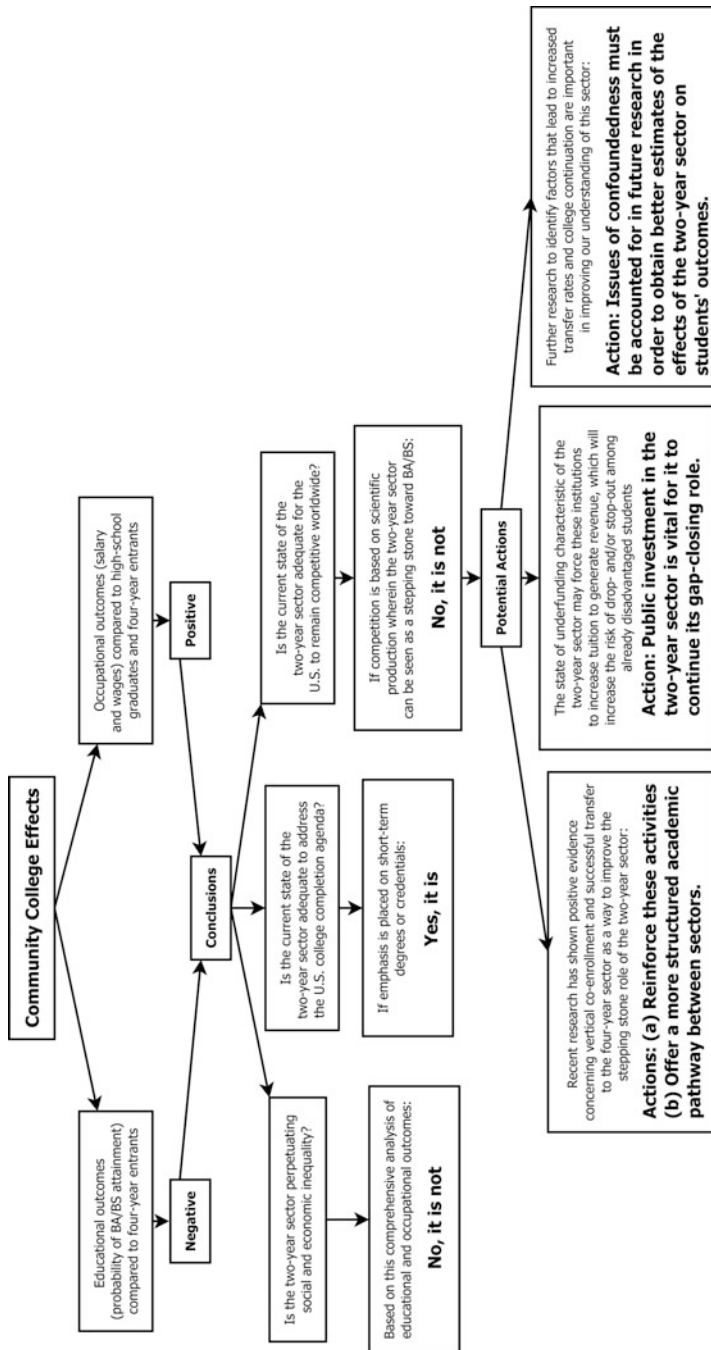
Fig. 5.1 Summary of the overall structure of the effects of community colleges on education and occupational outcomes and potential actions

initially designed to offer programs attached to high schools as 13th and 14th years of formal education (Garrison, 1975; Helland, 1987). Even though an official high-school-to-college connection is no longer observed among community colleges today, it is worth noting that their original association with high schools created some confusion about the role of community colleges in the U.S. higher education system. This situation led some authors like Clark (1960b) to state that "[t]he junior college is a school whose place in education is by no means clear and whose character has been problematic" (p. 2). Similarly, other authors pointed out that, given their purpose to serve local school districts, these institutions would be unlikely to contribute to an increase in the quality of the postsecondary education system or the meaningful formation of human capital (Hofstadter & Hardy, 1952; Riesman, 1956).

The role of the community college in U.S. higher education has clearly evolved over time. For example, before 1910, these colleges were charged with offering education beyond high school to students who did not want to attain a bachelor's degree. By the turn of the 1920s, these institutions began to parallel the work of the first two years of coursework offered at four-year colleges. Because of this similarity in coursework, two-year institutions began to be conceptualized as colleges that educated students who could transfer out to the four-year sector in their "junior year," or third year of college (Spindt, 1957).

The first and second World Wars (WWI and WWII, respectively) were two of the most important events to trigger the expansion of the community college sector in the U.S. (Vaughan, 1995). In 1915, there were only about 19 two-year institutions nationwide with a total enrollment that did not exceed 600 students. After WWI, not only did the number of institutions grow exponentially, reaching 178 colleges serving 45,000 students, but also and perhaps just as importantly and naturally, the role of these institutions began to diversify (Cohen & Brawer, 2003; Vaughan, 1995). Notably, a large portion of the enrollment increases at community colleges were composed of returning WWI veterans who enrolled in this sector part-time and often had no intent to transfer to the four-year sector (Radford, 2009). This socio-political context, then, meant that these institutions attracted students who only aspired to the 14th year of formal education. With respect to WWII, the Servicemen's Readjustment Act of 1944, most commonly known as the G.I. Bill, provided a range of benefits for returning WWII veterans that included cash payments of tuition and living expenses to attend high school, two-year colleges, or four-year colleges and universities. At least two interrelated factors helped to shape the college choice of returning WWII veterans and drove them to select the two-year sector. The first was that four-year colleges and universities during the 1940s were primarily viewed as institutions reserved for the privileged and elite (Arendale, 2011; Turner & Bound, 2003), and the second was the emergence of admissions officers at four-year institutions who served as gatekeepers and "dissuad[ed] casual shoppers, and focus[ed] on the kinds of students that their universities wished to attract" (Palmer et al., 2004, p. 11). Given the open admission policy characteristic of two-year colleges, returning veterans who did not intend, aspire, or possess the academic preparation to attend a four-year institution before WWII considered the

two-year sector to be an attractive educational option, particularly given that they received payment while receiving a college-level education (Phillippe & González Sullivan, 2005; Turner & Bound, 2003).

The G.I. Bill not only represented a key factor in the further expansion of the two-year sector but it also contributed to the broadening of their "array of vocational programs [. . .] offered in order to accommodate returning soldiers to prepare for jobs and ease their reentry into a peacetime economy" (Phillippe & González Sullivan, 2005, p. 2). Based on this renewed demand, by 1947 the number of two-year institutions reached 328, and welcomed a total of 500,000 students (Vaughan, 1995; Celis, 1994). Another important event that shaped the mission and history of community colleges in the U.S. was the publication of the Truman Commission Report in 1947 (Zook, 1947), officially entitled "Higher Education for American Democracy," which enabled the creation of a network of community-based colleges, thus strengthening these institutions' missions to help their local communities. This report was so influential that it led many two-year colleges to include "community" in their names. It is clear that public two-year institutions were formed to serve their local communities and that this political and social context was instrumental in shaping the type of students that this sector has traditionally served.

5.2.1.1 The Contemporary Community College

More recently, the public two-year sector has become one of the most important engines of human capital formation and economic growth in the United States. More than half of all students attending college in the U.S. higher education system complete at least their first year of college at a public two-year institution (Horn & Skomsvold, 2011), and data from the Integrated Postsecondary Education Data System (IPEDS) reveal that at least 84% of all part-time, degree-seeking students attend the public two-year sector (IPEDS, 2013). It is clear that community colleges are unique institutions in terms of the student populations they enroll, which can be viewed as a reflection of their historical commitment to providing multiple pathways of access to higher education, especially among first-generation in college (*i.e.*, neither parents or guardians attended college), ethnic minority, low-income, and academically under-prepared prospective college students (Brand, Pfeffer, & Goldrick-Rab, 2014; Dietrich & Lichtenberger, 2015; Goldrick-Rab, 2010; Melguizo & Dowd, 2009; National Center for Education Statistics, U.S. Department of Education, 2013). The attraction of students with the characteristics just listed to the community college sector is not random. On the contrary, community college is an appealing option for many of these students, particularly during tough economic times, because it requires a smaller initial financial investment compared to other higher education options. In fact, according to the American Association of Community Colleges (AACC), tuition and fees in the community college sector have always been, on average, a third of the amounts charged by public four-year institutions (AACC, 2016), and only one tenth of the tuition and fees charged by private not-for-profit four-year colleges (IPEDS, 2014). Moreover,

given that a large proportion of community college students are already employed (AACC, 2016), the community college sector has an immediate impact on the U.S. labor force. As such, the skills and knowledge developed in this sector are likely to be an effective strategy for closing the socioeconomic gap between low- and high-income groups in the U.S. by providing low-income students with the means to increase their salary prospects through education at an affordable price.

Despite the set of characteristics just described, many of which community college advocates highlight when touting the role of this sector as an equalizing engine (Astin, 1985; Leigh & Gill, 2003; Melguizo & Dowd, 2009; Rouse, 1995), community colleges continue to be among the most controversial and criticized institutions of higher education (Brand et al., 2014; Dougherty, 1994; Goldrick-Rab, 2010). Researchers have long argued that community colleges consistently play an active role in the reproduction of inequality in American society by diverting students from the attainment of a four-year degree (Brint & Karabel, 1989; Clark, 1960a, 1960b; Dougherty, 1992; Karabel, 1986). In spite of these serious accusations, this sector has become a major player in college completion agendas, which aim to make the U.S. the country with the highest proportion of college graduates in the world (Cook & Hartle, 2011; Horn & Skomsvold, 2011; Shear, 2010; U.S. Department of Education, 2015). Notably, as competition for science, technology, and economic development tightens globally, the production of well-prepared college graduates is of increasing importance to any country aspiring to compete worldwide. Clearly then, an analysis of the empirical evidence of the effects of the community college sector on student educational and occupational outcomes has become increasingly necessary in order to assess whether community colleges can be conceptualized as a way of achieving the goals of the U.S. college completion agenda, the amelioration of a persistent socioeconomic gap, or both.

5.2.1.2 Previous Research on Community College Effects

This section analyzes research findings regarding the effect of community colleges on their students' educational and occupational outcomes.

Method Followed to Identify the Literature Analyzed To address the first purpose of this chapter, an extensive literature review of research published primarily in the most influential American peer-reviewed journals focused on higher education issues, along with other publication outlets such as books, reports, and dissertations, encompassing comparisons of students' outcomes was conducted. The methodology employed was based on the approach proposed by What Works Clearinghouse (WWC) Procedures and Standards Handbook Version 3.0 (2014) and consisted of a comprehensive and systematic search of published literature examining the impact or effects of community colleges on educational and occupational outcomes. Based on the ample nature of the study, no specific time criterion was selected when conducting the literature search. Consequently, the resulting literature review spans more than 50 years. The leading journals in the field of higher education in

the U.S. (*The Journal of Higher Education*, *The Review of Higher Education*, and *Research in Higher Education*) along with journals with a high impact factor in education (*Educational Evaluation and Policy Analysis*, *Economics of Education Review*, *Teachers College Record*), and journals and outlets specialized in community college issues (*Community College Review* and *Community College Journal of Research and Practice*) were the primary peer-reviewed sources. A review of doctoral dissertations was conducted through ProQuest Dissertations and Theses Database. Policy briefs and reports were searched using the Community College Research Center, MDRC, Achieving the Dream, Center for Analysis of Postsecondary Education and Employment, and JBL Associates. In addition, the list of electronic databases consulted included the following: Academic Search Premier, SocINDEX with Full Text, Campbell Collaboration, Dissertation Abstracts, EconLit, SAGE Journals Online, Education Research Complete, Scopus, EJS E-Journals, WorldCat, and ERIC.

It is worth noting that the results obtained through specific journal websites overlapped to a great extent with those from the list of electronic datasets listed above. To avoid redundancy and due to space limitations, the first eight rows of Table 5.1 summarize the findings from the literature search conducted across academic journals. The first column of Table 5.1 contains the specific web address for each journal. The second column of this table indicates the key words used in the literature search. These key words rendered a given number of documents that were potentially relevant for this literature review. It is worth mentioning that some journals required the use of specific search criteria. For example, given that at the time of the search *The Journal of Higher Education* did not have a standalone website, its results were provided through JSTOR and required the inclusion of the journal's JSTOR ID to delimit the search. Given the comprehensive and systematic nature of this search process, the keywords used to search academic journals' websites did not include the words *effects*, *impact*, *outcomes*, *penalty*, or *gap*, but only accounted for the sector's name of interest as follows: "two-year colleges" OR "community colleges" OR "2-year colleges." This review approach successfully excluded sources that did not involve the study of community colleges. Each potential document was reviewed starting with the abstract, or the entire document if there was no abstract, to determine if the study met the inclusion criteria described below.

Another important source of documentation was identified by analyzing the reference lists of articles that met the inclusion criteria. This step led to the identification of studies that were published in journals and by think tanks different from those mentioned above. When a prolific researcher was identified, her or his name was used in the search criteria. Whenever possible, original sources of secondary data were utilized to depict the general scope of the community college sector in the U.S. national postsecondary education system. These sources included IPEDS, the U.S. Department of Education, and the *Digest of Education Statistics*.

Inclusion Criteria Documents that compared community college students' educational outcomes with four-year students' educational outcomes were included in the

Table 5.1 Search criteria and website information of main academic journals included

Source	Search criteria	Number of matches	Articles selected[a]
The Journal of Higher Education http://www.jstor.org/action/showPublication?journalCode=jhighereducation	("two-year colleges" OR "community colleges" OR "2-year colleges") AND jid:(j100225)	710	7
The Review of Higher Education http://muse.jhu.edu/journals/review_of_higher_education/	(two-year colleges OR community colleges OR 2-year colleges)	138	5
Research in Higher Education http://www.springer.com/gp/	("two-year colleges" OR "community colleges" OR "2-year colleges") AND (journal no. 11162) Then select "online content"	530	6
Community College Journal of Research and Practice[b] http://www.tandfonline.com/action/doSearch?pageSize=10&pubType=journal&AllField=two-year+colleges%2C+community+colleges%2C+2-year+colleges&join_AllField=AND&join_Title=AND&join_pubTitle=AND&join_Contrib=AND&join_PubIdSpan=AND&join_Abstract=AND&Keyword=effects&Ppub=&content=standard&target=default	(two-year colleges or community college or 2-year colleges, keywords = Effects)	533	2
Community College Review *http://crw.sagepub.com/search/results*	(two-year colleges or community college in abstract or 2-year colleges in abstract)	222	2
Economics of Education Review[c] http://www.sciencedirect.com/science/journal/02727757	("two-year colleges" OR "community colleges" OR "2-year colleges")	273	8
Teachers College Record[c] http://www.tcrecord.org/		270	5
Educational Evaluation and Policy Analysis[c] http://epa.sagepub.com/		16	6

Table 5.1 (continued)

Source	Search criteria	Number of matches	Articles selected[a]
Google, Google Scholar, refseek	"Community college comparison" OR "two-year colleges comparison", "community college effects" OR "two-year colleges effects", "impact of community colleges" OR "impact of two-year colleges", "baccalaureate gap", "cooling-out function", "community colleges and attainment gap" OR "two-year colleges and attainment gap", "community college wage penalty" OR "two-year colleges wage penalty", "community college occupational outcomes" OR "two-year colleges occupational outcomes", "community colleges educational outcomes" OR "two-year colleges educational outcomes"		

[a]See selection criteria in the literature review methodology section
[b]For this journal, the search criteria, as implemented in all previous journals, rendered 200,098 results. As such, the search criteria were modified to include the term "effects." This link accounts for more than one journal source
[c]These journals were searched using the same search criteria

current analysis. Regarding occupational outcomes, comparison groups were broadened to allow for the inclusion of high school graduates, community college graduates, students with community college credits, four-year graduates, and students with four-year credits. It is worth noting that the literature concerning two-year effects on educational outcomes has also compared the effects of different types of two-year institutions on students' outcomes. The findings from these types of studies are included as a subsection of the section discussing community college effects on educational outcomes.

Exclusion Criteria Documents that analyzed factors associated with successful transfer and eventual attainment of a four-year degree were excluded from this literature review as this synthesis of the literature has already been conducted (Goldrick-Rab, 2010). No documents were excluded based on publication date. Additionally, in order to avoid dealing with an unmanageable number of documents and reports, the review of online search engines (*e.g.*, Google, Google Scholar) was more limited than the review of the journals as shown in Table 5.1. The last row of Table 5.1 contains the key words used in the decision tree for selecting articles and descriptors using these sources. The review of these documents and reports followed the same procedure employed in the inclusion/exclusion criteria described above.

Results from the Literature Review This section accounts for the main findings of the literature review and is organized into three main parts. The first subsection describes findings that document observed differences between two- and four-year students and the second and third subsections present findings on educational and occupational outcomes of community college students, respectively.

Two- and Four-Year Students' Attributes and Characteristics Considering their more affordable tuition and fee prices and their open-door admission policies, community colleges tend to attract students that, compared to four-year entrants, generally exhibit weaker academic preparation for college, tend to have access to fewer social and financial sources of support, and consequently have lower expectations about their realistic possibilities of attaining a baccalaureate college degree (Berkner, Choy, & Hunt-White, 2008; Doyle, 2009; González Canché, 2014a, 2014b; Long & Kurlaender, 2009; Stephan, Rosenbaum, & Person, 2009). For instance, Berkner et al., (2008) reported that, based on data taken from the Beginning Postsecondary Students Longitudinal Study (BPS), 81% of the total 2003–2004 students who first enrolled in a four-year institution expected to attain at least a four-year degree. For two-year students, this percentage was 9.8%. Similarly, using data from the National Educational Longitudinal Study (NELS), González Canché (2014a, 2014b) found that even when only considering full-time students, 95% of initial four-year entrants and only 68% of community college entrants expected to attain a four-year degree or more. The most recent dataset documenting student transitions into and out of college (Education Longitudinal Study [ELS]) shows similar results with 96% and 71% of first-time, full-time four- and two-year entrants expecting to attain a four-year degree or more, respectively. These differences in access to social capital, financial resources, and four-year degree expectations are an important source of bias if studies attempting to capture community college effects on four-year degree completion do not account for the ways in which these pre-college disparities influence students' outcomes regardless of sector of enrollment. For example, before making inferential claims, analyses should consider that for many community college students, a four-year degree is not part of their academic goals.

Notably, even when community college students aim to pursue a four-year degree, they very often exhibit characteristics that put them at risk of dropping out of the educational system altogether. In a comprehensive report about community college students participating in NELS:1988, Hoachlander, Sikora, and Horn (2003) found numerous characteristics that placed community college students at risk of dropping out of high school and college. These factors included single-parenthood, having a parent with no high school diploma, limited English proficiency, earning a combined family income less than $15,000, having a sibling who dropped out of high school, delayed enrollment between high school graduation and postsecondary entry, part-time attendance at first institution, high school completion via a certificate or the GED, working full time when first enrolled, having children at a young age, being a single parent, or having been alone at home more than 3 hours a day while in high school (Hoachlander et al., 2003, pp. 52, 60).

With these general descriptions of two- and four-year college students in mind, it is worth asking whether studies comparing the educational and occupational outcomes of two- and four-year students have accounted for the fact that, on average, four-year students have had better opportunities in many aspects of their lives. More specifically, one may ask, assuming that four-year students indeed realize better

outcomes than their two-year counterparts, would these differences in outcomes hold even if four-year institutions suddenly started admitting the type of students that the two-year sector has traditionally served? In other words, are these outcome differences simply a reflection of unequal starting points in terms of the socioeconomic well-being characterizing students who begin college in the two- versus the four-year sectors? From this point of view, as Astin (1985) questioned, is it really fair to blame and/or criticize community colleges for inferior outcomes vis-à-vis their four-year counterparts given that these public two-year institutions are receptive to all kinds of students, regardless of their academic and financial backgrounds?

As the preceding discussion illustrates, the comparison of two- and four-year colleges' effects on any type of outcome without first accounting for the self-selection inherent in their student bodies (Leigh & Gill, 2003; Long & Kurlaender, 2009; Melguizo & Dowd, 2009; Stephan et al., 2009) may not render the best possible unbiased results. According to Heckman (1979) self-selection "bias results from using non-randomly selected samples to estimate behavioral relationships" (p. 153). He goes on to explain that when there are expected benefits from participating in a program or treatment (in this case, sector of initial college attendance), it is usually the case that these non-randomly selected samples are systematically different and that participants tend to not be given the same opportunities to participate in alternative preferable programs (Heckman, 1979). Consequently, any attempt at estimation merely accounts for past differences that drove self-selection in the first place rather than identifying unbiased estimations of the outcomes that resulted from participation in a particular educational program (or treatment condition). In the context of this chapter, this issue can be found in at least two scenarios. In the first, four-year students self-select into the four-year sector as a result of a rational choice process (G. S. Becker, 1962) based on the believed greater benefits, both professional and economic, that four-year colleges may bring when compared to two-year colleges (*i.e.*, better income and better quality of education). In the second, the structure of the higher education system motivates four-year institutions to purposefully filter applicants and select the most capable candidates in terms of their probabilities of success and their ability to pay the costs of tuition, fees, and living expenses (Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004). These two scenarios are not mutually exclusive; rather, they intermingle, resulting in a pool of four-year students that is systematically different from participants that were either denied admission to four-year institutions or decided not to enroll there. Accordingly, the self-selection issue implies that four-year students are more likely to come from upper-socioeconomic-class backgrounds with more types of support, including those that are social, monetary, and morale-boosting, than their two-year counterparts.

Given the likely presence of self-selection bias issues regarding the estimation of educational and occupational outcomes as a function of two-year enrollment, the following two subsections exploring literature related to the educational and occupational outcomes of the community college sector will pay special attention to the methodologies, analytic techniques, and samples of students that have been used to conduct these comparisons. Tables 5.2 and 5.3 summarize the literature on educational and occupational outcomes, respectively, as reported next.

Table 5.2 Summary of the impact of two-year enrollment on the likelihood of four-year degree attainment

Authors	Method	Data	Scope	Operationalization	Findings
Dougherty (1992)	Review of literature (1975–1990) based on Logit and Probit regressions	National Longitudinal Study (1972), and High School and Beyond (1980), other surveys whose scopes were not national	National and institutional level	One stage, naïve Logistic or Probit regression	Decreases in the 11.4% to 18.7% range across studies
Rouse (1995)	Instrumental variables	High School and Beyond (1980)	National	Instruments: College accessibility captured by average in-state tuition at public two- and four-year colleges and distance from those colleges	Decrease of around 11% and one less year of college enrollment Due to large standard errors these negative effects did not reach traditional levels of statistical significance.
Gonzalez and Hilmer (2006)	Instrumental variables	High School and Beyond (1980)	National	Same instruments proposed by Rouse (1995) but models estimated by these authors were disaggregated by ethnicity (Hispanic, African American, and White)	Decrease of around 34% and 77% for Hispanics and African Americans, respectively similar to rouse, due to large standard errors, these negative effects did not reach statistical significance. White participants in the two-year sector had an increase of 1.8% compared to white participants first attending the four-year sector.

(continued)

Table 5.2 (continued)

Authors	Method	Data	Scope	Operationalization	Findings
Alfonso (2006)	Instrumental variables and an extension of the Heckman (1979) two-stage sample selection model	National Education Longitudinal Study (1988)	National	Same instruments proposed by Rouse (1995)	Compared to four-year students, two-year entrants experienced a decrease of 30.5% in likelihood of BA/BS degree attainment without accounting for final degree expectations, and a decrease of 21.4% when accounting for expectations of college degree.
Sandy et al. (2006)	Oaxaca decomposition	National Longitudinal Study (1972), Beginning Postsecondary Student (1994), High School and Beyond (1992)	National	The Oaxaca decomposition enabled authors to separate student and institutional components affecting the probability of graduating from a four-year college.	The probability that students with two-year characteristics completed a bachelor's degree if they attended four-year institutions is 0.735 in the National Longitudinal Study specification, 0.436 in the high school and beyond, and 0.373 in the beginning postsecondary student. These results suggest that not even four-year institutions may be able to help two-year entrants.

Stephan et al. (2009)	Propensity Score Matching	National Education Longitudinal Study (1988)	National	Controlled for propensity to enroll in the four-year sector and used this propensity to reduce baseline differences	Two-year entrants experienced an average decrease of 23% in their likelihood of BA/BS degree attainment compared to similar four-year entrants.
Doyle (2009)	Propensity Score Matching and Cox proportional hazards model	Beginning Postsecondary Study (1996)	National	Two stage approach: First Propensity Score Matching to control for baseline indicators and then a Cox proportional hazards model in order to accurately model the inherently time-dependent process of degree attainment	Enrollment in a community college lowers the hazard rate to 0.68 of its baseline value, indicating that community college students have a hazard rate of 0.32. This hazard rate translates into probabilities of surviving that are 15% lower after 6 years of enrollment compared to initial enrollment in the four-year sector $(15\% = 1-[=(1-\text{EXP} (-0.32*6))])$.
Long and Kurlaender (2009)	Propensity Score Matching and Instrumental variables	Administrative dataset of students in the Ohio public higher education system	State level	Instruments: Distance from student's home to the closest two-year college and the distance to the closest non-selective four-year university	Decrease of 15% using the instrumental variables approach, and 21% using the PSM approach

(continued)

Table 5.2 (continued)

Authors	Method	Data	Scope	Operationalization	Findings
Reynolds (2012)	Propensity Score Matching	National Education Longitudinal Study (1988)	National	Models were disaggregated by gender and, in a subset of analyses, students enrolled in selective four-year institutions and students without expectations to attain a four-year degree were removed.	Results of restricted sample indicate a reduction of 23% for males and 25% for females
Wang (2014)	Propensity Score Matching and Path Analysis model	Beginning Postsecondary Students (2004)	National	Emphasis on STEM The author relied on propensity score matching to balance the data on observed characteristics and then used this balanced data to estimate a path analysis model.	Decrease of 35.6% in the probability of a typical student completing a bachelor's degree or persisting in four-year STEM fields after 6 years
Brand, Pfeffer, and Goldrick-Rab (2014)	Propensity Score Matching	High school graduates of Chicago Public Schools	State level	Tested for effect heterogeneity by conducting propensity score matching analyses where the comparison groups were separated into the following categories: not attending college within one year of high school graduation, attending a non-selective four-year college, attending a selective four-year college, and attending a highly selective four-year college	Decreases of 5.4%, 9.43%, and 35.5% when comparing two-year students versus enrolling at: non-selective, selective, and very selective four-year colleges, respectively

Table 5.3 Summary of the Influence of two-year enrollment on students' occupational outcomes

Authors	Comparison	Scope	Sample	Method	Outcome	Findings
Smart and Ethington (1985)	Four-year students	National	National Longitudinal Study (1972)	2 × 3 multivariate analysis of covariance (mancova)	Job status, stability, and satisfaction	No differences in the outcomes of two- and four-year students
Whitaker and Pascarella (1994)	Four-year students	National	National Longitudinal Study (1972)	Ordinary least squares	Income and job status	Students initially enrolling in community colleges had levels of occupational prestige and earnings that differed in only trivial and non-significant ways from their counterparts who initially enrolled in four-year institutions.
Kane and Rouse (1995)	Four-year students	National	National Longitudinal Study (1972) & National Longitudinal Survey of Youth (1972)	Ordinary least squares	Wages and annual earnings	Similar returns to earned credits at two- and four-year colleges regardless of graduation
	High school graduates					Students who attended a two-year college earned about 10% more than individuals without any college education.
Lin and Vogt (1996)	High school graduates	National	National Longitudinal Study (1972)	Ordinary least squares	Income and job status	Compared to no college, attending a two-year institution was associated with higher income and job status.
						For African American students, community college

Table 5.3 (continued)

Authors	Comparison	Sample	Scope	Method	Outcome	Findings
						attendance rendered no statistically significant differences.
Sánchez, Laanan, and Wiseley (1999)	Community college students at different levels of credit attainment	California Community Colleges and the Employment Development Department's Unemployment Insurance	State level	Descriptive statistics about median annual earnings	Earnings	There is a positive relationship between formal education and earnings. As students complete more education, they increase the likelihood of experiencing greater gains in their post-college earnings. Greatest payoffs are related to completing a vocational certificate or associate's degree compared to attainment of a few credits.
Grubb (2002)	High school graduates	Not applicable	National	Review of the literature	Earnings	Most estimates show that individuals who complete associate degrees earn about 20% to 30% more, with estimates for men being somewhat lower than those for women compared to high school graduates.
						One-year of coursework (without completing a degree) at either a two- or a four-year college increased

						an individual's earnings by about 5% to 10%.
Gill and Leigh (2003)	Four-year entrants	National Longitudinal Study of Youth (1972)	National	Two-equation framework to account for selectivity bias	Salaries	Four-year graduates who began college in the two-year sector attained similar wages to their counterparts who began college in the four-year sector.
Marcotte, Bailey, Borkoski, and Kienzl (2005)	High school graduates	National Education Longitudinal Study (1988)	National	Ordinary least squares	Earnings	Compared to high school education, community college education has positive effects on earnings among young workers. This effect was indeed larger for annual earnings than for hourly wages. Earnings benefits accrued both to those who failed to earn a credential and to those who earned an associate degree.
Jacobson and Mokher (2009)	High school graduates	Administrative records in Florida	State level	Descriptive statistics	Earnings	Provided evidence of the benefits of attending community colleges compared to completely dropping out of the postsecondary education system after high school in terms of salary
						These benefits remained across different types and levels of schooling.

(continued)

Table 5.3 (continued)

Authors	Comparison	Sample	Scope	Method	Outcome	Findings
Marcotte (2010)	No college enrollment, two-year enrollment (certificate, associate's degree, bachelor's degree)	National Education Longitudinal Study (1988)	National	Ordinary least squares	Wage and yearly salary	Compared to no college education, credits and degrees at both two- and four-year colleges rendered significant results, especially for women.
	Academic and vocational credits attained at two-year schools, credits attained at four-year schools					Among two-year students, there were no differences in terms academic and vocational credits attained.
Belfield and Bailey (2011)	High school students	Not applicable	State level	Literature review	Earnings, health, crime, and welfare reliance	Strong evidence of significant gains from attending a community college versus high school education
						Literature on health, crime, and welfare reliance is very limited and potentially offers an important area for further research.
Jepsen et al. (2012)	Community college students at different levels of attainment: Associate's degree, diploma, or certificate	Administrative data from Kentucky	State level	Panel-data models	Earnings	Among two-year entrants, students with associate's degrees and diplomas have higher returns compared to those with certificates even after controlling for differences among students in pre-college earnings and educational aspirations.

Study	Population	Level	Method	Outcome	Findings
González Canché (2012)	Four-year entrants	National Education Longitudinal Study (1998)	National	Propensity score matching, Heckman 2-stage control function	Annual salaries	No significant differences in annual salaries after accounting for observed and unobserved differences in the analytic samples given two-year enrollment status
Dagdar and Trimble (2014)	Two-year entrants at different levels of education attainment	Washington state: Longitudinal college transcripts and unemployment insurance records for students who entered a Washington state community college in 2001–2002	State level	Individual fixed effects model	Wages	Earning an associate's degree leads to positive increases in wages in practically any field, compared to earning some credits but not attaining a credential.
González Canché (2017a)	Two- and four-year entrants who attained a Ph.D. in STEM fields	Survey of Doctorate Recipients (1995–2008)	National	Propensity score weighting, instrumental variables with dynamic panel data models	Annual salaries	Scientists who began college in the two-year sector had lower salaries and less salary growth over the 10-year period observed.

Community College Effects on Educational Outcomes The empirical question guiding the studies summarized in Fig. 5.2 and Table 5.2 is: "What is the effect of beginning tertiary education in the two-year public sector on the attainment of a four-year degree compared to the effect of having started college in the four-year sector?" Note that Table 5.2 summarizes the type of analysis employed, the scope of the analytic sample (*e.g.*, state, national), the main operationalization procedures (*e.g.*, sample disaggregation, two-state approaches, instruments used), and magnitude of the main findings reported. Another common characteristic of the studies shown in Fig. 5.2 is that their authors presented the results in terms of probability changes, with the exception of Doyle (2009) who estimated changes in hazard rates. These hazard rates were translated into survival probabilities for the purposes of this literature review.

As noted in Table 5.2, researchers have used different types of data to explore the effect of community colleges on educational attainment. Some relied on longitudinal data gathered by the U.S. National Center for Education Statistics, while others used state-level data, and others relied on administrative records and/or institutional data. The analysis of community college effects can be separated into two main periods, the pre-quasi-experimental and quasi-experimental design eras. The pre-quasi-experimental design era, which ignores issues of self-selection, took place between 1992 and 2005 whereas the quasi-experimental design period, which began correcting for self-selection issues, started in 2006.

It is worth noting that all the estimates presented in Table 5.2 and Fig. 5.2 consistently rendered negative effects of two-year enrollment on the attainment of a four-year degree, and that these effects remained despite the introduction of sophisticated quasi-experimental approaches, such as the use of instrumental variables (Alfonso, 2006; González & Hilmer, 2006; Long & Kurlaender, 2009; Rouse, 1995), propensity score matching (Brand et al., 2014; Doyle, 2009; Long & Kurlaender, 2009; Reynolds, 2012; Stephan et al., 2009; Wang, 2014), and other non-quasi-experimental but still sophisticated analytic techniques such as Oaxaca Decomposition (Sandy, González, & Hilmer, 2006). Indeed, the combined estimated average reduction in the probabilities of attaining a four-year degree for community college entrants was 28.4% (s.d. = 19.2%) across studies. This finding indicates that across samples, decades, and scopes of the inferences reached, researchers have consistently found that students who began college in the two-year sector were less likely to attain a bachelor's degree than their counterparts who began college in the four-year sector, even after controlling for self-selection issues among participants across sectors.

Figure 5.2 is restricted to reporting the main magnitudes presented in the studies reviewed in Table 5.2. For example, Alfonso (2006) reported likelihood of bachelor's degree attainment with and without accounting for students' expectations to attain a four-year degree. Accordingly, the corresponding section in Fig. 5.2 contains two bars for Alfonso's findings. In some cases, there is only one main finding reported (see Doyle, 2009; Rouse, 1995: Wang, 2014). In this view, a more meaningful understanding of Fig. 5.2 is achieved through a closer examination of Table 5.2.

Average Decrease In Probabilities of Four-year Degree
Attainment Due to Initial Community College Enrollment
(mean decrease across studies=28.4%, sd=19.7%)
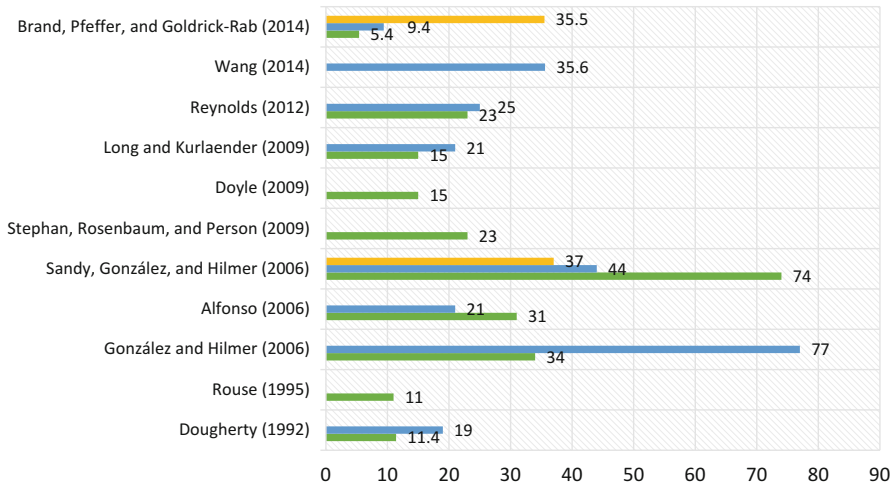
Fig. 5.2 Summary of the two-year sector effects on BA/BS degree attainment, where the higher the bars, the lower the chance of four-year degree attainment given initial two-year enrollment. The number of bars, indicates number of main models estimated in each study

Diverging Approaches to Measuring Community College Effects Before moving to findings related to community college enrollment and occupational outcomes, it is worth noting that there is a subset of studies of two-year sector effects on educational outcomes that can be classified in two types. The first type consists of studies that compare the academic outcomes of community college students who transferred to the four-year sector (termed "rising juniors") with outcomes of rising juniors who began college in the four-year sector (Dietrich & Lichtenberger, 2015; Melguizo, 2009; Melguizo & Dowd, 2009; Melguizo, Kienzl, and Alfonso, 2011; Monaghan & Attewell, 2014). In most of these studies, the authors relied on propensity score methods to account for self-selection bias (except in the cases of Melguizo and Dowd (2009) who manually matched participants in their analytic sample and Melguizo (2009) who restricted the sample to Hispanics and used OLS models) and found that rising juniors who started college in the two-year sector were as likely as rising juniors who began college in the four-year sector to attain a four-year degree. These findings suggest that, at least since the 1990s, two-year students who were able to successfully transfer to the four-year sector were not negatively affected by their community college educational experiences.

The second type of recent research corresponds to studies that have moved away from the comparison of two- and four-year entrants on educational attainment. This line of research, instead, has focused on (a) comparing community college students

with different levels of educational expectations (Leigh & Gill, 2003) or (b) analyzing the effects of attending different types of community colleges on educational attainment (Crisp, 2013; Roksa, 2006; Wang & Wickersham, 2014). In the former case, Leigh and Gill (2003) found that community college students who aspired to attain at least a bachelor's degree actually attained anywhere from 0.4 to 1 extra year of schooling compared to similar students with no bachelor's degree aspirations.

Regarding the second line of research, Roksa (2006) utilized the National Education Longitudinal Study (1988–2000) and IPEDS data to create a measure of community colleges' emphasis on short-term certificates or vocational associate degrees. The author captured this emphasis by measuring the proportion of all credentials offered by a given institution that were classified as certificates or associate's degrees. Roksa (2006) then relied on logistic regression to estimate the influence of these two indicators on the likelihood of (a) attaining an associate's degree, (b) transferring to a four-year institution, and (c) attaining a four-year degree. Results indicated that a vocational focus of the two-year institution was not related to decreases in educational attainment. Also within this second line of research, Wang and Wickersham (2014) identified students who exhibited what the authors termed "vertical-co-enrollment." This type of enrollment was classified as initially enrolling at a community college and at some point co-enrolling in the four-year sector. They also identified community college students who co-enrolled at other two-year institutions and called it "lateral co-enrollment." Wang and Wickersham (2014) relied on Beginning Postsecondary Students ([BPS] 2004–2009) and used multinomial probit analysis to estimate the effect of these two types of co-enrollment versus non-co-enrollment while in community college on four-year degree attainment within four, five, and six years of initial college enrollment. The authors found that vertical co-enrollment had a positive and significant effect on bachelor's degree attainment compared to non-co-enrollment. Finally, Crisp (2013) also used BPS:2004–2009, but relied on propensity score modeling, to test for the effect of co-enrollment among community college students on transfer to, and graduation from, a four-year institution. Her findings also showed positive effects of co-enrollment, but, different from Wang and Wickersham (2014), Crisp (2013) did not differentiate between vertical and lateral co-enrollment.

It is worth noting that the studies by Crisp (2013) and Wang and Wickersham (2014) on the effects of co-enrollment on education attainment and the research on rising juniors or two-year transfers (Dietrich & Lichtenberger, 2015; Melguizo & Dowd, 2009; Melguizo et al., 2011; Monaghan & Attewell, 2014) provide positive evidence regarding some of the ways in which the two-year sector's stepping stone role toward the attainment of a four-year degree may be strengthened. Given these positive findings, future research should focus on increasing our understanding of factors that promote the production of rising juniors by the two-year sector. Notably, these factors not only consist of experiences in the two-year sector, but also the improvement of articulation agreements between two- and four-year institutions. The latter is an important point given that two- and four-year institution articulation agreements have consistently been shown to be ill-implemented and lead to loss of

credits that jeopardize student persistence in and graduation from highereducation (Anderson, Alfonso, & Sun, 2006; Dougherty, 1992, 1994; Knoell & Medsker, 1965; Monaghan & Attewell, 2014).

The following section offers a similar overview of research in terms of the effects of community colleges on labor market outcomes while emphasizing the types of comparisons conducted in this line of research.

Community Colleges and Labor Market Outcomes   Research on the effects of community college enrollment on labor market outcomes has gone beyond the analysis of initial two- versus four-year enrollment. Indeed, this line of research has focused on comparing labor market results in the form of annual salaries and/or wages realized by high school graduates versus those earned by community college enrollees who attained associate degrees or simply accumulated some credits without attaining any credential (Grubb, 2002; Jacobson & Mokher, 2009; Kane & Rouse, 1995; Lin & Vogt, 1996; Marcotte, Bailey, Borkoski, & Kienzl, 2005). All these studies have found that, compared to high school education, enrollment at a two-year institution, regardless of degree or credential attainment, is associated with increased salaries and/or wages. Other researchers have compared salaries and wages attained by initial two- and four-year entrants (Gill & Leigh, 2003; González Canché, 2012; Kane & Rouse, 1995; Smart & Ethington, 1985; Whitaker & Pascarella, 1994) and have consistently found that students initially enrolling in community colleges had similar levels of occupational prestige and earnings compared to their counterparts who initially enrolled in four-year institutions. Finally, researchers have compared community college students based on their level of attainment including no diploma or credential, associate's degree, diploma, or certificate (Dagdar & Trimble, 2014, Jepsen, Troske, & Coomes, 2012; Sánchez, Laanan, & Wiseley, 1999). The results from this line of research indicate that there is a positive relationship between community college education and earnings wherein community college students who complete more education tend to receive greater monetary payoffs.

Compared to research on community college effects on bachelor's degree attainment, research on labor market outcomes among community college students is not characterized by a clear starting point with respect to the utilization of quasi-experimental techniques for model estimation. Indeed, of the studies presented in Table 5.3, only Gill and Leigh (2003), González Canché (2012), and González Canché (2014a, 2017a) have offered quasi-experimental estimations. Of these studies, only González Canché (2017a) has gone beyond the analysis of the effect of the two-year sector on salary given the eventual attainment of a bachelor's degree by comparing monetary compensation realized by Ph.D. holders in STEM fields whose only observable difference was having begun college in the two-year sector. That is, in González Canché's study, whereas a subset of the sample started college in the community college sector, other students began college in the four-year sector. Results indicated that participants who began college in the two-year sector realized about 10% less salary than their counterparts who began college in the four-year sector, and realized less salary growth over a 10-year period. One of the main

contributions of this study is that the author accounted for both observable and unobservable differences in the analytic sample by relying on propensity score weighting and instrumental variable techniques with longitudinal panel data, which allowed him to control for observed and unobserved heterogeneity before making inferential claims. In addition, this is the only study to date that has compared the long-term effects of initial two-year enrollment on students' salary outcomes, finding a negative association between salary and initial enrollment in the two-year sector. Nonetheless, González Canché (2017a) concluded that the two-year sector cannot be blamed for the salary-based differences found in this study. On the contrary, he remarked that the community college sector was instrumental in the early formation of the scientists included in the analytic samples and that the main driver of salary differences corresponded to structural socioeconomic inequality permeating U.S. society.

5.2.2 Section 2: An Analytic Framework for the Study of Community College Sector Effects

From the literature on educational outcomes reviewed, it is clear that decades of research have consistently identified a baccalaureate gap (Table 5.2) wherein the comparison of two- and four-year college students has shown that the former are significantly less likely to obtain a bachelor's degree. These gaps have remained even when authors relied on quasi-experimental techniques aimed at creating groups with baseline equivalences (using propensity score modeling techniques) or when controlling for unobservables (relying on instrumental variables or the Heckman two-stage control function, for example). Nonetheless, despite these methodological advances there still exists the possibility that even the findings based on quasi-experimental methods exaggerate the negative effect of the two-year sector on their students' educational attainment failing to account for availability of big and geocoded data that can be retrieved at the state, county, and institution-level to further adjust for during college enrollment indicators. More specifically, even though quasi-experimental methods have addressed issues of self-selection and systematic differences in the student bodies attending the two- and four-year sectors, to date this line of research has not yet accounted for issues of confoundedness and geographically based (or georeferenced) omitted variable bias that can be addressed with the availability of big and geocoded data sources such as the US census and other federal agencies such as the National Center for Education Statistics.

5.2.2.1 Confoundedness and Georeferenced Omitted Variable Bias

All the studies discussed in this review comparing two- and four-year entrants' likelihood of attaining a four-year degree (see Table 5.2) faced an issue of

confoundedness, wherein the effect of the treatment of interest (community college attendance) was also influenced by the control condition (initial attendance in the four-year sector). Consequently, the outcome of treated participants is subjected to the effect of both conditions, rather than just one. More specifically, if starting higher education in community college is conceptualized as the treatment condition, then students who transferred to the four-year sector were by default exposed to the control condition (*i.e.*, the four-year sector) as well. This means that a student's likelihood of earning a four-year degree was the result of both the two- and four-year sectors' effects, and not solely those of the two-year sector. This issue of confoundedness goes above and beyond issues of self-selection and non-random assignment discussed in this review. Indeed, in cases of confoundedness "it is not possible to tell whether the intervention or the confounding factor is responsible for the difference in outcomes" (WWC, 2014, p. 19). Only studies reviewed in this document that analyze the outcomes of two-year entrants who did not interact with the four-year sector are exempt from confoundedness issues. Nonetheless, all studies that have not incorporated big and geocoded data at different levels are still subject to georeferenced omitted variable bias issue that may confound the estimates provided by the authors.

Raising issues of confoundedness and georeferenced omitted variable bias in this line of research is important because researchers and policymakers alike should acknowledge that four-year institutions must also be held accountable for failing to help community college transfer students successfully complete a bachelor's degree. From this perspective, the baccalaureate gap documented in the literature may not only be a function of the four-year sector's effects but also should overlook access to local factors, such as unemployment, poverty, income-levels that sorround these types of institutions. This is an important issue in the production of four-year graduates that has remained under-discussed in over 50 years of research on two- and four-year sector effects on student educational outcomes and less notably, but still present in the comparisons on two and four-year entrants salary outcomes conducted by Gill & Leigh (2003), González Canché (2012), Kane & Rouse (1995), Smart and Ethington (1985), and Whitaker and Pascarella (1994).

This section presents an analytic framework that relies on the notion of big and geocoded data, counterfactual causality, and doubly robust estimations as a means toward the minimization of the bias associated with the confoundedness and georeferenced omitted variable bias issues. This strategy is depicted in Figs. 5.3 and 5.4, both of which enable continued assessment of a student's initial sector of enrollment after accounting for baseline indicators influencing likelihood of beginning college in the two- or four-year sectors. In addition, this framework enables continued assessment of institution, state, and county-level localized factors and characteristics that may affect students' outcomes during college enrollment, which allows researchers to capture the effect of the four-year sector even among two-year entrants once these students become rising juniors. Figure 5.3 depicts comparisons that aim to capture the effect of the two-year sector on educational outcomes. Figure 5.4 offers an analytic framework to estimate the effect of these institutions on student financial outcomes, such as annual salary or wages discussed
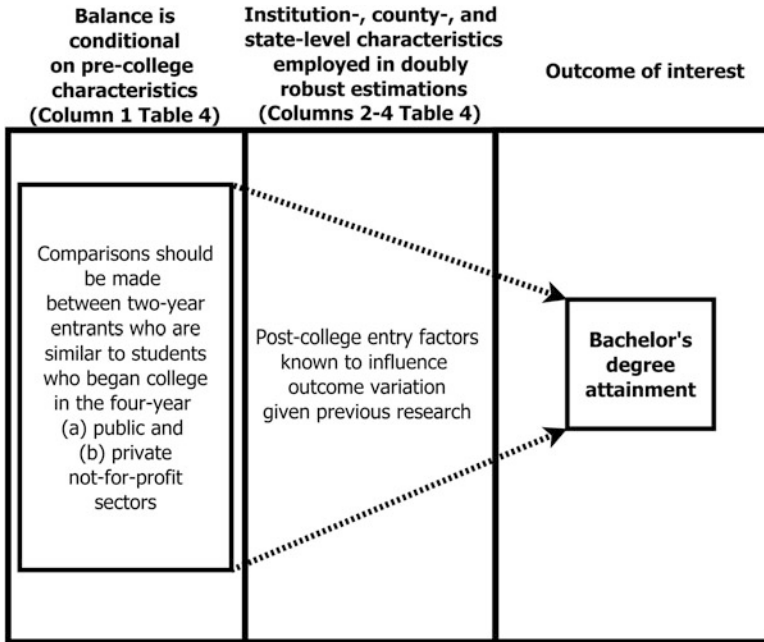
Fig. 5.3 Proposed analytic approach to study the effect of two-year colleges on the attainment of a four-year degree

above. Although further described below, the main difference between these two models is that Fig. 5.4 allows estimation of coefficient magnitudes that vary across different levels of education and therefore implies a more complex set of comparison groups, whereas in Fig. 5.3, the main outcome of interest remains bachelor's degree attainment with initial college entry points as the main comparison of interest.

5.2.2.2 Methodological Conceptualization: Counterfactual Causality

Despite the 'simplicity' of asking whether starting college in the public two-year sector rather than in either the public or private not-for-profit four-year sectors is associated with lower likelihood of bachelor's degree attainment or similar salaries, answering this question requires complex procedures. As the literature review for this chapter indicates, not only do two- and four-year students come from systematically different socioeconomic and academic backgrounds, they also attend sectors that present important differences in terms of access to resources and cost of attendance that will likely affect students' outcomes. This issue makes necessary the implementation of big and geocoded data and analytic techniques that deal with systematic individual differences at college entry and throughout college enrollment, as shown in Figs. 5.3 and 5.4.
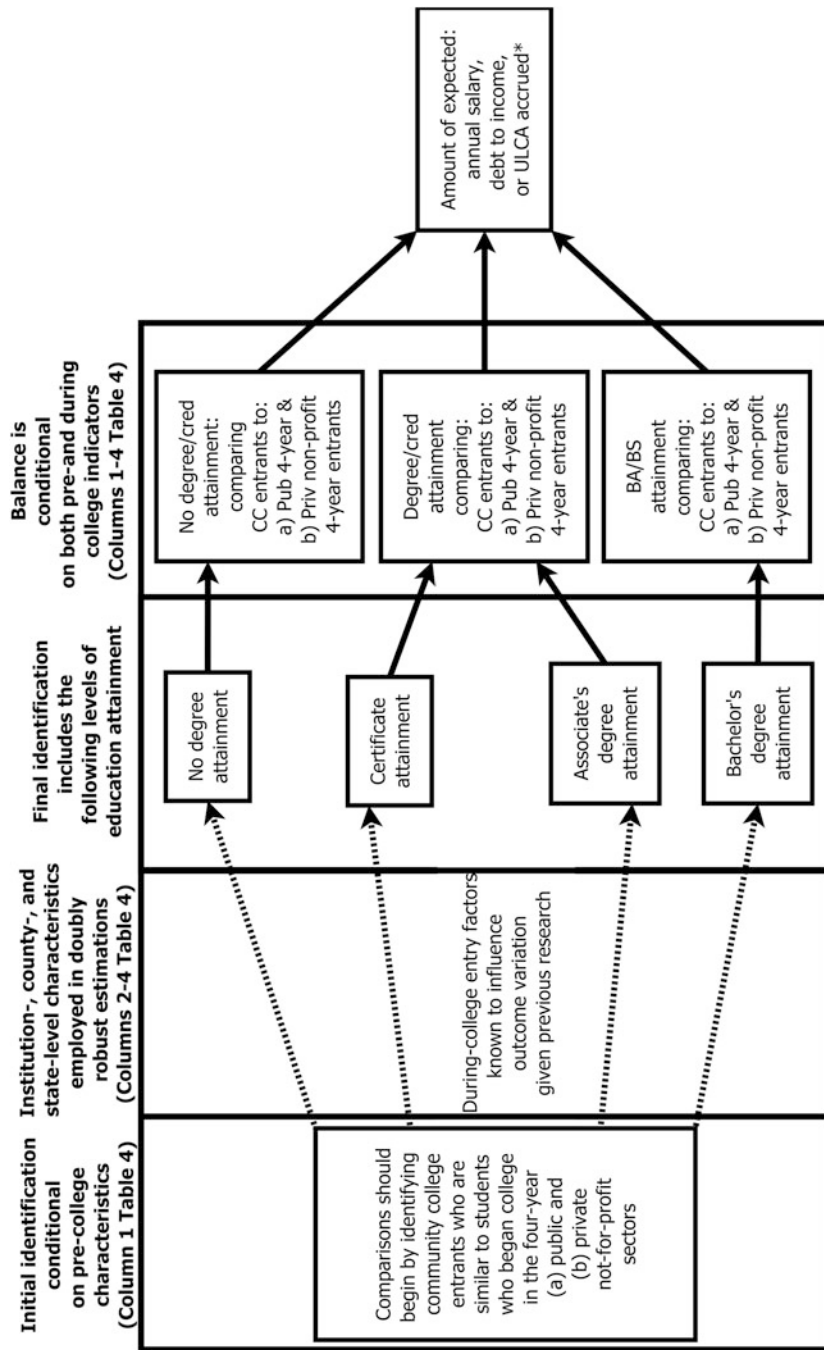
Fig. 5.4 Proposed analytic approach to study the effect of two-year colleges on labor market outcomes (*Last outcome is tested in the last section of this chapter)

The methodological framework discussed in the following lines is guided by the counterfactual or potential outcomes framework and may be used to address problems of confoundedness and georeferenced omitted variable bias in research on outcomes related to community college enrollment. This framework indicates that if researchers could observe (a) the outcomes of the same student i following two different enrollment trajectories (*i.e.*, started college in the two-year sector while also started college in the four-year sector either simultaneously or at different points in time) and (b) the outcome of each trajectory independently from the other academic trajectory, then researchers would simply need to observe the outcomes difference resulting from each enrollment trajectory in order to evaluate which decision rendered better results (Caliendo & Kopeinig, 2008; Holland, 1986; Lewis, 1973; Rubin, 2005). This estimation, which is called individual causal effect (Rubin, 2005), is impossible to obtain (Holland, 1986; Rubin, 2005) and researchers are constrained to the comparison of the outcomes of students who attended a two-year college with the outcomes of students who enrolled at a four-year institution. Given the persistent effects of socioeconomic inequality and reproduction of disparities, college enrollment decisions do not happen on a level playing field (Bourdieu, 1986) and the lower access to resources characteristic of two-year entrants may be the actual driver of the outcome of interest (in direction and magnitude) rather than the sector itself. The counterfactual or potential outcomes framework enables statistical correction for systematic differences before estimating the effects of different enrollment trajectories on students' outcomes.

The analytic framework presented in Figs. 5.3 and 5.4 highlights the need to control for indicators that account for baseline differences that influence the probability of a student (a) initially enrolling in either a two- or a four-year institution (Fig. 5.3) or (b) enrolling in a given sector and attaining a given level of education (Fig. 5.4). According to this perspective, analytic techniques that correct for this issue (*e.g.*, propensity score weighting (PSW), Heckman control function, instrumental variables) should be employed in any study that aims to minimize the risk that variation in outcomes of interest is driven by students' greater initial observable sources of support and/or self-selection issues based on unobservables, rather than by initial sector of enrollment and/or level of education attained. Nonetheless, assuming that accounting for baseline differences is enough to capture sector effects on students' outcome variation is shortsighted. As such, statistical models should also rely on doubly-robust procedures (Ridgeway, McCaffrey, Morral, Burgette, & Griffin, 2014) to further adjust for initial and transfer institutions-, county-, and state-level variables affecting participants' behaviors during college enrollment (e.g., big and geocoded data). Notably, doubly-robust adjustment is more important when analyzing sector effects on educational attainment as shown in Fig. 5.3 than when analyzing financial outcomes measured post-college enrollment (as shown in Fig. 5.4). Specifically, comparison groups require identification of factors that predicted enrollment in different sectors before actual enrollment was observed. In the case of the analytic model contained in Fig. 5.4, economic/financial outcomes are measured after students leave college and such outcomes are a direct function not only of initial sector of enrollment, but also, and as importantly, a function of the

level of education attained. For this reason, Fig. 5.4, in addition, includes a set of comparison groups incorporating initial enrollment and levels of tertiary education attained. From this perspective, then, the initial balance needs to consider both pre-college and during college enrollment indicators for the initial re-creation of comparison groups across this complex set of status definitions (e.g., community college entrants with no degree attainment compared to initial public four-year entrants with no degree attainment and initial private non-profit four-year entrants with no degree attainment). When researchers have information about post-college enrollment indicators measured before final outcome assessment, such indicators should be used in doubly-robust procedures as depicted in Fig. 5.3. More specifically, in cases when there is a time-lag between college enrollment and salary variation, analysts may access data sources that incorporate individual and geographic (state, county, census tract, or block) indicators that may affect the variation of salary. Once such indicators, typically available from the American Community Survey, for example, are retrieved analysts could then adjust for these potential sources of georeferenced omitted variable bias before making inferential claims.

Table 5.4 contains a list of variables and indicators obtained from big and geocoded data sources (see footnote on Table 5.4) that may be used in model operationalization of analyses employing quasi-experimental procedures to capture pre-college and during-college enrollment variables and indicators that are likely to affect students' outcomes. Regarding *during-college enrollment factors*, for example, the persistence behaviors of participants who enrolled at an institution that offered them several forms of financial aid (such as grants, waivers, or work-study) or that charged greater amounts of tuition and fees, should arguably differ from the persistence behaviors of participants whose only aid disbursements were loans. Similarly, at the state level, *ceteris paribus*, participants attending college in states that favor merit or grant aid over loan aid would be expected to have less burden in terms of tuition and fee costs. County-level indicators (*e.g.*, educational attainment, median income, crime rates, unemployment, and cost of living) should also be included in the models to control for geographic socioeconomic conditions surrounding students' college options. With respect to the last point, zip code tabulated area indicators can also be incorporated at the institution- or even student-level during model especification if their corresponding zip-codes are available.

Based on the doubly-robust modeling rationale and a quasi-experimental approach that requires complex comparison groups, variables and indicators should be separated into two categories: those to be used to account for pre-college entry differences—all of which should be measured before students entered college– and those measured during college enrollment to be used in the second stage of the doubly-robust implementation (in the case of doubly-robust procedures shown in Fig. 5.3) or in the baselines of quasi-experimental procedures that require complex comparison groups (as shown in Fig. 5.4). Additionally, model estimation should focus on capturing all available individual, institutional, and geographic factors (shown in Table 5.4) that previous research has found to influence educational and occupational attainment. The results obtained from the analytic models shown in

Table 5.4 Individual-, institution-, county-, and state-level characteristics identified in the literature to predict college enrollment and adjust for factors potentially affecting variation in the outcomes of interest

Predictors of college entry	Factors taking place during college enrollment		
Student-level	Institution-level	Geographic	State-level
Gender & ethnicity	Tot. cum. tuition cost	City	Merit aid millions
SES family 12th grade	Tot. cum. fee charges	Suburb	Need aid millions
Public K-12 education	Total cum. grant aid	Town	Loan aid millions
Expect BA degree	Total cum. loan aid	Rural	Prop 18–24 college
Acad. award 10–12 grades	Total cum. work-study aid	New England	Tuition agreements
Place study at home importance of financial aid	Tuition waiver selectivity level	Mid East Great Lakes	WICHE[a]
			SREB[b]
Importance college selectivity	Open admission policy	Plains	Midwest stdt exch
Importance placed on grades	SAT math 25 & 75	Southeast	New England
Married at admission	ACT comp 25 & 75	Southwest	No tuition agreemt
Children at admission	SAT verb 25 & 75	Rocky Mountains	No. IHEs agreemt
Mother college support	Changed major	Far West	
Father college support	Major of degree		**County-level**
Relatives college support	Number of majors		Cost of living
Teacher/counselor college sup	IHE offered grant		Median income
AP classes	IHE offered loan		Crime rate
Took SAT/ACT	IHE offered work-study		Unemployment rate
Took PSAT	IHE offered waiver		Educ. attainment
Extra HS class preparation	Highest degree offered		
Took private class preparation	Institutional size		
Used book preparation SAT	Carnegie classification		
GPA 9th to 12th grades	Time to degree		
Stdrzd math & reading scores	Transfer (2 to 4)		
Number siblings	Transfer (4 to 2)		
Worked 8–12	No. institutions attended		
Never worked 8–12	Distance from home		
Ever dropped 8–12	Residency status		

Data sources: IPEDS, The U.S. Census Bureau, The Bureau of Labor Statistics, The Bureau of Economic Analysis, U.S. Department of Commerce, U.S. Census Bureau, Geography Division, U.S. Department of Housing and Human Development, ACS, CPS
[a]Western Interstate Commission for Higher Education, [b]Southern Regional Education Board

Figs. 5.3 and 5.4, and operationalized in Table 5.4, are expected to be less biased and more robust to georeferenced omitted variable bias compared to the results of studies subject to issues of confoundedness.

5.2.3 Section 3: Community College Effects on Undergraduate Loan Cost of Attendance

This section further explores the role of the two-year sector as a financial gap-closing mechanism. As mentioned above, despite the fact that about 50% of students begin college in the two-year sector, likely because of its lower sticker price, sufficient evidence that this sector results in less reliance on student loan debt is lacking, particularly when considering different levels of educational attainment. From this perspective, this section implements the analytical framework presented in Fig. 5.4 to capture the effect of community college attendance on debt accumulation, a topic that remains understudied in the higher education literature.

The main premise of this section is straightforward. Given that current college-goers are the most indebted students in the country's history (Baum, 2015), students—particularly those from low-income backgrounds– and their families need to have a clear and comprehensive understanding of the expected cost of loan debt that a typical traditional-age undergraduate college student will accrue as a result of postsecondary enrollment and level of degree attainment. This knowledge is relevant given that student loan debt has reached levels so critical that it has become a crisis that may place the new U.S. workforce generation's economy at risk, especially among students who default on their loans (Cunningham & Keinzel, 2011; Dynarski & Kreisman, 2013; Gladieux & Perna, 2005; Pinto & Mansfield, 2006). Despite being a vital part of the college-choice process (even more so when considering the loan debt crisis), information on the expected loan cost that students will need to bear post-college enrollment[5] is virtually absent from the student aid and finance literatures. Specifically, researchers, counselors, and students and their families tend to evaluate *overt costs of college attendance* that consist of tuition and fees, books, and room and board expenses with little attention paid to the average total amount of loan debt that a typical recent high school graduate is expected to accrue during under-graduate college education.

The measure of debt cost used in this study is *undergraduate loan cost of attendance* (ULCA) and is operationalized as capturing the total loan debt accrued by students conditional on (1) sector of first college enrollment (public two-year or community college, public four-year college, and private not-for-profit 4-year college) and (2) level of education attainment (no associates' degree or credential, certificate and/or associate's degree, or bachelor's degree). The construction of a

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[5] In the case of students borrowing from private lenders and/or unsubsidized loans, interest begins to accrue during college enrollment.

dataset containing pieces of information that come from big and geocoded data sources at the state, county, and institution-level, enables an assessment of expected ULCA as a function of diverging enrollment trajectories during undergraduate education that is robust to omitted variable bias and confoundedness. In this way, the question of how loan debt costs change for differing levels of educational attainment conditional on different initial enrollment decisions can be answered. The selection of public two-year, public four-year, and private non-profit four-year institutions as points of entry to higher education are a function of big and geocoded data availability presented in two nationally representative samples of college-goers during the 1990s and the 2000s. It is worth noting that the estimates presented in this last section of the chapter apply to typical college-age students. While this sub-sample is a potential limitation with respect to generalizability of the findings, it is important to recall that about 50% of all undergraduate students interact with the community college system in the U.S. (AACC, 2016; González Canché, 2012), accordingly the sub-samples employed are relevant across the contiguous United States. In sum, the estimates found in this section are most applicable to recent high school graduates who may be considering initial enrollment in the two-year sector as an immediate cost-saving alternative.

ULCA represents an important piece of information that should be an essential component of students' college-going decisions. Policy- and decision-makers, and students and their families, should be clearly informed about expected ULCA so that they can make better and more informed decisions regarding their college choices, which would ideally prevent students from falling into delinquency status or defaulting on their loan debt altogether. The importance of this information is arguably more relevant for low-income students who tend to face tighter budget constraints and, all else equal, face greater challenges to repay loan debt than their more affluent counterparts. The informational campaigns that may result from the findings presented herein will enable students to select the most cost-effective higher education options and may prove to be an effective mechanism toward financial literacy and self-sufficiency.

The logic used to measure variations in ULCA is an implementation of the proposed analytic approach shown in Fig. 5.4 to study the effect of two-year colleges on student financial outcomes. In this case, the outcome of interest is variation in ULCA. As discussed in the previous section, this analytic framework accounts for theoretically and empirically sound indicators utilized in rigorous research conducted on factors affecting the variation of student loan debt burden (Belfield, 2013; Chen & Wiederspan, 2014; Deming, Goldin, & Katz, 2011) and sector effects on educational attainment (Brand, Pfeffer, & Goldrick-Rab, 2014; Dietrich & Lichtenberger, 2015; Doyle, 2009; Melguizo et al., 2011; Rouse, 1995; Stephan et al., 2009). In this sense, model estimation will pay special attention to capturing all available individual and institutional factors that previous research has found to influence debt accumulation (González Canché, 2014a, 2014b) while in addition incorporating geographic level indicators obtained from big data sources (shown in Table 5.4) such the US census to further adjust for potential omitted variable bias. The logic model shown in Fig. 5.4, and operationalized in Table 5.4, was designed

with the purpose of obtaining estimates that reflect the least biased expected ULCA across institutional sectors, levels of educational attainment, and enrollment trajectories.

5.2.3.1 Research Question

The overarching question guiding this section is the following: What is the expected cost of loan debt resulting from initial enrollment in the public two-year sector compared to initial enrollment in either the public four-year or private not-for-profit four-year sectors conditional on different levels of educational attainment?

> The logic model employed herein takes into consideration that ULCA amount varies conditional on different levels of degree attainment (*e.g.*, students who persist until bachelor's degree attainment remain enrolled for longer and therefore require more financial resources than students who drop out of college after one year of attendance or those who attain a certificate, for example). Accordingly, sector effects on ULCA will be measured while estimating models disaggregated based on different levels of degree attainment. In this sense, the overarching question can be decomposed into the following more specific research questions, all of which will be addressed after accounting for key factors that may influence students' need to rely on loan debt (*e.g.*, tuition, fees, grants, time of enrollment, local cost of living) shown in Table 5.4:

1. Do two-year entrants who obtained a bachelor's degree complete their studies with similar ULCA as their counterparts who also attained a four-year degree but started in either the public four-year sector or private not-for-profit four-year sector?
2. How do these estimates change across non-degree/certificate, and associate's degree recipients?
3. Have the answers to these two questions remained constant across decades?

This last research question is addressed using model specifications that rely on over 20 years of official non-self-reported loan data retrieved from the National Student Loan Data System (NSLDS). This system captured all loan disbursements and repayments made by college students from two nationally representative samples of recent high school graduates—The National Educational Longitudinal Study ([NELS], 1988–2000) and the Educational Longitudinal Study ([ELS], 2002–12)–who started college between the ages of 16 and 19 and who were followed up to nine years after initial college enrollment. From this view, the logic model and the longitudinal panel nature of the data analyzed will enable assessment of the effect of enrollment trajectories and educational attainment on ULCA variation across generations. This framework also serves to demonstrate that big data availability was a reality since the 1990s.

5.2.3.2   Methods and Statistical Procedures

The method implemented for this study follows the counterfactual or potential outcomes framework described above, which accounts for the fact that college enrollment decisions do not happen on a level playing field (Bourdieu, 1986), wherein lower access to resources characteristic of two-year entrants may drive students' level of education attainment, which in turn affects loan debt variation (in direction and magnitude). As such, variations in loan debt may not be the result of initial sector of enrollment, but rather result from other confounding factors. Accordingly, model identification was conducted to create comparison groups that identified both initial sector of enrollment and levels of educational attainment before correcting for systematic differences across comparison groups. Specifically, following Fig. 5.4, the models considered both pre-college entry indicators that identified college-choice status and during-college indicators that may have affected likelihood of educational attainment (using information from all four columns shown in Table 5.4). Pre-college indicators included information on diverging sources of academic, social, and financial support to which students had access during high school. During-college indicators were comprised of institution-, county-, and state-level variables affecting participants' comparison group status before measuring the effect of initial community college attendance on ULCA variations. These procedures, although time-consuming in terms of collecting big data information from different sources, are important given that the borrowing behaviors of participants who enrolled at an institution that offered them other forms of financial aid (such as grants, waivers, or work-study) or that charged greater amounts of tuition and fees, were arguably different from the borrowing behaviors of participants whose only aid disbursements were loans. As described in the second section, at the state level, *holding everything else constant*, state-level policies that favored merit or grant aid over loan aid would be expected to students' reliance on loans (e.g., the Georgia effect with the HOPE scholarship). County-level indicators are also included in the models to control for geographic SES conditions surrounding students' college options.

Propensity Score Weighting   The quasi-experimental procedures implemented in this study rely on propensity score modeling approaches, specifically focused on weights obtained from participants' probabilities to be classified in one of the three boxes contained in Fig. 5.4 and listed next:

1. Comparisons among non-degree holders who (a) began college enrollment in the two-year sector, (b) began college enrollment in the public four-year sector, or (c) began college in the private non-profit four-year sector.
2. Comparisons among associate/certificate-degree holders who (a) began college enrollment in the two-year sector, (b) began college enrollment in the public four-year sector, or (c) began college in the private non-profit four-year sector.

3. Comparisons among bachelor's degree holders who (a) began college enrollment in the two-year sector, (b) began college enrollment in the public four-year sector, or (c) began college in the private non-profit four-year sector.

In all these cases the main group of interest consists of students who began college in the public two-year sector. From this viewpoint, all comparisons made in this chapter are of the type (a) versus (b) or (a) versus (c). Other studies may compare differences in (b) and (c).

PSM assumes that treatment assignment (in this case, beginning college in the two-year sector) and selection are fundamentally based on observables (Reynolds & DesJardins, 2009; Rosenbaum & Rubin, 1983). These observables are conceptualized as the factors and covariates that are influential in determining participants' probabilities of receiving treatment. The standard procedure to obtain this probability consists of naïve logit estimators, as follows in (1):

$$log \frac{P(t=1|x)}{1-P(t=1|x)} = \beta'x \qquad (5.1)$$

where β is selected to maximize the logistic log-likelihood. Considering that the inclusion of big data increases the likelihood of fitting on noise or overfitting (Harrell, 2015; Zhao et al., 2011), analysts should impose a penalty based on multicollinearity issues and overinfluence of indicators on the prediction of interest. One way to overcome this issue consists of applying a penalty term for coefficients that are large in absolute value and may lead to inflated propensities (Ridgeway et al., 2014), as follows in (2):

$$\ell\beta = \frac{1}{n}\sum_{i=1}^{n} t_i\beta'x_i^s - log\big(1 + exp\big(\beta'x_i^s\big)\big) - \lambda\sum_{j=1}^{J} |\beta_j| \qquad (5.2)$$

where the term $\lambda\sum_{j=1}^{J} |\beta_j|$ is the penalty term as it decreases the overall value of $\ell\beta$.

In practice, and in the approach implemented in this chapter, propensity scores are often computed using predictors of treatment status that are highly correlated with each other across different potential outcomes. In this case, "the lasso [least absolute subset selection and shrinkage operator, captured in the second term of the right hand section of Eq. (5.2)] tends to include all of them [predictors] in the model, shrink their coefficients toward 0, and produce a predictive model that utilizes all of the information in the covariates, producing a model with greater out-of-sample predictive performance than models using variable subset selection methods" (Ridgeway et al., 2014, p. 29).

The estimate of $\ell\beta$ obtained is typically referred to as $e(x)$ in the propensity score modeling literature (Reynolds & DesJardins 2009; Rosenbaum & Rubin, 1983). This estimator allows for the computation of the balancing score [$b(x)$], which ensures that the comparison between treated ($t = 1$) and control ($t = 0$) units are

made considering similar pretreatment or baseline characteristics (x_i^s) given $b(x)$. Note that $b(x)$ is a theoretical construct that is only approximated by $e(x)$ if the researcher has access to truly influential covariates that explain treatment assignment and allow for the identification of counter-factual cases (Rosenbaum & Rubin, 1983). When all observable predictors x_i^s are balanced across treated and control units, this approach is assumed to have statistically recreated natural treatment and control groups whose counter-factual outcomes can be compared.

Given that $b(x)$ can take an infinite value, one method to create balance across treatment and control statuses is to rely on matching mechanisms (Rosenbaum & Rubin, 1983), where, conditional on $b(x)$ values, the covariates x_i^s become balanced (see S. Becker & Ichino, 2002 for a survey of the most frequently used balancing mechanisms). Another use of $b(x)$ consists of using it as a weight to create a balanced sample. The main advantage of this weighting method is that propensity weights can be used like survey sampling weights, thus allowing researchers to use them in different statistical approaches, including doubly robust procedures, to adjust for covariates that were not balanced or that were captured after the treatment assignment took place (Ridgeway et al., 2014). For example, if treatment is defined as two-versus four-year enrollment and the outcome is probability of four-year degree attainment, one can balance on precollege indicators to estimate the propensity to two-year enrollment, and then use college-enrollment indicators (institutional size, financial aid, major, etc.) in the outcome equation to account for indicators that may have further affected a given student's likelihood of four-year graduation above and beyond the initial propensity toward two-year enrollment. The treatment effect of interest in this chapter is the ATT, or average treatment effect for the treated, which captures the effect of initial community college enrollment and educational attainment on ULCA, and is mathematically expressed as $E[Y(1) - Y(0)|t = 1]$, where Y (1) is the ULCA realized by students who initially attended a community college (across the three levels of education attainment identified in Fig. 5.4), Y (0) is that of students initially attending either the four-year public or private not-for-profit sectors (also across the different levels of education attainment identified in Fig. 5.4), and t = 1 is treatment status. The propensity score weights (PSWs) for the ATT are defined as follows: $w(x) = K \frac{f(t=1|x)}{f(t=0|x)} = K \frac{b(x)}{1-b(x)}$, where b(x) is the propensity (or assumed balancing) score described above and K is a normalization constant, used to reduce any probability function to a probability density function with total probability of one, that will cancel out in the outcomes analysis (Ridgeway et al., 2014).

Outcome Variable The loan data contained in NSLDS was obtained from an administrative records linkage system using sample members' dates of birth and Social Security Numbers. All loan information came directly from external institutions and includes specific dates of all non-self-reported amounts of disbursements and repayments made by all survey participants who borrowed and enrolled in any Title IV institution. In the case of NELS, the debt data account for students who attended college between 1991 and 2000. For ELS, the NSLDS contains loan disbursements and repayments from 2001 to 2012. The loan outcomes analyzed in

this chapter are restricted to undergraduate loan disbursements. This restriction is possible given that the three NSLDS datasets have a variable called "Academic level" (ACADLVL) that registered the undergraduate year in which a given amount was disbursed—including amount, date, and type of loan (*e.g.*, subsidized or unsubsidized). The detailed information contained in the NSLDS allowed for the creation of an indicator measuring the proportion of ULCA accrued that was subsidized as opposed to unsubsidized. If this indicator has a value of 1, this would indicate that all loan amounts were obtained from federally subsidized sources. If this indicator is 0.5, then half of the debt accrued came from subsidized support. This indicator is important considering that debt burden is expected to change given students' reliance on subsidized or unsubsidized debt. In the former, borrowers are not required to pay interest while still attending college. Borrowers with unsubsidized loans, on the other hand, are required to pay interest while still enrolled as a student. This indicator was included in the doubly robust procedures described above.

Variables and Indicators Used to Predict College Choice In line with the conceptual framework outlined in Section 2 of this chapter, variables employed to predict students' initial sector of attendance considered their various resources in the form of (a) social capital, such as support from parents, relatives, and high school teachers and counselors to pursue a college education; (b) economic capital, including socioeconomic status, access to private tutors and private classes, the need to work to support their education in high school, importance placed on availability of financial aid in college-going decisions, and public elementary school attendance; and (c) proxies of cultural capital, accounted for by participation in advanced placement classes, importance placed on good grades, academic recognition, and having taken the SAT/ACT, all of which can reflect a college-going culture typically associated with students coming from families who can afford greater monetary investments in education. Previous research (Alfonso, 2006; Dougherty, 1992; Doyle, 2009; González Canché, 2014, 2017a; Long & Kurlaender, 2009; Melguizo, 2009; Melguizo & Dowd, 2009; Reynolds, 2012; Stephan et al., 2009) has shown that these indicators are systematically different for two- and four-year students, thus empirically justifying the need to control for observed differences.

During-College Factors Baseline indicators used before model estimation also accounted for factors that were measured during college enrollment to account for institution-, county-, and state-level variables assumed to affect students' borrowing behaviors. Institution-level variables were selected to account for variations in college major and other forms of financial aid offered by the institutions where students attended. Forms of aid consider grants, loans, work-study, and waivers. This aid information is stored in the student-institution files contained in both NELS and ELS studies. In addition, an estimate of the total tuition and fees that students paid during undergraduate college enrollment was computed for each student. This estimation considered time of enrollment (in years) and tuition and fee charges at each institution. These charges were retrieved directly from IPEDS records. Institutional selectivity is also included in the NELS and ELS samples. Additionally,

modeling included Carnegie classification as provided by IPEDS along with a binary indicator of whether a given institution had an active open-door admission policy during a student's college attendance. The models also included institution size and locale to capture whether institutions were located in cities, suburbs, towns, or rural areas. Land grant status of the students' college were also considered as these institutions are assumed to serve local or in-state students and enrollment in this type of institution may capture other forms of aid or support not captured by the ELS survey. Time of enrollment was another important indicator calculated from NELS and ELS surveys using information about date of initial college enrollment and date of last college attendance.

State-level indicators at this second stage of model estimation included a measure of per capita disposable personal income (dollars), defined as total personal income minus personal current taxes, a measure retrieved from The Bureau of Economic Analysis during each year of enrollment, as well as a measure of college access in the state where students first enrolled in college, which is defined as the proportion of inhabitants aged 18–24 years who are enrolled in college (United States Census Bureau Population Estimates, 2014). In addition, given that some authors have discussed the influence of state and regional tuition reduction agreements in mobility flows across neighboring states, which in turn affects tuition and fees variation (Cooke & Boyle, 2011; Zhang & Ness, 2010), the models incorporated this information provided by the following organizations: MSEP (2014); NEBHED (2014); SREB (2014); WICHE (2014). The models also included states' total amount in merit, loan, and need-based financial aid spent during the year students were enrolled in college, information retrieved from several reports available from the National Association of State Student Grant & Aid Programs (1992–1993, 2004–2005). County-level characteristics captured socio-economic geographic attributes such as educational attainment, median income, crime rates, unemployment, and cost of living as mechanisms potentially affecting ULCA variation above and beyond state-, institution-, and individual-level indicators.

Given that model estimation relied on two different datasets and multiple comparison groups, results of balance tests are available upon request. This chapter will now focus on the estimates outlined in Figs. 5.5, 5.6, and 5.7.

5.2.3.3 Findings

Figures 5.5, 5.6 and 5.7 summarize the results of the model specifications just discussed. Figure 5.5 shows the effects of initial enrollment in the two-year sector among participants who did not attain any credential or degree. Of these four quasi-causal estimates, the only result that did not show significant differences was the comparison between public two- and four-year entrants during the 1990s (NELS data). Specifically, although the models show a reduction of about $2000 in debt for community college entrants compared to public four-year entrants, this difference is not significant. A decade later (ELS), this gap increased to a significant $8000,

Fig. 5.5 Comparisons among non-degree holders

	No Degree/Cred Pub 4-Yr 90's	No Degree/Cred Pub 4-Yr 00's	No Degree/Cred Pri 4-Yr 90's	No Degree/Cred Pri 4-Yr 00's
Mean	9816.61	15485.71	13482.51	27852.01
Comm College	-1743.67	-7929.36	-5409.57	-20295.66
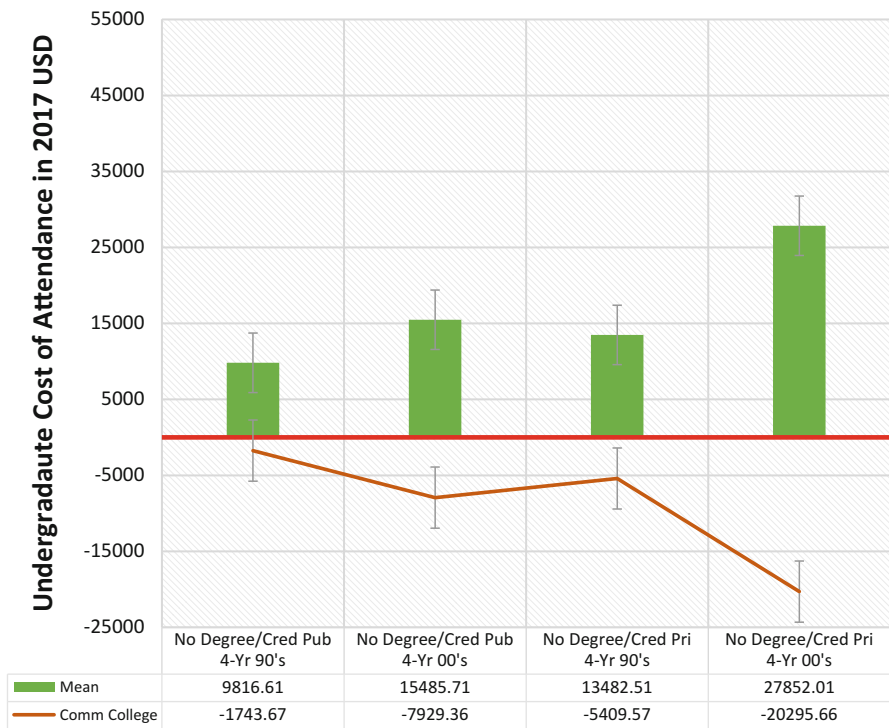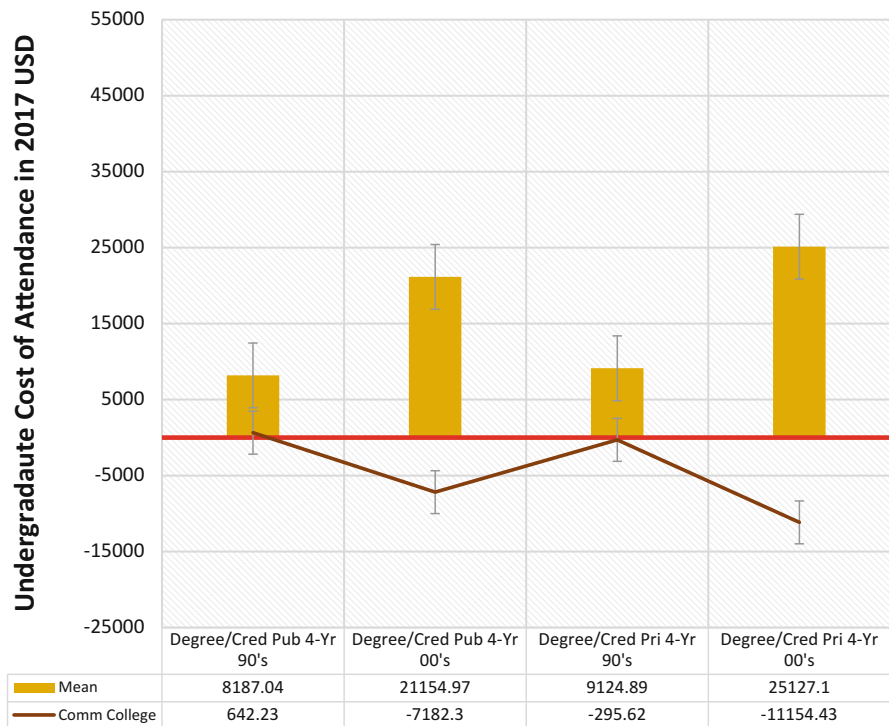
Fig. 5.6 Comparisons among less than four-year degree holders

	Degree/Cred Pub 4-Yr 90's	Degree/Cred Pub 4-Yr 00's	Degree/Cred Pri 4-Yr 90's	Degree/Cred Pri 4-Yr 00's
Mean	8187.04	21154.97	9124.89	25127.1
Comm College	642.23	-7182.3	-295.62	-11154.43
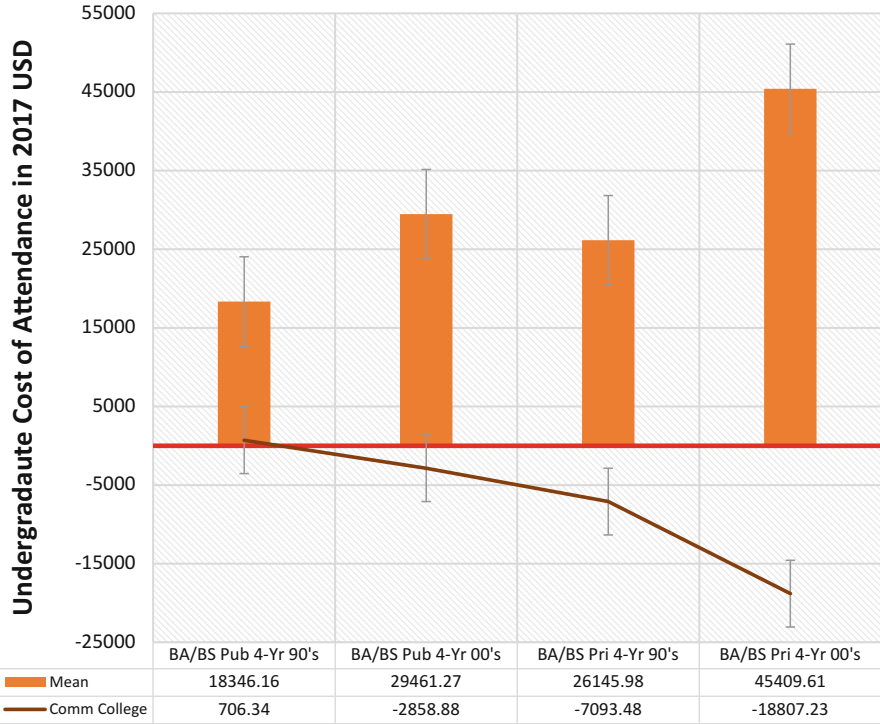
Fig. 5.7 Comparisons among Bachelor's degree holders

indicating that had two-year entrants who did not attain any degree begun college enrollment in the public four-year sector, their debt accruement would have been approximately $8000 higher. The most alarming finding for non-degree holders was found in the 2000s, wherein the estimated gap reached over $20,000 in the comparison of two-year and four-year not-for-profit entrants. In this case, two-year entrants who did not attain any degree would have ended up with extra $20,000 in debt had they begun their studies in the private non-profit four-year sector. Another way to interpret this result is that had students who initially enrolled in the four-year private non-profit sector begun college instead in the community college, their debt accumulation would have been about $8000 instead of an estimated $27,852.

Figure 5.6 compares participants who attained an associate's degree. In this case, the 1990s data show that among these students, beginning college in the public two-year sector did not translate into significant decreases in debt accumulation. This result holds true for comparisons of both four-year public and private non-profit institutions. For example, when compared to students who initially enrolled in the four-year public sector, community college participants accrued on average about $600 more in debt. In the following decade, however, community college students who attained a less-than-four-year degree had an overall debt accumulation that was $7000 and $11,000 lower than if they had instead initially enrolled in the four-year

public and private non-profit sectors, respectively. That is, these contemporaneous results indicate a lower ULCA for initial two-year entrants who attained an associate's or comparable degree (e.g., a certificate).

Finally, results for students who attained a four-year degree were mixed across decades, but consistent between sectors, as shown in Fig. 5.7. More specifically, for participants who attained a four-year degree, initial enrollment in the community college sector versus the four-year public sector resulted in insignificant differences in ULCA variation across decades. In the 2000s, the average ULCA accumulated by four-year degree holders was about $30,000 in 2017 dollars. Two-year entrants had an ULCA that was about $3000 (10%) lower than their public four-year counterparts. Notably, four-year degree holders who initially enrolled in the two-year sector consistently accrued significantly less ULCA than their four-year private non-profit counterparts. This disparity was about $7000 in the 1990s and almost $19,000 during the 2000s. The results in Fig. 5.7 additionally indicate that for initial attendees of the four-year non-profit sector, ULCA was over $45,000 in the 2000s on average.

In sum, the most consistent finding in this study is that after controlling for baseline indicators that not only considered pre-, but also during-college, enrollment indicators, beginning college in the two-year sector during the 2000s resulted in a considerably lower ULCA.

5.3 Discussion

The findings presented in the literature comparing the effect of two-year institutions on students' likelihood of bachelor's degree attainment consistently suggest that, compared to four-year entrants, students beginning their studies in the two-year sector have lower probabilities of bachelor's degree attainment (Table 5.2). Conversely, when analyzing the effect of two-year enrollment against no college enrollment and four-year attendance, results indicate that two-year students have better or similar salary benefits compared to high school graduates and four-year students, respectively (Table 5.3). From this perspective, any study attempting to comprehensively evaluate the role of the two-year sector on students' propensity to upward mobility must at least consider these two sets of outcomes before drawing conclusions about this sector's role in the reproduction of inequality of opportunities. While academic outcomes can be interpreted as the two-year sector playing an important role in the reproduction of inequality in educational attainment, salary-based findings suggest that the two-year sector may indeed have a gap-closing effect on socioeconomic inequality in the United States. Nonetheless, future studies should also incorporate other comparison sectors and explore additional outcomes using the analytic framework presented in this chapter, as exemplified in the third section. Concerning the analysis presented in this chapter in particular, initial enrollment in the two-year sector was consistently found to render a much more affordable path than beginning college in the private non-profit four-year sector. These results illustrate another way in which community colleges may have a gap-closing effect

on socioeconomic inequality. Accordingly, students should be made aware of the ULCA they are expected to incur as a function of initial enrollment in any of the three sectors studied. Likewise, it is important for future students to know that the worst-case scenario found in this study is found among initial four-year entrants who did not attain any degree or credential, as these students ended up with no degree or credential but with almost $30,000 in debt.

The conceptualization of the two-year sector as an entity capable closing gaps in socioeconomic inequality in the United States must incorporate a discussion of the current situation in the U.S. with respect to inequality and stratification of opportunities based on socioeconomic status. The purpose of presenting this information is to depict more comprehensively the rather difficult circumstances that low-income students continue to face in U.S. society. Following this illustration, the main findings and conclusions regarding the role of the two-year sector in closing socioeconomic gaps are revisited while emphasizing the mission of the two-year sector and the types of students it has historically served.

5.3.1 Pre-college Entrance Inequality, Educational Stratification, and College Choice

Although the present study focuses on tertiary education, considering that income inequality is a social issue of marked prevalence in the U.S., it is important to contemplate the ways in which this problem continues to shape the lives of at least 46 million Americans (DeNavas-Walt & Proctor, 2015). Accordingly, this section provides a synthesis of the systematic barriers experienced by low-income students long before college entry takes place and the ways in which this persistent socioeconomic inequality more often than not obstructs their probabilities for upward socioeconomic mobility into adulthood.

5.3.2 Pre-college Socioeconomic Inequality

Low-income children attending school in the United States (who overwhelmingly tend to be of African American, Hispanic or Latino, and American Indian in origin) have been systematically exposed to structural disadvantages that have permeated all aspects of their lives and—when compared to their more affluent counterparts– have made their prospects for attaining social and economic mobility less feasible (Jiang, Ekono, & Skinner, 2015; Laub, 2014). For example, low-income students are more likely to live in single-parent households, which are usually composed of families supported by single-mothers (Hill, 2010), and tend to grow up in homes characterized by poorly functioning family environments. Both of these home life situations constitute widely documented serious risk factors associated with an increase in the

probability of clashes with the juvenile justice system (Gottesman & Schwarz, 2011; Laub, 2014). It is worth noting that even in cases where both parents are present in low-income households, these parents are more likely to be unemployed or to hold underemployed positions that pay minimum wages that, conditional on the number of dependents in the family, may not be enough to cover living expenses between paychecks (Jiang et al., 2015). With respect to education attainment and substance consumption, parents in low-income families are less likely to hold a high school degree (Jiang et al., 2015; Ludwig et al., 2013) and are more prone to alcohol, tobacco, and/or substance dependence (Coley, Kull, Leventhal, & Lynch, 2014; Foster, 2000; Maring & Braun, 2006), both of which are factors typically associated with violence and crime (Ludwig et al., 2013).

Moving beyond their households, low-income students tend to grow up in neighborhoods or communities plagued with high poverty and crime rates, lower education attainment indices, higher health care issues and unemployment rates, and low overall housing quality (Ludwig et al., 2013; Rosenblatt & DeLuca, 2012; Sampson, 2012). Structurally, low-income children growing up in low-income neighborhoods are surrounded by other at-risk peers (Ludwig et al., 2013) and attend K-12 schools that reflect these structural barriers. This vicious cycle translates into access to low performing schools (Rosenblatt & DeLuca, 2012) that suffer from high teacher turnover resulting from a scarcity of resources at the district and school levels and overall poor working conditions (Ingersoll, Merrill, & Stuckey, 2014; Simon & Johnson, 2015). These high turnover rates in low-income schools imply that low-income students are typically taught by new teachers who do not necessarily have the work experience needed to develop effective teaching strategies, particularly those necessary for working in a low-income setting (Borman & Dowling, 2008; Simon & Johnson, 2015). Additionally, low-income schools present higher indices of crime that not only affect these students' odds of continuation but also make them more likely to be victims of crime and/or be the offenders themselves (Bowen & Bowen, 1999; Ludwig et al., 2013).

From a postsecondary access perspective, an important barrier to higher education faced by low-income students is that they rarely have access to quality guidance—or guidance at all—in the college preparation and selection process. Indeed, the student-to-counselor ratio usually reaches nearly 1000:1 in financially segregated zones with access to fewer resources and higher risk factors (Gandara, Alvarado, Driscoll, & Orfield, 2012; Haskins, Holzer, Lerman, & Trusts, 2009; McDonough, 2005; McDonough, Korn, & Yamasaki, 1997). In this view, it is clear that the structural inequalities experienced by low-income students systematically permeate all aspects of their young lives long before they have had any formal contact with the U.S. postsecondary system. Taking into consideration the systematic barriers just described, it is not surprising that even when considering only high-achieving students, low-income youth are eight times less likely to attend college than their higher income counterparts and more than twice as likely to attend a community college (Giancola & Kahlenberg, 2016).

It is worth noting that the disparities between community college students and four-year entrants, as described previously, are not merely a reflection of

socioeconomic inequality that translates into differing levels of access to quality K-12 schools that then mediate opportunities to attend college and academic performance during college (Gandara et al. 2012; Hauser, 1970; Martinez-Wenzl & Marquez, 2012). On the contrary, these discrepancies in two- and four-year students are also a reflection of the community college mission that is captured in its open-door policy, which indicates that "students neither need to compete for admission at a set time of the year nor demonstrate a level of academic proficiency to enroll" (Provasnik & Planty, 2008, p. 10). It is worth noting that 97% of all community colleges in 2013–2014 had such a policy. The corresponding proportion of public and private not-for-profit four-year colleges with open door admission policies in the same year were 17% and 12%, respectively (IPEDS, 2013). Unsurprisingly, this level of openness attracts students who either have no interest in pursuing a four-year degree (Berkner et al., 2008; González Canché, 2014a, 2014b) or have been excluded from the four-year sector (Kasper, 2003; Rendón, Novack, & Dowell, 2005) due to academic and financial challenges that may jeopardize eventual degree completion (Dietrich & Lichtenberger, 2015; Melguizo & Dowd, 2009; Goldrick-Rab, 2010; Provasnik & Planty, 2008). In this sense, one can conclude that four-year institutions prefer to exclude at risk students whereas community colleges take pride in including as many of them as possible (Kasper, 2003; Townsend, 1999). As such, community colleges more frequently expose themselves to an increased risk of 'failure' in helping students persist, yet are criticized for not helping these same students attain a bachelor's degree at levels comparable to those of students who, for a variety of reasons (*e.g.*, monetary, academic, or both), begin college in the four-year sector.

From this perspective, the results summarized in Table 5.2 that have led many to conclude that community colleges decrease students' opportunities for educational advancement overtly ignore the positive economic payoffs of community college attendance resulting from credits, degrees, and certificates attained in this sector. In this regard, it seems that claiming that two-year institutions are perpetuating stratification of opportunities for upward mobility may be wrong or, at the very least, incomplete. The fact that community college students attain similar monetary payoffs from their education even when compared to four-year entrants is remarkable and is a finding that has been ignored by critics of the two-year sector who depict this sector as an engine of inequality. Given the difficulties faced by low-income students, any social entity that is capable of providing students with the opportunity to escape the vicious cycle of poverty perpetuated by socioeconomic inequality should hold a valued and respected role in society. Unfortunately, this is not the case for community colleges. To the contrary, public two-year institutions continue to be underfunded and have historically received less state support than their public four-year counterparts while still enrolling higher numbers of students across states (Delta-Cost-Project, 2012: IPEDS, 2013). This considerably limited access to resources has translated into a constant decrease in full-time faculty (Delta-Cost-Project, 2012; González Canché, 2012) that reached all time low proportions in 2012 (34.25%). Consequently, students attending the two-year sector, who additionally tend to be academically vulnerable, are less likely to have access to full-time

faculty to help them develop the knowledge and skills necessary to continue education beyond the two-year sector or face the job-market (Fain, 2014; McClenney & Arnsparger, 2014).

Despite the barriers just described, the open-door admissions policy typical of the two-year sector continues to be perhaps the best approach to ameliorating socioeconomic inequality in U.S. society. Research has consistently shown that community college entrants, when compared to high school graduates, are in better socioeconomic standing and are in similar standing compared to four-year students. Decision-makers, then, should focus on both these democratizing- and socioeconomic-leveling functions of community colleges when making funding decisions that may lead to tuition increases in the two-year sector. This notion is noteworthy given that two-year institutions, despite receiving less state support, are constrained in terms of their ability to raise revenue from increases in tuition charges. A rather small increase in tuition amounts can render college attendance almost unaffordable to low-income students (Dynarski, 2002), whose most realistic option for attending college is through the community college sector. Thus, if these institutions raise tuition, the most affected students and citizens would be those in most need, on average, of financial aid. Lower levels of state and federal support combined with the inability to raise tuition prices may result in the need to cut admissions and as a consequence, the socioeconomic gap-closing effect of the two-year sector will also diminish. Support for the two-year sector, then, implies a commitment to those with the most financial need, an idea supported by the literature reviewed in this chapter. Any reduction in the socioeconomic gap will have positive externalities in the larger economy of any country, not just in the personal lives of low-income students benefiting from access to college.

5.3.3 Community Colleges' Role in (Inter)National Competitiveness

As mentioned before, federal-, state-, and city-level initiatives often intend to increase the community college sector's role as the starting point of post-secondary education. If the emphasis of such initiatives is placed on producing short-term credentials and vocational careers, then this increased presence of the community college sector is not problematic, as research has, to a great extent, indicated a positive effect for this sector on employment outcomes, wages, and lower ULCA accumulated, overall. However, if emphasis is placed on using the two-year sector as the 'gateway' to a baccalaureate degree, research suggests that this approach may be misguided in the absence of more structural changes. Indeed, in its current state, the negative effect of starting college in the community college sector has remained even after accounting for self-selection bias by incorporating sophisticated techniques into modeling specifications –with the caveats highlighted earlier in this chapter.

The analysis of the role of the community college sector in the economic well-being of the U.S. is not a trivial endeavor. Community colleges may not be systematically and purposefully demotivating or cooling-out students, but these institutions do nevertheless face barriers when it comes to helping students navigate undergraduate education. In addition to welcoming academically challenged students who usually must work to finance their education while enrolled, these institutions have more restricted access to resources compared to their four-year counterparts. For the community college to become a feasible gateway to a bachelor's degree, structural changes need to co-occur that extend beyond policies designed to make community college attendance free. Asking for more resources to be directed to the community college sector is rooted in strong evidence about the effective use of these funds in improving students' outcomes. For example, the City University of New York system has implemented a program called Accelerated Study in Associate Programs (ASAP) that focuses on providing intensive advising, tutoring, tuition waivers, money for books, and transportation for students. A study of its effects, conducted by Scrivener et al. (2015), followed almost 900 students, half of which participated in ASAP. These authors found that ASAP students doubled their likelihood of receiving an associate's degree (40% versus 22%) within three years of initial enrollment and were 8% more likely to have transferred to the four-year sector (25% versus 17%). This finding is similar to that reported by Barrow, Richburg-Hayes, Rouse, and Brock (2014), who conducted a random experiment where initial scholarship eligibility criteria (before randomization occurred) included being low-income and having children. This experiment took place on three campuses, and Barrow et al. (2014) consistently found that over a 2-year period, randomly selected treatment students completed nearly 40% more credits than their non-selected counterparts. Finally, Scott-Clayton (2011) also found that a merit scholarship combined with performance incentives conditional on grades and credits earned increased two-year students' likelihood of attaining a 4-year degree. Despite these encouraging reports, important setbacks continue to occur. Arizona, for example, completely cut funding for two of its largest community college districts (Smith, 2015). Although these institutions (one of which serves 265,000 students) have stated that no tuition increases will take place in the short run, the question remains whether, or how long, they can continue to survive.

Community colleges with limited resources have helped millions of students to improve their socioeconomic well-being, but for the U.S. to maintain its international competitiveness, short-term degrees may not be enough. Four-year degrees may indeed be essential for the U.S. to remain a relevant economic competitor internationally. Recent research on students who successfully became rising juniors (*i.e*, successfully transferred from the two- to the four-year sector) and on vertical co-enrollment has highlighted factors facilitating the academic success of these students. In this view, a better articulated transfer path or immersion of two-year students in the four-year sector may be valid options that increase these students' odds of academic success.

5.3.4   A More Structured Pathway

Past research (Rosenbaum, Deil-Amen, & Person, 2007) has indicated that low-income students in the community college sector usually feel overwhelmed by the variety of choices they face when it comes to selecting classes. This feeling is not only the result of the actual multiplicity of choices available at most community colleges but is also likely due to structural issues that began during high school where the student to counselor ratio usually reaches nearly 1000:1 in low-income areas (McDonough, 2005). Among students attending these high schools, those who are able to enroll in the local community college tend to be first generation college students. Consequently, their parents are usually not prepared to offer academic guidance. Given that state appropriations are in constant decline and that community colleges benefit the least from these resources, expanding the number of community college counselors on which students can rely to make informed decisions may not be a feasible option. A more cost-effective approach would be to offer community college students access to more structured plans of study to navigate the first two-years of college with a clear route to attaining an associate's degree and/or transferring to a four-year degree.

With a structured route, curricula may be designed to guide students to academic pathways that will be beneficial to the U.S.'s prospects of remaining a competitive force in knowledge and scientific production. For example, given the importance of STEM fields, plans of study that lead students to pursue a STEM degree may be a more affordable option (compared to hiring more counselors to communicate these paths to students individually) that may result in shorter times to degree and in greater likelihood of scientific production and economic growth for the country.

5.3.5   Looking at the Role of Place in Community College Student Outcomes

A common omission across all the studies reviewed in this chapter entails the effect of location on the assessment of community college effects. Although the estimates obtained in the assessment of ULCA variation included state- and county-level indicators, model specification did not control for other space-based effects given community colleges' proximity to four-year institutions. More specifically, considering that researchers have demonstrated that local availability of college options positively influences students' likelihood to apply to and enroll in college, future studies should begin exploration of whether the *local availability* of four-year institutions is associated with higher likelihood of four-year degree attainment by initial two-year/community college entrants.

More specifically, studies of community college effects should prioritize examination of factors that may serve as mechanisms that would bolster the "stepping stone" function of community colleges toward the attainment of a four-year degree, better

employment outcomes, and lower ULCA. One such factor comes from the notion of universities as "engines of growth" or "regional boosters" taken from the urban economics and public policy literatures (Florax, 1992; Florax & Folmer, 1992; Gilbert, McDougall, & Audretsch, 2008; Henderson, 2007; Lucas, 1988; Wallsten, 2001). Following this notion, it may be hypothesized that that *local availability* of four-year institutions may be associated with higher likelihood of four-year degree attainment by initial two-year/community college entrants. This hypothesis formalizes assessment of whether students attending community colleges situated within commuting distance from four-year institutions realize higher levels of educational attainment than comparable two-year entrants without nearby four-year options. While this notion is straightforward, more than forty years of research on community college students' outcomes have not yet tested its validity. Future research that accounts for the geographic locations of institutions of higher education is needed to assess the feasibility of innovative ways in which academic (and eventually socioeconomic) gaps due to initial college sector of attendance in the United States may be reduced.

Once again, the set of covariates identified and used in this chapter contained in Table 5.4 can be used for model specification. The only methodological challenge involved in the testing of this hypothesis is the successful identification of community colleges that have four-year neighbors within *commuting distance* and community colleges without such neighbors. This is challenging given that no previous framework exists to guide the operationalization of *commuting distance* between two- and four-year institutions. However, previous literature provides two operational and conceptual definitions of *commuting distance* for sensitivity and robustness checks that may be applied in future research. The first definition of commuting distance is taken from Rapino and Fields (2013), who estimated that commuters in the U.S. typically travel 18.8 miles to work each way (margin of error = (+/−) 0.01). While this definition is straightforward, it is important to consider that commuting distances differ in rural and non-rural areas given the longer distances usually traveled in the former. In this regard, Turley (2009) estimated that students who lived in rural areas typically commuted twice the distance traveled by students living in non-rural areas. This finding was based on the median commuting distance of students living at home during college, taken from a nationally representative sample. In this study, Turley (2009) found that students commuted a median distance of 12 and 24 miles to school in non-rural and rural locations, respectively. Accordingly, a first definition of commuting distance, following Rapino and Fields (2013), that may be used in future research allows for a maximum distance of 20 miles in non-rural and 40 miles in rural locations to identify community colleges with and without four-year neighbors. Following Turley (2009), a second possible, more conservative, definition of commuting distance accounts for a maximum travelling distance of 12 and 24 miles in non-rural and rural areas, respectively. A visual representation of both definitions of commuting distance is shown in Fig. 5.8.

The concept of spillover effects with respect to four-year institutions argues that colleges and universities generate human capital spillovers (Henderson, 2007; Lucas, 1988), thus implying that students attending community colleges in close proximity to four-year institutions may be systematically different in their
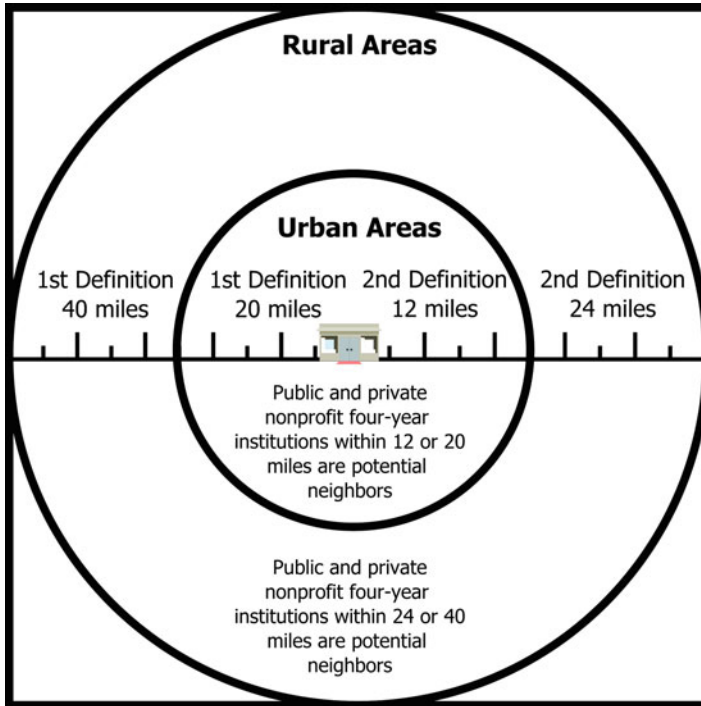
Fig. 5.8 Logic model followed to identify the presence of neighboring four-year institutions across rural—24 (Turley, 2009) or 40 mile (Rapino & Fields, 2013) radii—and non-rural areas—12 (Turley, 2009) or 20 mile (Rapino & Fields, 2013) radii. In all specifications, the definition of rural area was taken from the U.S. Department of Agriculture Economic Research Service under the 1993 and 2003 Rural-Urban Continuum Codes forms, classification schema. The criterion to define rural area was having a population of 2500 to 19,999, not adjacent to a metro area (U.S. Department of Agriculture Economic Research Service, 2013). The use of the 1993 and 2003 classifications schemes mentioned above may be used to approximate time of enrollment captured in NELS, BPS, and ELS surveys, for example. The implementation of the logic models relied on geographical information systems techniques. To test for potential effect heterogeneity given sector of four-year neighbors, models can or should examine public and private non-profit four-year neighbors separately. Subsequently, the two sectors may be considered together in a single model that incorporates sector as a predictor variable. Institutional characteristics of the neighboring institutions should also be incorporated in modeling estimations. For more information about this process and preliminary findings see González Canché, M. S. (2017b).

individual- and local-economy attributes when compared to students attending community colleges without four-year neighbors. Geographical stratification (Liu, 2015) suggests that these differences are based on greater resources given students' location. Although the literature on community colleges indicates that students tend not to choose one particular community college over another but rather attend

whichever community college is closest to their location, there remains a non-zero probability that some community college students with expectations of attaining a four-year degree select an institution for additional reasons. Consequently, while some community college students enroll in institutions with four-year neighbors by "default," other students may enroll in community colleges with four-year neighbors strategically. From either perspective, it may be that students attending two-year institutions within commuting distance from four-year colleges differ systematically in their access to resources and sources of support compared to students attending community colleges without four-year neighbors. Consequently, models should test for systematic differences across participants using empirically and theoretically relevant variables taken from studies of sector effects on student outcomes that capture individual, geographic, socioeconomic, and academic resources during high school (as indicated in this chapter) before inferential claims are made.

While model identification and estimation is beyond the scope of this chapter, the operationalization of the logic model presented in Fig. 5.8 has been completed while relying on Geographical Network Analysis principles (González Canché, 2018) across the two datasets included in this chapter (NELS and ELS). Table 5.5 shows the empirical distribution of institutions identified following the logic model by urbanity and neighboring statuses. It also reflects the representation of this universe

Table 5.5 Distribution of institutions identified following the logic model by urbanity and neighboring statuses

	Rural area		Non-rural area		Total.		Π with respect to total[a]	
	24	40	12	20	12 & 24	20 & 40	12 & 24	20 & 40
IPEDS universe								
CC neighbor	5	17	371	472	376	489	–	–
CC no neighbor	86	74	442	341	528	415	–	–
Four-year neighbor	4	12	317	379	321	391	–	–
Four-year no neighbor	37	29	259	197	296	226	–	–
Total	132	132	1389	1389	1521	1521	–	–
ELS sample								
CC neighbor	2	5	296	368	298	373	.793	.763
CC no neighbor	34	31	265	193	299	224	.566	.540
Four-year neighbor	3	9	293	344	296	353	.922	.903
Four-year no neighbor	24	18	210	159	234	177	.791	.783
Total	63	63	1064	1064	1127	1127	.741	.741
NELS sample								
CC neighbor	2	6	233	293	235	299	.625	.611
CC no neighbor	35	31	234	174	269	205	.509	.494
Four-year neighbor	4	9	260	315	264	324	.905	.829
Four-year no neighbor	27	22	225	170	252	192	.850	.850
Total	68	68	952	952	1020	1020	.671	.671

[a]Π with respect to total refers to the ratio of the total of ELS and NELS samples and the corresponding IPEDS universe

a   Distribution of public two- and private non-profit and public four-year institutions across the contiguous U.S.

Distribution of neighboring institutions
- CC with Four-Year Neighbor, n = 625
- CC with no Four-Year Neighbor, n = 283
- Four-Year with CC Neighbor, n = 1,332
- Four-Year with no CC Neighbor, n = 449

Density (p/km²):
- less than 0.06927623
- 0.06927623 – 0.1336686
- 0.1336686 – 0.2431644
- 0.2431644 – 0.5621646
- more than 0.5621646

A link is established when a CC is located within 20 or 40 miles from a four-year college in non-rural (circled) and rural (squared) areas, respectively

b   Distribution of public two- and private non-profit and public four-year institutions across the contiguous U.S.

Distribution of neighboring institutions
- CC with Four-Year Neighbor, n = 528
- CC with no Four-Year Neighbor, n = 380
- Four-Year with CC Neighbor, n = 1,146
- Four-Year with no CC Neighbor, n = 635

Density (p/km²):
- less than 0.06927623
- 0.06927623 – 0.1336686
- 0.1336686 – 0.2431644
- 0.2431644 – 0.5621646
- more than 0.5621646

A link is established when a CC is located within 12 or 24 miles from a four-year college in non-rural (circled) and rural (squared) areas, respectively

Fig. 5.9 Empirical representation of the logic model across the contiguous U.S.A., public and private non-profit four-year institutions (**a**) Empirical representation of 1st definition (20/40 miles), (**b**) Empirical representation of 2nd definition (12/24 miles) (Source IPEDS, 2013)

in the ELS and NELS samples. Overall, note that ELS captured 74% of the total universe across the contiguous US, whereas NELS captured 67%. The geographical identification of these institutions is presented in Fig. 5.9.

The incorporation of location in the analysis of community college effects is relevant for several reasons. First, although community colleges are certainly not at liberty to select the distance from their closest four-year neighbors, if the hypothesis of this new line of study presented here is corroborated, then recent high school graduates who are considering beginning college in a public two-year institution should be informed about the positive relationship between four-year proximity and better student outcomes. For students who expect to use the two-year sector as the

pathway toward a four-year degree, this information should translate into a stronger likelihood of improving their transfer and eventual four-year graduation prospects. If this hypothesis is not confirmed, then transfer agreements between neighboring two- and four-year institutions may need to be assessed or reassessed as empirical evidence would point to ill-functioning implementation or even absence of these agreements based on geographic proximity. In addition, students who may consider attending two-year institutions with four-year neighbors under the assumption of positive externalities, should be made aware of the lack of relationship between four-year neighbor presence and improvement in educational outcomes.

This line of research is also relevant given the population studied. As community colleges clearly play a central role in the early formation of college students in the U.S., particularly among low-income and minority students, the study of additional factors that may positively affect these students' odds of academic success should be a national priority. For the U.S. to remain economically competitive, the role of the community college as a stepping stone toward a four-year degree will need to be strengthened as well. Knowledge is power, and people could be empowered by the findings of the research proposed here.

5.3.6 Challenges and Opportunities in the Use of Big Data in Higher Education Policy

The availability of large amounts of information along with increases in computing power have prompted the need to develop innovative ways to collect, prepare, analyze, and visualize data whose level of dimensionality (in terms of number of units or participants [rows] and number of variables or indicators [columns] in a data frame) is traditionally referred to as "big data." The present chapter highlighted opportunities related to the use of big and geocoded data in higher education analysis with clear policy implications. Notably, the mere analysis of big data does not warrant that results have relevant and/or timely implications from policy- and/or decision-making perspectives. In this view, analysts should consider the following challenges and opportunities when dealing with big data that may threaten the policy relevance resulting from analysis conducted in higher education research. These challenges, which the analytic framework employed in this chapter aimed to address, are the following: (a) big data and sophisticated methods *without relevant research questions* constitute a wasted opportunity, (b) when possible researchers should incorporate more than one analytic sample as validity and robustness checks, (c) researchers should prioritize testing for effect heterogeneity, and (d) researchers should rely on critical lenses that aim at reducing inequality of opportunities and the dismantlement of reproduction of vicious circles. Each of these challenges guided the analytic framework implemented herein.

Another important challenge consists of training [higher] education researchers in the critical analysis of big data that prioritize policy relevance and disruption

inequalities. In this view, the message is clear: given the availability of large amounts of data, graduate programs in education should continue investment in the development of researchers' critical-analytic skills. This training will not only make them more marketable, but will also benefit the field in general.

5.4 Conclusions Related to the Educational, Occupational, and ULCA Outcomes of Community Colleges

Based on the comprehensive analysis of the literature surrounding two-year students' outcomes in terms of salary and wage gains presented herein, it was concluded that the two-year sector does indeed have a democratizing function in U.S. society by improving students' prospects of becoming socioeconomically independent and self-sufficient. In this view, it is worth noting that while higher education is a worthwhile investment for all, this investment is perhaps even more important for the type of students historically served by the two-year sector. Nonetheless, despite this democratizing function in terms of economic gains, the community college has yet to become a likely gateway to a bachelor's degree. Considering that competition for science and technology development continues to tighten across the world, short-term degrees will not be enough for the U.S. to remain competitive in science, technology, and knowledge production worldwide. Accordingly, structural changes and strategies need to co-occur that extend well beyond making community college attendance free.

The role of the community college has clearly been, and will remain, an important component in the reduction of socioeconomic inequality in the United States. Similarly, this sector has great potential to advance U.S. college completion rates in that, with additional funding and better-structured pathways from the two- to four-year sectors, it may play a pivotal role in the production of four-year degree holders in economically important fields such as science and technology in the future. However, the reality is that the two-year sector continues to be underfunded and undervalued. Therefore, in its current state, this sector is unable to live up to its full potential due to lack of financial resources and lack of effective mechanisms to facilitate the transfer of students from the two- to the four-year sector. It is worth noting that the reinforcement of the democratizing function of the public two-year sector requires at least three actions: (a) the provision of additional funding at both the federal and state levels, (b) more research to examine how both two- and four-year institutions may improve successful transfer from the two- to the four-year sector, thus promoting eventual attainment of a four-year degree, and (c) a renewed recognition of this sector's socioeconomic gap-closing role among underserved communities in the United States. The results of the study presented in this chapter overwhelmingly show that when the outcomes of students with similar levels of academic attainment and divergent academic trajectories are analyzed, community college students accrued less debt than their private non-profit counterparts. This

lower cost of community colleges in terms of ULCA provide yet another piece of evidence of the democratizing function of this sector.

The two-year sector additionally seems to be a better option for students who are less likely to obtain a bachelor's degree. Accordingly, if four-year "eligible" students with lower probabilities of four-year degree attainment are recommended to start in the two-year sector, such suggestions should not be understood as a cooling-out function (Clark, 1960a). Ideally two- and four-year sector articulation agreements should be strengthened along with transfer support services. Indeed, if students' economic and social well-being is prioritized, transfer out initiatives should emphasize that the attainment of an Associate's degree (or at least certificate/diploma) is mandatory before being eligible to transfer to the four-year sector. If students who transferred find that the four-year sector is not for them and decide to leave, they would at least have a credential (and the knowledge and skills associated with it) to facilitate employment opportunity.

Although structural changes need to take place for the community college to serve as an effective stepping stone toward the attainment of a four-year degree, studies indicate that this sector continues to serve as a socioeconomic gap-closing mechanism. Future studies need to incorporate geographic data and network analysis as means to detect structural mechanisms that would enable two-year entrants to navigate college with greater likelihood of success. In addition, predictive analytics and probabilistic matching procedures should be implemented to detect students' expected outcomes before such outcomes take place. These procedures should not be considered as "cooling out functions" in the big and geocoded data era when indicating that some students would be better served by beginning college in the two-year rather than the four-year sector. To the contrary, recommendations based on unbiased analyses should serve as mechanisms designed to prevent academic failure with an increased debt burden (e.g., failing to attain any degree or credential and accumulating debt burden). Notably, even in cases in which students attained less-than-a-four-year credential, enrollment in the two-year sector was associated with significant reductions in debt burden. Indeed, evidence indicates that for students with no degree or an associate's degree (or equivalent), reduction in debt burden would have been maximized by beginning college in the two-year sector. Analyses that highlight the democratizing role of the two-year sector should not only consider educational attainment but also students' prospects of financial well-being and sustainability. The two-year sector has been thriving in the latter, but more work is required to succeed in the former.

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Chapter 6
The Professoriate in International Perspective

Joseph C. Hermanowicz

6.1 Introduction

My aim in this chapter is to consolidate the growing literature on the international professoriate. This literature has burgeoned particularly over the past 15 years, which is a response to the transformations that national higher education systems, from the nascent to the most advanced, have experienced around the world. The proliferation of this literature, as shall be made apparent, is now such that an exhaustive cataloging is not practical. Instead my overall goal is to identify the major clusters of work that animate research on the international professoriate and to thereby reveal how important comparative work may proceed.

Any such endeavor requires some demarcation of boundaries, even as these boundaries must be sometimes crossed when thinking about and researching one part of a network of interconnected parts. I am here concerned with the *professoriate*, that is, with the social order of *people* who, in varieties of arrangements, teach, undertake research, and engage in scholarship in tertiary institutions of higher learning. As such, the focus may be differentiated from a concern for the social organization of *universities*, from national *systems* of higher education, or from the *institution* of education, each type of structure in turn associated with particular sets of prevailing issues.

Subsumed under the overall goal of the chapter are five concurrent aims: (1) to identify the most prominent and pressing topics and themes in the current research literature on the international professoriate; (2) to thereby codify and systematize recent research undertakings; (3) to bring together bodies of work that might otherwise escape the notice of those interested in specific sub-areas, or to scholars

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of particular countries, but which offer important bridges by which ground may be connected; (4) to explore both substantive pay-offs and challenges in comparative work, and; (5) to expose empirical and theoretic gaps in the work to-date which present opportunities for significant conceptual advancement.

These aims, while seeking to impart benefits on students and scholars of the international professoriate, prompt a prior question; namely, why study the international version of something? As many know, it is enough of a challenge to study smaller units of that something. Studying academics of France (e.g., Musselin, 2001), Great Britain (e.g., Halsey & Trow, 1971), the United States (e.g., Clark, 1987a), Japan (e.g., Arimoto, Cummings, Huang, & Shin, 2015), or any other country, is arduous work.

All studies and how they are executed, depend, of course, on the specific questions that motivate them. This methodological point notwithstanding, our understanding comes only by comparison with something else. We are able to understand and evaluate a professoriate of one country with reference to that of another. It is not the only way to go about comprehending the professoriate (we could compare it to other occupations and professions within nations, for example), but it is arguably a profitable one.

More to the point, higher education is increasingly a key feature of modern social organization throughout the world. Over 200 million students are enrolled in post-secondary institutions globally, which represents a doubling in just the first twelve years of the twenty-first century (Altbach, 2016). By 2030 it is estimated that student enrollment will again double to 400 million (Altbach, 2016). These students are taught by over six million post-secondary teachers, a number that in turn is likely to grow as enrollments rise (Altbach, 2016). To a significant degree, higher education around the world is institutionally set apart—conceptually and operationally—from education at the primary and secondary levels. To that end, the people who constitute the professoriate on which these workings rely merit researchers' attention, in ways akin to the family and kinship systems, the military, the economy, the polity, and other facets of modern social organization.

Higher education, and the professoriate on which it depends, has, especially in the last quarter-century, experienced globalization, often understood by an increased integration of a world economy (King, Marginson, & Naidoo, 2013). Science, technology, and scholarship are increasingly global in scope (Altbach, 2016). Knowledge, research, researchers, and students are increasingly mobile and transcend of national boundaries. Rankings of universities in which academics work are themselves now global, all of which speaks to a kind of common ground that sustains an increasingly institutional world-wide enterprise of endeavor (Altbach & Balan, 2007; Clotfelter, 2010; Shin & Kehm, 2013). By this accord, the professoriate warrants international, comparative investigation.

Finally, comparative inquiry may aid in identifying strengths and weaknesses in and between the systems in which members of the professoriate carry out their work. Here we are readily aware of the pretense that conventions and procedures found in one part of the world are seamlessly imported elsewhere. If, however, we understand through comparison, then even wide-ranging comparisons have the chance to

Chart 6.1 Organization of
the chapter

I. Part 1: Theoretic Foundations

    A. Conceptual Frameworks

        1. Classic Contributions

        2. Contemporary Contributions

    B. Center and Periphery

    C. Theoretic Puzzles: Convergence & Differentiation

    D. Growth & Accretion

II. Part 2: Topical Forays

    A. Academic Freedom

    B. Contracts and Compensation

    C. Career Structures and Roles

    D. The "Changing Academic Profession" Project

III. Conclusion

deepen understanding and inform relevant policy interests by an expanded mindful-
ness of how things work under varied sets of conditions, whether close to, or far
from, home. Despite a proliferation of international work on the academic profes-
sion, important calls for still more comparative work, covering a broad range of
theoretic and policy-related higher education concerns, are voiced with advisories
that much needed work lies ahead (Perna, 2016).

The chapter proceeds with two encompassing parts. By way of organizational
clarity, I offer a visual map in Chart 6.1 of the terrain that the chapter will traverse. In
part one, *theoretic foundations*, I discuss conceptual frameworks for understanding
the professoriate comparatively, as well as the guiding ideas that inform a concep-
tualization of the professoriate internationally. I introduce the subject of *conceptual
frameworks* and then proceed in turn to a consideration of *classic* and then *contem-
porary* contributions. In part two of the chapter, *topical forays*, I identify the main
clusters of work, both analytic and empirical, that situate contemporary international
study of the professoriate. The forays include (1) academic freedom; (2) contracts
and compensation; (3) career structures and roles; and (4) an accounting of the
"Changing Academic Profession" project. I conclude the chapter with three sugges-
tions to enable future successful comparative work.

6.2   Part 1: Theoretic Foundations

A discussion of core theoretic concerns that inform the comparative study of the international professoriate is organized into four parts: an explication of major *conceptual frameworks* used to organize comparative inquiry and analysis, which includes both classic and contemporary formulations (dating from the 1970s and 1980s in the case of the former, and from the 2000s in the case of the latter); a consideration of a paramount metaphor, *center and periphery*, used in the comparative study of international higher education, including the professoriate; an identification of *theoretic puzzles* that have emerged from comparative work, chiefly involving the ideas of convergence and differentiation; and, finally, a recapitulation of *growth and accretion* as forces deemed causal antecedents to change and evolution in a global professoriate.

6.2.1   Conceptual Frameworks

While the benefits to be gained from international comparative work—whether on professors, state revolutions, or culinary cuisine—are potentially substantial, so are the challenges, and arguably not a single comparative higher education researcher has been remiss in noting this fact. The challenges center on *the point* in analytic thinking at which meaningful comparisons and contrasts can be drawn. The closer we get in comparison, the more the parts are apt to diverge. The further we back away from comparison, the more the parts blur into unmeaningful generality. Even the idea of an "academic profession" is riddled with problems. Neave and Rhoades (1987), for instance, have ventured to exclaim that academia of Western Europe, where academia has its oldest roots and most traditional customs, is not a profession, but an "estate," "whose power, privileges, and conditions of employment are protected by constitutional or administrative law" (Neave & Rhoades, 1987, p. 213). By this it is meant that the professoriate is tied to the state and that it is national in its basis and orientation, as opposed to a free standing, largely autonomous profession. By their argument, "academia in Western Europe does not lend itself to translation into terms equivalent to the Anglo-American concept of an academic profession," nor is academia understood there as one of the liberal professions such as medicine or law (Neave & Rhoades, 1987, p. 220; see also Musselin, 2001, p. 135, entry for "academic personnel"). Despite these assertions, the term "estate" has not been adopted into the vocabulary of contemporary work. Researchers more typically invoke the idea of a profession and carry out empirical inquiry into a "professoriate," while understanding its linkages to the state.

In the interests of taking a few steps forward, let us speak for our present purposes of a *professoriate* in all countries that is defined by a constellation of teaching, research, and service roles as part of their central occupation and socially understood as the core academic staff in a given nation's system of higher education—"the

'productive workforce' of higher education institutions and research institutes, the key organizations in society serving the generation, preservation and dissemination of systematic knowledge" (Cavalli & Teichler, 2010, p. S1). The constellation of roles varies, to be sure, at extremes in different countries. In many countries, including many in Africa, there is little or no research or scholarly role as part of the professoriate. In other countries, such as Germany, the research role dominates. In still other countries, such as the United States, service and teaching roles can substitute for research in many institutions, including in the U.S. "research university." But these are the most basic points. These roles constitute the most general similarity. When we dig further we quickly realize that the differences can be so great that bases of comparison become highly problematic and thus subject to litanies of qualification and caveat.

By simple analogy, we may observe fruit, but our exercise amounts to a comparison of apples and oranges and pears. Terms such as "profession," "professor," "teaching," and "career," among many others related to those who carry out tertiary higher education, are complicated by national comparative idiosyncrasies (Teichler, Arimoto, & Cummings, 2013). To take but one instance of the point, most higher education teachers, from a world view, do not even hold a Ph.D. (Altbach, 2016, p. 25, 300). (How can an individual without advanced training and certified credentials be part of a profession? Strictly speaking they may be understood as members of the academic occupation. The occupation may or may not be situated on a path of professionalization akin to the forms found in some other parts of the world.) Possession of a doctorate may be assumed for most academics in the United States, Germany, France, England, Japan, and other highly developed education systems. What is the German professoriate in comparison with that of Ethiopia? Clark (1993a, p. 263) has put the problem as follows: "Any theory of convergence that highlights a common drift…and similar forms…will need in time to shade into a theory of divergence that observes individualized national evolutions."

Nevertheless, some past and some recent work have confronted this difficult challenge and attempted to provide theoretic structures in which to see substantive similarities and differences that facilitate grounded, empirically robust comparative understanding of the professoriate. It is important to identify the most fully elaborated of these structures so that our awareness, renewed or newly made, is drawn to them, and that, in doing so, we may search for still more sophisticated ways to organize thought about and study of the international professoriate. The articulation of these structures, deliberately selective but representative nonetheless, also provide an important backdrop for the growing and scattered amount of empirical research that characterizes the most recent activity in research on the professoriate, a subject to which we shall return. These most recent empirical forays demand an order and systemization, of the kind theoretic structures can provide, such that their contributions may be more fully explained.

While the following structures for comparative theoretic understanding of the professoriate are arguably among the most fully elaborated, they will not be elaborated fully here. Readers can refer to the original texts for a complete coverage. Rather, the present aim is to identify points of differing emphasis, to highlight their

most salient features, and, to these ends, intimate how they—or contemporaneous adaptations of them—can bring aid to the state of affairs in which current scholarship on the international professoriate finds itself. The discussion proceeds to a consideration of classic and then to contemporary contributions to frameworks used to anchor comparative work conceptually.

6.2.1.1 Classic Contributions

In *Centers of Learning*, Ben-David (1977) laid a strong foundation for comparative higher education analysis. His purpose was "to view the principal systems of higher education in the Western world as historical entities, namely, to see in response to what needs they first emerged, how they developed their structures, and how they responded to changing needs and opportunities" (Ben-David, 1977, p. 3). The systems he selected were those of Britain, France, Germany, and the United States. The rationale was that these systems were dominant across the world landscape, and were so because "they developed a high degree of all-around scientific excellence and self-sufficiency over a long period of time" (Ben-David, 1977, p. 5).

Ben-David opts to go about comparative analysis by focusing on the chief *functions* of higher education, explaining how the functions evolved in different systems and how their evolution portended contemporary performance. For Ben-David, the chief functions are five: professional education; general education; research and training for research; social criticism; and social justice. The first three of these functions are traditional and legitimate; the last two, new and illegitimate that have been foisted upon higher education roughly at the start of the last third of the twentieth century. He asserted at the time that by institutionalizing criticism and justice as formal functions, higher education systems also formalized threats to academic freedom and the autonomy of higher learning. Criticism and justice were, by this view, manifestations of a politicization of, and thus a detriment to, the academy. Ben-David's serious concerns about the point can be seen to have borne fruit. The intersection of purpose (e.g., freedom of inquiry in teaching and research) and protection (i.e., constraint on speech, including, ironically, instances of criticism) in universities has become a topic of mounting interest in universities, perhaps especially in, but not limited to, the American context (Bilgrami & Cole, 2015; Fish, 2014; Gerstmann & Streb, 2006; Patai & Koertge, 2003; Slaughter, 2011).

In taking a functions-approach, the problem for Ben-David becomes one of integrating the functions, so that nations constitute a "well-functioning system" of higher education; these four dominant national systems went about this task differently. An ascendance in the importance in research, beginning in the eighteenth century but rising to a crescendo in the mid- and late-twentieth century (and thereafter), raised many problems for universities. For Ben-David there exists an inherent tension of "linking education (which is essentially the transmission of a tradition) with research (the transformation of a tradition)" (Ben-David, p. 97).

The German system, most committed to research, supported a relatively weak general education to students not seeking to pursue a research or scientific career. The French system made little effort to incorporate research into the universities, culminating decades later in what Musselin (2001) has described as the "long march of the French universities" that sought a corrective re-integration of research and, consequently, a heightened university influence in French politics, policy, intellectual and cultural life. The British system integrated research and teaching more successfully, with an acknowledgement that some areas of research could not be fashioned with the universities' educational functions. The result was the creation of institutes. Examples of such institutes include those covering areas of biotechnology, cancer research, and actuarial science. In the United States, to the extent there was a relatively harmonious balance, it was seriously jolted following World War II, when a tremendous influx of research and scientific funds aided an ascendance in the disciplines and the empowerment of the specialist-professor (Jencks & Riesman, 1968). Even at the time of Ben-David's writing, long after the War, the American system was grappling with readjustment and newly posed problems of a well-aligned research-teaching configuration in its national higher education system.

For all of his scholarly and personal association with the scientific role and the scholarly values that universities should espouse (Greenfeld, 2012), Ben-David claimed that it was crucial to attend to the education of the general student for, as Vogt (1978, p. 91) put it, "money is in the 'FTE's', not research." Universities must "settle down to a realistic rate of [scientific] growth" (Ben-David, 1977, p. 173). Interestingly, by his reasoning, the welfare of higher education systems throughout the world depend largely on how they direct resources to general education. Ben-David's work was prescient. Universities globally now confront the challenge of educating unprecedented numbers of undergraduate students, but they also attempt to integrate a global press for prestige garnered by scientific research (Shin, Toutkoushian, & Teichler, 2011; Yudkevich, Altbach, & Rumbley, 2016). Despite Ben-David's predictions in 1977, when he claimed the U.S. system best positioned to evolve in functionally beneficial ways, it is arguably unclear which type of national system is best arranged to accommodate the new proportions of these historic demands. Shin and Teichler (2014a), extrapolating from Ben-David a Humboltian model, a Napoleonic model, and an Oxbridge model of higher education, offer important insights into how contemporary conditions of global higher education may be understood in the context of prior theoretic formulations. This discussion is expanded in Teichler (2014a), but a theoretic resolution of the problems—given the contemporary magnitude and scope of teaching/research pressures on systems—remains to be worked-out. In addition, Arimoto (2014) adopts a language of the "teaching-research nexus," which in reformulated terms was so central to Ben-David's earlier theorizing, in order to outline an historical argument about how universities' vital functions have evolved over time. For still additional treatments of the research-teaching relationships, which reflect contemporary developments in a broad array of countries, see the 21 chapters in Shin, Arimoto, Cummings, and Teichler (2014).

Whereas Ben-David's mode of comparative entré consisted of higher education functions, which the professoriate was socially mandated to carry out, Clark (1983), in *The Higher Education System: Academic Organization in Cross-National Perspective*, changes the comparative lens and instead focuses on concepts: the concepts of *knowledge*, *beliefs*, and *authority* which, he contended, constitute a normative structure, variegated across national systems, in which governance and decision-making in higher education may be understood. Whereas for Ben-David, the professoriate was the chief implicated actor, for Clark the professoriate explicitly competes (and often struggles) to accomplish educational objectives with multiple entities and political groups, chief among them the state and the market. While keenly aware of and sensitive to the importance of "function," Clark's rendition of comparative framing is, while well short of what popularizers might call "Marxist," considerably more conflictual.

Clark's purpose was to understand the variation in the national structure of academic systems, why such variation arose, and how such variation reflects organizational solutions to tensions in respective systems. In so doing, Clark also conveys how systems vary by virtue of different historical circumstances and cultural traditions as well as how systems, in light of their social evolution, treat political and demographic challenges. Clark's comparisons were based on the United States, the United Kingdom, Japan, East and West Germany, Sweden, France, Italy, Australia, Poland, Yugoslavia, Mexico, and Thailand, but these are frequently collapsed as Continental, British, American, and Japanese models. Further still, he understands the British, German, French, and American systems as models for the higher education systems found, or to be developed, in other countries. He did so by arguing that these systems were the most "mature" and thus having had developed a capacity of modeling. This modeling constitutes a large-scale instantiation of "academic drift" usually reserved to characterize the status aspirations of institutions *within* national systems. Here, system-level arrangements are selected and studied because nations with younger and developing systems seek to emulate them. Clark's 1995 work, *Places of Inquiry*, reprises a visit to the systems in the Federal Republic of Germany, Britain, France, the United States, and Japan (see also the edited collection of essays on the higher education systems of these countries, especially pertaining to graduate education and research [Clark, 1993b]).

As for Clark's original guiding concepts, they are deployed in *The Higher Education System* as research questions: How is academic work, organized around knowledge, arranged? How are beliefs, the symbolic side of institutional existence, maintained? How is authority distributed? And also, incorporating knowledge, belief, and authority as interacting parts, how does change take place? He finds his answers in the exchanges and contests among a multi-layered configuration of organizational entities: in disciplines (exemplifying professorial, collegial, and guild-like control); in enterprises—colleges and universities (exemplifying trustee and bureaucratic control); and in the larger system (exemplifying government, political interest group, and professorial-organization control). To understand the

operation of disciplines, enterprises, and systems is to understand the dynamics of power wielded by politicians, bureaucrats, and professors at the postulated levels of analysis.

On the Continent, for example, Clark argues that guild authority (authority vested in a group of artisans who control the terms of their craft) and state bureaucracy have led to weak enterprise authority. In Britain, collegial authority mixed with trustee authority have led to greater state influence. In the United States, trustees and administrators are strong, but are counter balanced by guild and bureaucratic authority of departments. For Clark, Japan constitutes a blend of American and Continental forms: faculty guilds of a small set of universities dominate the system by their capacity to work with a state bureaucracy and they co-exist with a larger set of less politically influential faculties and institutions (Herbst, 1985).

Clark introduced a major conceptual tool of continuing utility: a *triangle of coordination* in which national systems of higher education could be mapped according to the gravity that pulled them in the direction of, and by which they accordingly assumed a typifying structure, stated as: (1) state authority; (2) the market, or; (3) academic oligarchy (1983, p. 143), where academic oligarchy refers to "the imperialistic thrust of modes of authority...in the way that personal and collegial forms, rooted in the disciplinary bottom of a system, work their way upward to have an important effect on enterprise and then finally system levels" (Clark, 1983, p. 122). By "imperialistic," Clark means dominant and ascendant as a form. The crux of authority in the academic oligarchy is the professor by virtue of disciplinary expertise. (For a critique of the triangle of coordination construct, including overlooked nuances of authority constellations *within* academic oligarchies, see Brennan, 2010).

The location of national systems on the triangle of coordination are different, often dramatically, between what Clark saw in 1983 and what higher education researchers see today, a point which underscores, rather than negates, the triangle's conceptual utility. Nevertheless, it is noteworthy to observe both a changed *mapping* of systems onto the triangle, in which especially the market has assumed a principal coordinating influence on academe, and a changed *language* to characterize international higher education. "We have observed," Clark wrote in 1983, "...that national systems can legitimately be ruled by professors...Operating as the major professional group...they have had, in many systems of the world, privileged access to central councils and offices, and they have been the most important constituency to please for top bureaucrats and political officials" (Clark, 1983, p. 122). He also recognized distortions of analytic thinking: "It does not make much sense to evaluate business firms according to how much they act like universities...Neither does it make any sense to do the reverse" (Clark, 1983, p. 275).

Yet this appears to be precisely a direction in which higher education systems, and authorities of them in many parts of the world, have gravitated, especially the United States and Europe. Brennan (2010, p. 234) observes: "In the English-speaking world at least, it is difficult to escape the conclusion that many key actors, both inside and outside higher education, do in fact expect universities to behave like

businesses." Similarly, Hüther and Krücken (2016, p. 56) use Clark's foundational work for its juxtaposition with historical developments:

> ...[F]rom the 1980s onwards, traditional European university structures have been facing significant changes. The starting point was changes in the British university system (Leisyte, de Boer, & Enders, 2006; Risser, 2003) that quickly spread to the Scandinavian countries and the Netherlands (de Boer & Huisman, 1999; de Boer, Leisyte & Enders, 2006). Later we find reforms in France (Mignot Gerard, 2003; Musselin, 2014), Italy (Capano, 2008), Germany (Hüther & Krücken, 2013, 2016; Kehm & Lanzendorf, 2006), and Eastern European countries (Dobbins & Knill, 2009; Dobbins & Leisyte, 2014). In recent years, research has shown a move in nearly all European countries toward...NPM [New Public Management].

Further, whereas for Clark the beliefs of "liberty" and "loyalty" were central to academic organization (Clark, 1983, pp. 247–251), Brennan (among others) suggests that these values have been replaced by such ideals as "competitiveness" and "entrepreneurship" (Brennan, 2010, p. 234; also Marginson & Considine, 2000; Slaughter, 1993; Slaughter & Rhoades, 2004). Even the value Clark sees assigned to "competence" (Clark, 1983, p. 245–247), seemingly so central to the order of higher education because of its alleged meritocratic premises, may be questioned in ways today as unlike previously (Hermanowicz, 2013). For instance, the world-wide enlargement of the professoriate to meet demands of rising student enrollment, as well as concomitant changes in appointment type, call faculty quality, training, and ability into question (Altbach, 2002, 2003; Enders & de Weert, 2009a). In Chart 6.2, I list the core ideas, discussed above, that are used with the illustrative figures associated with classical formulations of studying the professoriate comparatively.

6.2.1.2   Contemporary Contributions

Reflecting changes in system environments, Enders (2001a) has proposed a conceptual framework that reformulates Clark's original triangle of coordination. His contributions—along with those identified below—illustrate among the more recent ways to conceive comparative study of academics. We thus encounter a simultaneous shift from, and a building upon, earlier theorizing as seen illustratively in foundational works of Ben-David (1977) and Clark (1983).

Enders notes that control of higher education institutions has shifted away from academic oligarchy toward market and state control. But Enders contends that new actors have also emerged that constrain decision-making and degrade guild authority. These new actors, operating in conjunction with the state, the market, and the academic oligarchy, compose three sets: "stakeholders," who play roles in financing and governing institutions; "university management," which consists of growing echelons of administrators, and; "other university members," which include the voices and votes of staff as well as students in the conduct of university affairs. For a figure of this model, see Enders (2001a, p. 5).

"Stakeholders" have entered the stage via channels of intensified fundraising activities and industry partnerships. "University managers" have appeared as a result

Illustrative Figure	Core Ideas
Joseph Ben-David	Functions of Professoriate to Understand • Professional Education • General Education • Research & Training for Research • Social Criticism • Social Justice Centrality of general education
Burton Clark	Organizing Concepts to Study • Knowledge • Beliefs • Authority Centrality of "triangle of coordination" • State Authority • The Market • Academic Oligarchy

Chart 6.2 Key elements of the classic tradition in studying the professoriate comparatively

of accretion of university functions as well as an accountability movement that entails an "audit culture" and a regime of reporting activity within universities (Lucas, 2006; Power, 1997; Tuchman, 2009). "Other university members" emerged as actors in the management of universities (and encroachment on the professoriate) via gains in political power that were achieved in the 1970s and which have intensified subsequently. In this last case, the American system, for instance, witnessed a transformation in academic governance through senates of universities and corresponding nomenclature: once such entities were the province of "faculty governance." Now, in most public U.S. institutions, they are the vehicles of "university governance," with staff councils and student assemblies seated alongside professors and cadres of administrators to ratify institutional policy.

The model that Enders proposes builds directly upon Clark's (1983). It seeks to account for the historical developments in international systems of higher education, particularly in Europe, across the last quarter of the twentieth century, which have continued to intensify in the first quarter of the twenty-first century. By accounting for these historical changes, and in identifying the new sets of actors that re-make constellations of authority in universities and in higher education systems, the professoriate is de-centered in two senses. First, and most transparently, collegial control and guild power are diminished. The dynamics of which Clark (1983) spoke at the level of department and discipline (quite apart from the level of enterprise and system) are taken away, weakened, and/or overshadowed, by competing forces exogenous to units of faculty. Put differently, the process illustrates deprofessionalization. Second, it may be said that these specific changes in and transfers of authority leave in question precisely how the professoriate should be

studied and understood. In this sense, the professoriate is de-centered from analysis, in that the story, once of and about the academic staff, is increasingly a story of other things. The subject of professors begins to get co-opted by research concerns increasingly formulated as matters of management and governance. Department and discipline remain real entities, but interests in the state and the market have increasingly occluded them, both tangibly and intellectually.

Like Enders, Finkelstein (2015) seeks to develop a conceptual framework of international academe that is responsive to the most contemporary conditions. Finkelstein's approach is to posit five provisional models of the professoriate loosely tied to specific national contexts around the world. The models include: (1) the state-centered model; (2) the institutionally anchored model; (3) the part-time professional model; (4) the communitarian model, and; (5) the hybrid model.

The *state-centered model*, exemplified by nations such as Germany, France, and Italy, is distinguished by the terms of faculty employment. Faculty are government, not institutional, employees, and thus operationally faculty are hired, promoted, and rewarded by a central government. While state-centered, the model also entails measurable faculty control, because the central government does not dictate orders, and because institutional powers tend to be weak in light of de facto state-organizing authority. A consequence is a splintering of authority hierarchically, in which senior academic staff, or chairs, are markedly differentiated from junior academic staff (Finkelstein, 2015, pp. 321–322).

The *institutionally anchored model*, exemplified by nations such as the United States, the United Kingdom, and Canada, is an opposite of the state-centered model. Individual universities operate as the units in which academic careers are pursued, regulated, and rewarded. In contrast to the state-centered model, careers are more predictable and paths to seniority clear. Disciplines are arranged horizontally into academic departments that emphasize collegial control over hierarchy, even in the presence of a system of academic ranks (Finkelstein, 2015, pp. 322–323).

The *part-time professional model*, exemplified especially by Latin American countries, is characterized by centralized government control, weak institutional administrations, and a largely part-time faculty. Throughout Latin America, faculty consist of groups of professionals who teach part-time in professional education programs that confer a first academic degree in fields such as business, engineering, law, and medicine. For the most part this has entailed an absence of a full-time university faculty, and academic appointments are understood as ancillary to professional careers outside of institutions. Generally, little concern thus exists about trajectories of academic careers, and faculty, owing to a weak institutional integration, play little role in university governance (Finkelstein, 2015, pp. 323–324).

The *communitarian model*, exemplified by China in particular, stresses the idea of community in which members both live and work. First academic appointments are often based on sponsorship by current members, who may also possess family or social ties to recruits. As Finkelstein (2015, p. 324) states, "The university is a place of residence, family and community life, leisure and commercial activity—as well as work." Careers in this context of community are predicated not only on academic obligations but also informal rules of communal life. Indeed, according to

Illustrative Figure	Core Ideas
Jurgen Enders	Reformulation of Clark's "triangle of coordination" to incorporate new actors
	Centrality of: • "stakeholders" • "university management" • "other university members"
Martin Finkelstein	Responsiveness to contemporary plurality of professoriate
	Centrality of Models of the Professoriate • State-centered model • Institutionally anchored model • Part-time professional model • Communitarian model • Hybrid model

Chart 6.3 Key elements of the contemporary tradition in studying the professoriate comparatively

Finkelstein, disciplinary responsibilities are secondary to community ones (Finkelstein, 2015, p. 324).

Finally, the *hybrid model*, exemplified most approximately by Japan, is argued to include at least one major element of the preceding four models. Japan's professoriate is significantly differentiated by the public versus the private sector. The public sector operates more akin to the state-centered model, while the private sector more akin to the institutionally anchored model. At Japan's national universities, faculty exert considerable authority even as budgets are allocated from a ministry. Budgets are in turn determined by precedent rather than by enrollment or research productivity. By contrast, in the private sector, the ministry sets enrollment targets, but individual institutions determine faculty appointments and working conditions (Finkelstein, 2015, p. 325).

In Chart 6.3 I list the core ideas, discussed above, that are used with the illustrative figures associated with contemporary formulations of studying the professoriate comparatively.

6.2.2   Center and Periphery

Many of the major analytic frameworks for understanding the international professoriate comparatively, whether articulated decades ago or more recently, make use of a metaphor, expressed both in the empirical bases of the frameworks and in their theoretic formulations. The metaphor consists of *center and periphery*. In its usage in higher education, "centers" refer to loci of the most important thought, great

intellectual energy, and the source from which transformative intellectual power flows. By turn, "peripheries" are places outside the center where intellectual activity can occur but on smaller scales. Their definition is set in terms of their relationship to a center. Centers are endowed with charismatic authority, peripheries not so. Sometimes the usage of the metaphor is explicit, as in the work of Ben-David (e.g., 1977) and Altbach (e.g., 2003), at other times implicit, as in Clark's work (e.g., 1983). Elsewhere, such as with Enders and Finkelstein, they are not specifically used. Empirically, the major comparative frameworks, such as those of Ben-David and Shils, as discussed in the preceding sections of the chapter, have been based on examinations of the most mature and/or most successful higher education systems, where arguably the oldest and/or most successful instantiations of the professoriate are found (i.e., Britain, France, Germany, and Continental systems writ large, and the United States). These are *centers*. What remains is the *periphery*, where specific cases of a national professoriate are proximal to the center in varying degrees (e.g., Japan's professoriate is closer to the idea of a center than that of South Africa's, even as South Africa's professoriate has developed significantly over time, and is thus closer to a center than it once was). Most of the major frameworks use this metaphor in turn to make comparative inferences about the professoriate, both in its instantiations at the center (explicitly the task of Ben-David's and Clark's master works) and in its instantiations on the periphery, vis-à-vis a far or near center (explicitly the task of Altbach's work [e.g., Altbach, 2003]). Clearly, though, in comparative work on the professoriate of the most theoretic sort, Britain, France, Germany, and the United States have been covered far more extensively than other countries, a point not lost on those of us who study academics (Musselin, 2011, pp. 423–424).

Forms of the professoriate and the issues affecting it, as found at the center, are mirrored on the periphery. Thus, by this orientation, despite cultural differences across national systems, and extending from affluent to middle-income and developing countries, forms and problems of the professoriate are finite. They are versions of something, having previously played-out in some way, somewhere else. As Altbach (2003) argues, a generalized evolution is explained by the fact that universities in industrialized countries set the patterns for all countries. Musselin has explained that "[d]eveloping countries are therefore in a world of 'peripherality' or, to put it more crudely, in a situation of dependence on resources, importation of knowledge, access to technologies, attractiveness, value setting, and the like. As a result, the academic profession in those countries is the same as the academic profession in industrialized countries writ large..." (Musselin, 2011, p. 427). Using African nations as a point of reference, Altbach elaborates that the French model was imposed by colonial power in many countries on the African continent, "but that even in Ethiopia, [and outside of Africa, in] Thailand, and Japan, where foreign academic patterns were not imposed, European models prevailed over existing indigenous academic traditions. Following independence, when developing countries had the chance to change the nature of the university, none chose to do so" (Altbach, 2003, pp. 3–4). Parallel points are made about many Asian nations and still other African nations with respect to the British model of higher education (Altbach & Umakoshi, 2004; Ashby, 1966).

In its usage in higher education, and for the study of the professoriate specifically, the center-periphery construct owes its formulation to the thinking of Shils (1961 [1975]). And we may note how a line of professional descent between Shils and Ben-David and between Shils and Altbach helps to account for the importance that this device has played in the oeuvre of these exceptionally creative and influential scholars. As Shils conceived it:

> The center, or central zone, is a phenomenon of the realm of values and beliefs. It is the center of the order of symbols, of values and beliefs, which govern the society. It is the center because it is the ultimate and irreducible…The central zone partakes of the nature of the sacred…The center is also a phenomenon of the realm of action. It is a structure of activities, of roles and persons, within the network of institutions. It is in these roles that the values and beliefs which are central are embodied and propounded…The section of the [world] population which does not share in the exercise of authority and which is differentiated in secondary properties from the exercisers of authority, is usually more intermittent it its 'possession' by the central value system. For one thing, the distribution of sensitivity to remote, central symbols is unequal…Furthermore, where there is more marginal participation in the central institutional system, attachment to the central value system is more attenuated (Shils, 1961 [1975] p. 3 &13).

Center and periphery concern fundamentally degrees of societal *integration* into an order of things, in this instance, an integration of formal learning, teaching, and discovery into a society and culture. Some higher education systems are highly developed, that is, highly integrated into the broader order and fabric of a national culture and society. This integration is both cause and consequence of a system's linkages to other systems around the globe. Other higher education systems are less integrated, and, once upon a time, still others had yet to be developed (e.g., Brazil's first university, the University of Rio de Janeiro, was created in 1920 and remained the country's only university for many years [Schwartzman, 2011]). By further example, the present higher education systems of Myanmar and North Korea are comparatively undeveloped and thus, by this conception, comparatively peripheral to the central zones of higher learning (Altbach, 2016, p. 244). Still, the cases of Myanmar and North Korea are now ones of only a handful of national higher education systems around the world that are this nascent.

This fact directs us to a larger point. Rise in post-secondary enrollments around the world exerts pressure on peripheries to develop. Development is modeled on other systems. The systems found in Central and Eastern Europe, for example, are directly patterned on the German model (Altbach, 2002); many systems in African nations are patterned on the University of Paris and increasingly on the American model (Altbach, 2003), and so on. Thus, "centers" multiply; some peripheral systems develop to become more central. New peripheries—emergent systems in countries, and new institutions in developing systems—are born to accommodate new demands for higher education, science, and technological training. This growth and mimicry results in an expanding institutionalization of finite forms and, also, of problems that arise in them (e.g., how to deal systemically and institutionally with continued growth; how to compensate a professoriate amidst competing demands on the State; how to recruit and, in effect, constitute a professoriate, and the like).

6.2.3 Theoretic Puzzles: Convergence & Differentiation

A present concern in the literature on the international professoriate encompasses the idea of *convergence*. The idea holds that, where once the professoriate was highly differentiated by country, it is increasingly isomorphic, insofar as its basic form and accompanying problems are concerned (Shin & Kehm, 2013; Teichler, 2014b). Convergence is an expression of institutional theory in the field of sociology (Meyer & Rowan, 1977; also Meyer, 1977; Meyer, Kamens, Benavot, & Cha, 1992; Meyer, Ramirez, & Soysal, 1992). Institutional theory is an explanation of change in educational systems, structures, and their content (Bentley & Kyvik, 2012).

> …institutional views stress the dependence of local social organization on wider environmental meanings, definitions, rules, and models. The dependence involved goes well beyond what is normally thought of as causal influence in the social sciences: in institutional thinking, environments constitute local situations—establishing and defining their core entities, purposes, and relations (Meyer, Ramirez, Frank, & Schofer, 2007, p. 188).

Meyer et al. (2007) argue that the form and meaning of higher education has been institutionalized throughout the world. This means that constructs such as "university" or "professor" or "student" or "course" "may be locally shaped in minor ways but at the same time have very substantial historical and global standing" (Meyer et al., 2007, p. 187). What is more, "universities and colleges, together with their disciplinary fields and academic roles, are defined, measured, and instantiated in essentially every country in explicitly global terms" (Meyer et al., 2007, p. 188). Institutional theory predicts isomorphic change in education organizations and in the professoriate in ways that mimic the practices found in the most successful (e.g., highly-ranked) universities and related national systems (Bentley & Kyvik, 2012). The university and its constitutive parts are, by this view, universalizing as part of a world society (Ramirez & Meyer, 2013).

This theoretic view, while itself institutionalized and influential, is contested. Cummings (2003), in a comparative study of six countries—Germany, France, England, the United States, Japan, and Russia—offers an historical comparative view of the evolution of educational systems. Cummings adopts a perspective that follows ideas of the sociologist Max Weber, in which national systems may be viewed as ideal societal types. Each type promulgates a "concept of the ideal person," which tend to be resistant to change. When change does occur, it tends not to involve dramatic, structural transformation, but refinement of preexisting patterns (Arnove, 2005).

This perspective harkens back to Clark (1983; 1993a), who specified that changes in higher education systems occur in contexts of local traditions, historical circumstances, and cultural contexts. In outlining distinct archetypes of education, Cummings averts a unilinear theory of modernization, as indicative of an institutional approach. He acknowledges a degree of convergence in which Western nation states have diffused educational templates internationally. But Cummings assigns greater importance to ongoing variations and the survival of distinct organizational forms

(Davies, 2004). Cummings' project is to demonstrate the cultural plurality of institutions of education. He thus rejects arguments of global isomorphic change.

Institutional theory and the idea of convergence are also marred by seeming contradictions in the research literature. On the one hand is the idea of growing sameness; on the other, an idea of intensifying difference. For example, Enders speaks of a "profession of professions." "Faculty are the heart and soul of higher education and research. But they are not one heart and one soul. . .the idea that there is a single academic profession becomes more and more contested" (Enders, 2011, p. 9). Separate disciplines and fields may, for example, be taken as distinct professions. Drawing on Clark (1987a), Enders (2006) identifies four important axes that differentiate the academic profession internationally: discipline or academic specialty, sector or institution, an internal ranking system, and national differences (also Clark, 1987b). Teichler (2010) and Altbach (2016), among others, explain how the contemporary international professoriate is marked by a growing *diversification* on a wide range of counts.

Further, seeming contradiction is evident in ideas of "community." Institutional theory, with its isomorphic claims, could be interpreted as possessing a power to lay a ground for a sense of "one-ness" or "we-ness" in an international professoriate. Yet scholars of the professoriate have made just the opposite claims. Much to the contrary, they instead speak repeatedly of a *fracturing* of the professoriate, in single nations let alone the world at large, into many segments, and to the decline of a sense of community (Altbach, 2002, p. 162, 2016, p. 286; Clark, 1987a; Hermanowicz, 2009).

What is interesting theoretically is that the *same* force is attributed as the causal driver of convergence on the one hand and differentiation on the other. This is, namely, the force of *massification*, which makes the conceptual contradictions more analytically fulsome. By turn, enrollment growth is said to drive systems and institutions to be more alike globally; at the same time it is attributed as a differentiating force on multiple levels—institution, national system, and international educational form. These apparent contradictions require analytic reconciliation. A possible course of such reconciliation is to suggest theoretically, and empirically verify, a convergence in *structure* of higher education *systems* globally, but a splintering in the *culture* of *institutions*—that is, in how academic work is experienced by academic staff. By this account, systems around the world are growing in size and consolidating in structure. But consolidation of structure does not shield (and may even facilitate) the effects of size on culture, and thus community. Such examples of theorizing require empirical treatment and focused analytic attention. The identification of massification as a carrier of such significant structural and cultural change for the professoriate is itself so notable a point that it merits its own attention. It is thus a subject to which we turn.

6.2.4 Growth and Accretion

Trow's classic 1974 essay was prescient, beginning with its first sentence:

> In every advanced society the problems of higher education are problems associated with growth…These problems arise in every part of higher education—in its finance; in its government and administration; in its recruitment and selection of students; in its curriculum and forms of instruction; in its recruitment, training, and socialization of staff; in the setting and maintenance of standards; in the forms of examinations and the nature of qualifications awarded; in student housing and job placement; in motivation and morale; in the relation of research to teaching; and in the relation of higher education to the secondary school system on the one hand, and to adult education on the other—growth has its impact on every form of activity and manifestation of higher education (Trow, 1974 [2010], pp. 88–89).

Trow's timelessly relevant contribution was to underscore a universalistic dynamic force in modern higher education systems. As Clark (1993b, p. 263) has put it: "The base similarity of modern systems of higher education is that they become more complex," and this similarity and complexity are at once adduced to be driven by expansion.

Customarily in the research literature, the subject of *growth*—explicit or implied—is student enrollment. But it is a mistake to believe that strictly student enrollment is growth's sole modifier. While Trow paid close attention to the profoundly altering force that enrollments exert on higher education systems, including the shape, form, and character of the professoriate, his concern for growth was not restricted to "numbers of students."

His concern, and those of select others, extended to "growth in what universities take on to do," which, one might say ironically, creates dysfunction. The growth extends from the addition of particular academic and/or professional schools (engineering, medicine, health, and law, for example) to the addition of particular offices (such as health clinics, career and placement centers, study abroad programs, student social and extracurricular programming). One might say this is ironic because universities assume greater responsibilities in the name of service: to serve more people and constituencies, and in so doing to serve them better. Yet much is often compromised by this growth: clarity of mission, and an ability to do all things well.

Smelser (2013) has offered a theory of accretion, in which higher education grows by adding functions, structures, and constituencies, but seldom sheds them, resulting in increasingly complex organizations. For Smelser, accretion embodies a theory of system- and institution-level change. In practice, accretion entails the very kinds of problems posed by rises in enrollments as indicated by Trow. A major theoretic point is not to restrict causal attributions of change in higher education, including growth in the global professoriate, to student numbers (Metzger, 1987). Instead it is more theoretically robust to understand expansion in terms that encompass both growth in enrollment and accretion in function. To date, however, far more attention has been paid to the former than to the latter.

The United States was the first country to create a mass higher education system. It has thus been also a system, but clearly by no means the only system, in which to see and study dramatic effects on, and structural and cultural consequences for, the

professoriate. Given its first brushes with massification, the United States has served as a model for other countries to examine as they opened access to higher education (Altbach & Forest, 2011). Mass access to higher education is now a reality in most of the world. Industrialized countries enroll approximately 30% of the relevant college-going age group, and developing countries will confront major enrollment growth in the next decades (Altbach & Forest, 2011, p. 2). Indeed China has already eclipsed the United States as the largest academic system in the world, even though it presently enrolls about twenty percent of its college-going age group (Altbach & Forest, 2011, p. 2). Dramatic growth has only just begun to occur in parts of the developing world such as sub-Saharan Africa and in the countries of Southeast Asia. Still, of the ten largest open-access universities in the world, nine are in developing countries (Altbach & Forest, 2011, p. 2). What is more, in response to demand, a private sector of higher education has grown significantly in many parts of the world, including in countries where once the public sector dominated, such as in several countries in Latin America (Altbach & Forest, 2011).

Finally, it is worth making explicit an additional set of patterns that have come to characterize the professoriate on an international scale, and which operate—again ironically—in correspondence with the patterns of growth and accretion. These corresponding patterns consist in *narratives of decline* (Enders & de Weert, 2009b, p. 251). Everywhere in the world, the professoriate is said to be "in decline." Perhaps the academic profession, wherever it has existed, has always been in decline, at least in perception. The perception has certainly existed for at least four decades, evident in *Academics in Retreat* (Deutsch & Fashings, 1971), *The New Depression in Higher Education* (Cheit, 1971), "The Crisis of the Professoriate" (Altbach, 1980), *The Decline of Donnish Dominion* (Halsey, 1992), *The Academic Profession: The Professoriate in Crisis* (Altbach & Finkelstein, 1997), *The Decline of the Guru* (Altbach, 2003), *Whatever Happened to the Faculty?* (Burgan, 2006), among numerous sources. The decline is seen as all-encompassing, affecting the whole of the academic enterprise. Still another critic summed it up as *The University in Ruins* (Readings, 1996).

If there is decline, then it must represent a fall from some high point. This point is often attributed, and attributed hagiographically, as the "golden age" of the years spanning roughly 1945 to 1970, particularly in the United States (Thelin, 2011). Still, the point in time, or an era, is not decidedly clear. Musselin (2011) argues that if we want to talk of decline from one point to another, we need to be able to measure change between any stated set of points. She thus calls for better, more systematic measurement of what is stable and what changes in the occupational conditions of the professoriate.

The "decline narratives" seemed to have assumed a greater potency especially in the early 1970s and thereafter. Today, the sound of alarm has achieved an apparently feverish pitch. This may be for valid reasons. Feller (2016), in his essay, "This Time It Really May be Different," argues that the historic resiliency of higher education may be unable to withstand the extent to which Federal and state government funding has eroded. It is precisely this erosion that accounts for the transformation in the very way the professoriate is constituted, exhaustively documented by

Schuster and Finkelstein (2006), through dramatic shifts in types of faculty appointment (also Finkelstein, Seal & Schuster, 1998). In aggregate, in the U.S. system, non-tenure line faculty now out-number traditional, full-time, tenure-line appointments (Schuster, 2011). This shift is in the midst of being witnessed internationally (Altbach, 2003; Altbach, Reisberg, Yudkevich, Androushchak, & Pacheco, 2012; Altbach, Androushchak, Kuzminov, Yudkevich, & Reisberg, 2013; Finkelstein, 2010). Finkelstein's part-time professional model is self-demonstrative of the pervasive trend.

The sense of decline corresponds with real growth. "Another inevitable result of massification has been a decline in the overall standards and quality of higher education" (Altbach & Forest, 2011, p. 2). Here again, much of the research literature treats rises in student enrollment as the major if not sole object of growth, but we know that growth extends to function (Smelser, 2013). Thus perceived decline may have ties not simply to massification but also to organizations whose accretion de-centers and alienates faculty. "Academics increasingly work in large organizations and are constrained by bureaucratic procedures" (Altbach, 2002, p. 162).

There are many other specified reasons for perceived decline, both in the United States and in the professoriate of societies throughout much of the world: the rise of state and market control, managerialism, neoliberalism, the corresponding degradation of collegial control, the diminished quality and altered type of faculty appointments, the preparedness, commitments, and motivations of students, and so on. But if we believe Trow (1974 [2010]), all of these problems have their source in *growth*. It is thus again ironic to recognize that amidst arguable fruition in systems (in global access to higher education and in the functions that higher education takes on) there is perceived, if not also measurable, demise in the professoriate. "Despite the fact that the academic profession is at the core of the university, the professoriate has suffered a decline in status and remuneration in many countries, at precisely the time when higher education has moved to the center of the global knowledge society" (Altbach et al., 2012, p. xi).

Recalling Chart 6.1, the foregoing sections of the chapter have identified and explained the key characteristics of the major *conceptual frameworks*, both classical and contemporary, to studying the international professoriate comparatively. Charts 6.2 and 6.3 summarize the core ideas associated with illustrative figures connected to the respective classical and contemporary formulations in studying the professoriate comparatively. The discussion has sought to encourage ways, either by emulation or adaptation, to organize contemporary empirical and theoretic inquiry into comparative analysis of the professoriate. The exercise exposed other significant theoretic issues as central to considering past as to future work on academics. These matters include a dominance of a guiding theoretic metaphor to account for variation (and, implicitly, change) in the international professoriate, *center and periphery*; theoretic puzzles in which the *convergence* of structure and form is said to occur at the same time *differentiation* is postulated; and the importance, historic yet intensifying, of *growth and accretion*—in enrollment of students and in the functions performed by institutions—as forces that alter the professoriate. Growth and accretion are

conjoined by widespread beliefs about decline in the professoriate around the world. Decline, and a multitude of other conditions of the professoriate—"real" and "perceived"—are, in principle, a prerogative of empirical examination. It is thus the subject of the most current empirical and analytic inquiry into the international professoriate to which we turn.

6.3 Part 2: Topical Forays

Referring again to Chart 6.1, part two of the chapter focuses on topical forays that are illustrative of current comparative work on the professoriate. Specifically, four major clusters of work animate prevailing inquiry into the international professoriate. At times these clusters of work are empirical. More often they are analytical and descriptive, an artifact of attempting to undertake comparative work, in which comparison can in many instances most profitably be made with broad heuristic approaches. A recent surge of specifically empirical work, conducted under the auspices of an international set of projects entitled "The Changing Academic Profession" is, to significant degrees, not truly comparative but rather engages in country by country reports. The topical clusters constitute a ground on which bona fide comparative work on the professoriate has been undertaken. There are many other topics as it were that pertain to professors, and as the bibliography contained herein implies, but they often are topics in a substantive isolation or which belie comparison. The clusters of topical forays here treated in turn include: *academic freedom*; *contracts and compensation*; *career structures and roles*; and an account of the "*Changing Academic Profession*" *project*.

6.3.1 Academic Freedom

Academic freedom is an idea so closely associated with the professoriate, at least in the West, that it assumes a defining characteristic of the professoriate. Within the West, academic freedom, both as a principle and as a practice, has become very strongly linked to the system of academic tenure as found in the United States, even though its origins lay elsewhere and date to a time that far precedes the development of American higher education (Hofstadter, 1955; Hofstadter & Metzger, 1955; Metzger, 1951, 1961). Yet for its centrality, it is understood, interpreted, and applied variously to instances where it is thought to be exercised or violated (Schrecker, 1983). Further still, academic freedom may also be taken to apply to students, administrators, and institutions. It was, in part, with an appreciation of students' academic freedom in Germany where an American preoccupation with it began in the nineteenth century (Cain, 2016; Metzger, 1967). Nevertheless, agents of its pluralistic understanding, interpretation, and application are often academics, particularly in systems of higher education where academic freedom is, ironically, the

most "well-developed." Few if any academics "take a course," or some part thereof, in their educational training on what academic freedom may or may not be; most of them also do not understand what a profession is and is not. Instead they mimic and manage to create a plentitude of tolerable or semi-tolerable ways to practice and behave in one (cf. Kennedy, 1997; Shils, 1983), and may invoke "academic freedom" when they perceive some aspect of a purported civic freedom has been violated. What is more, its centrality to dominant national systems of higher education in the West lends academic freedom to another of those ideas that is readily willed as a normative condition of the academic profession throughout the world. How can one have a professoriate without academic freedom? The answer, as it turns out, is locatable in many parts of the world.

A traditional understanding of academic freedom, construed in the Western world, has been advanced by Shils (1991), and it is worth quoting at length:

> Academic freedom is a situation in which individual academics may act without consequences that can do damage to their status, their tenure as members of academic institutions, or their civil condition. Academic freedom is a situation in which academics may choose what they will assert in their teaching, in their choice of subjects for research, and in their publications. Academic freedom is a situation in which the individual academic chooses a particular path or position of intellectual action. Academic freedom arises from a situation in which authority—be it the consensus of colleagues in the same department, the opinion of the head of the department, the dean, the president, the board of trustees, or the judgement of any authority outside the university, be it a civil servant or a politician, or a priest or a bishop, or a publicist or a military man—cannot prevent the academic from following the academic path that his intellectual interest and capacity proposes. Academic freedom is the freedom of individual academics to think and act within particular higher educational institutions, within the system of higher educational institutions, and within and between national societies (Shils, 1991, pp. 1–2).

This understanding, by turn, permits inference as to what academic freedom is not, again as thought about by Shils (1991):

> Academic freedom is not the freedom of academic individuals to do just anything, to follow any impulse or desire, or to say anything that occurs to them. It is the freedom to do academic things: to teach the truth as they see it on the basis of prolonged and intensive study, to discuss their ideas freely with their colleagues, to publish the truth as they have arrived at it by systematic methodical research and assiduous analyses. That is academic freedom proper (Shils, 1991, p. 3).

Still, the protection and enforcement of academic freedom, even in those systems where it is most valorized, such as the United States, is left essentially to an organizational ether. University administrations are understood as quasi guardians of academic freedom, yet they (or specific members of them) are often the objects of reported violations of professors' academic freedom. Faculty panels may be convened to assess specific cases that allege an infringement upon academic freedom, but such panels rarely possess statutory authority; the operationalization of their conclusions is thus organizationally problematical. Professional associations, including but by no means limited to the American Association of University Professors (AAUP) in the case of the U.S., may take stands in defense or support of academic freedom and seek to intervene on behalf of specific persons whose academic

freedom is believed to have been violated, but these associations have no administrative authority over universities, colleges, or institutes. Public admonishment, an inconsistent, non-binding, and financially costly mechanism, is an association's only corrective tool for social control. Even colleagues, however once trusted, close-by, trained in an area, informed about a case, or professionally acquainted with an individual or individuals, cannot be depended upon to uphold principles of academic freedom on which their very own livelihoods purportedly rely. "It should not be thought that academics always desire and strive for the academic freedom of their colleagues" (Shils, 1991, p. 14). Indeed the point connects to the observation in the literature discussed below that threats to academic freedom differ in their origins. In developing countries the threats are external to universities in the form of the state, other ruling bodies, or individuals. In the United States in particular the threats are often understood to come from within the university itself (Altbach, 2002, 2003). The latter should not be viewed as a luxury compared to the former.

The beginnings of academic freedom are themselves testimony to internationalism. European universities in the Middle Ages were self-governing to a degree (Rashdall [1895] 2010). But the church and/or the state controlled them in vicissitudes for centuries. As modern science emerged in seventeenth century England (Merton [1938] 2001) and as the partaking in research and scholarship began to spread in the eighteenth and nineteenth centuries throughout Europe (Zuckerman & Merton, 1971), an interest in the protection of free inquiry intensified. Students who pursued advanced education did so in Europe, and especially Germany, where many of them became professors, and where, consequently, the idea of *Lehrfreiheit* emerged: "the right of the university professor to freedom of inquiry and to freedom of teaching, the right to study and to report on his findings in an atmosphere of consent" (Rudolph, 1962, p. 412).

Modern notions of academic freedom, even in Europe, began to coalesce in the nineteenth century and on into the early- and mid-twentieth century with the ascendance of the research role performed by academics and the increasingly research-minded institutions that employed them. Yet the point should not be lost that a broader interest in freedom of thought and teaching pre-dates these considerations. McLaughlin (1977) has explained how assertions of scholarly freedom in the thirteenth and fourteenth centuries at the University of Paris constitute a legacy of protections in the pursuit of knowledge. Indeed, Cain (2016) notes that the term *scholastic freedom* is traceable to Pope Honorius III in the thirteenth century (see also Hoye, 1997). Owing to the length of life of the general idea across time and cultural contexts, it is unsurprising that understandings of academic freedom, in any one society, let alone many of them, have evolved (Russell, 1993), have consequently become plural (Brown, 2006; Fish, 2014; Metzger, 1988; Shiell, 2006), and are thereby also availed to misunderstanding and mis-application (Goldstein & Schaffer, 2015; Schrecker, 1983; Shils, 1991).

That there might or should be simply one way to construe academic freedom, as promulgated by Shils (1991) or Rudolph (1962) and many others, is something of a modern paradox. Academic freedom is often assumed by many to be a necessary condition for an authentic academic profession wherever professors are employed.

"Academic freedom is a core value of higher education everywhere. Without it, quality teaching and research are constrained. . .Academic freedom is so much a part of the lifeblood of the university that it is today taken for granted" (Altbach, 2004, p. 2). In reality, these three declarations are empirical matters. It is equally transparent that national systems of higher education vary in their cultural, social, and political settings, traditions, and histories. To say that the conceptions of academic freedom offered by Shils, Rudolph, and others are "normative" is accurate in a limited theoretic sense, but it nevertheless averts the socio-historic reality in which academics practice in many parts of the world. We will come to see in this chapter how it is challenging to offer a universal definition of a "professor," among many other elements that are theoretically constitutive of an academic profession. The same may be said of "academic freedom."

What are the conditions of academic freedom around other parts of the globe? In general terms, academic freedom as an ideal has, in the U.S., applied to the classroom, the laboratory, and the public sphere (Altbach, 2002; Shils, 1991). In Western Europe, the ideal is more restrictive; it applies to teaching and research within the university and is circumscribed by areas of expertise (Shils, 1991). Broadly speaking, the Western European tradition attempts to reflect the idea of *Lehrfreiheit*, as noted above, as well as that of *Lehrnfreiheit*, the freedom to learn, which highlights the historic instrumental role that students played in the formation of this tradition. Nevertheless, one can find permutations in how academic freedom is conceived even within Western Europe (Cavalli & Moscati, 2010), and certainly between it and Central and Eastern Europe, the Nordic countries, and Russia (Altbach, 2002; Rostan, 2010).

Based on a comparative analysis of Western and Sinic (or post-Confucian) higher education systems, Marginson (2014) argues that differences in enactments of academic freedom reflect variations in state traditions and political cultures.

> The Western and English-speaking traditions speak especially to the power of individualism, to knowledge as an end in itself (though this is contested by government) and state-society relations and the contribution of universities to the broader public sphere, civil discussion and democracy. The Sinic tradition speaks to the good of the collective and individual aware of the collective, to the applications and uses of knowledge for ultimately practical ends (here there is more agreement in the East, than in the West, between university and state) to pluralism within the state and the securing of state responsibility and good government, and to the social leadership role of universities (Marginson, 2014, pp. 39–40).

Zha (2011 p. 464) casts further light on distinctions between West and East, China specifically: "Westerners focus on restrictions to freedom of choice, whereas Chinese scholars looking at the same situation focus on responsibility of the person in authority to use their power wisely in the collective interest" (quoted in Marginson [2014, p. 36]; see also Yan, 2010). Yet also consider views that beg to differ, as in: "Chinese academics routinely censor themselves. Criticism, loss of jobs, or even imprisonment, they understand, can result from publishing research or opinions that contradict the views of the government" (Altbach, 2007, p. 49).

These types of distinctions have been thought about in terms of "negative" and "positive" freedoms. "Negative freedom" consists of a *freedom from constraint*.

People shall *not* be physically or intellectually barred from activities. By contrast, "positive freedom" consists of the active *capacity to do good things.* People *shall* be able to do what they want to do, which lead to constructive ends (Berlin, 1969).

As Marginson argues, both set-ups for academic freedom—paradigmatically East and West, positive and negative—contribute to intellectual life. They do so, however, in distinctive ways, and both are compatible with a free exercise of academic roles, though the substantive content of faculty members' work and aims of their roles are different in the Western and Eastern contexts concerned (Marginson, 2014).

Marginson emphasizes the additional point that even in the West, academics rarely have the opportunity to engage in "blue-sky inquiry." Many of them are required to raise money and to tailor their research and teaching to the needs and interests of clients, sponsors, and governing authorities (Marginson, 2014). If, for example, professors' are compromised in their ability to assign grades independently or to produce research and scholarship as they see fit, they become "managed professionals" (Rhoades, 1998).

Furthermore, differing freedoms may apply to academic disciplines and professional fields of work. Fields vary in how much they tolerate plurality—in assumptions, premises, theory, methods, and other conventions. Marginson suggests that mainstream economics, for example, is less tolerant of dissent than social theory (Marginson, 2014). For these reasons, according to Marginson, the idea of a "universal" academic freedom lacks validity. Academic freedom is not for Marginson a concept divorced from time and place—as if locked in a state of "paradisiacal being"—but is, rather, "a set of relational human practices that are irretrievably lodged in history and changing in time and place" (Marginson, 2014, p. 26).

He thus calls for the conceptualization and study of academic freedom in ways that balance universal qualities with local, contextualized enactments of it. Academic freedom is imputed normatively, but also exists in empirical categories (Marginson, 2014). We can thus imagine many versions of academic freedom that reflect their cultural nestling.

Tierney and Lankford (2014) rebut such an argument as historically deterministic: "current actions are inevitably [interpreted as] the result of a country's particular traditions" (Tierney & Lankford, p. 19). They argue on behalf of academic freedom as an international imperative. By their account, the forces and realities of *globalization* authorize a *willing* of academic freedom, as understood historically in the West, upon academics everywhere. "Academic freedom, as a transcendent value, needs to be protected regardless of location...a threat to academic freedom in a faraway land, regardless of geography, is a threat to academic freedom everywhere" (Tierney & Lankford, 2014, p. 20).

Rostan (2010) similarly argues that globalization, short of serving as only an economic term, changes the purpose and function of academic work throughout the world. By this reasoning, academics can be viewed increasingly as workers employed to advance the economic interests of their home country, independent of (or stripped from) cultural tradition (Tierney & Lankford, 2014). Based on data from academics in Finland, Germany, Italy, Norway, and the United Kingdom, Rostan

(2010) examines the extent to which academics perceive a government demand for "relevance" to intrude into the academic profession. Rostan finds support to the idea that specifically teaching evaluation, research funding, and ties to economic sectors link academics to external actors. These linkages operate as mechanisms by which expectations of social and economic relevance intrude into the professoriate and constrain academic freedom. Aarrevaara (2010), focusing on Finland as a case, and using the same base of data, makes closely similar assertions that tie demands for relevance to constraint in the practice of academic work and teaching.

As with "relevance," academic freedom gets tied-up in the political movement of "accountability," which is itself found in an increasing number of national contexts throughout the world. Enders (2006, p. 11) underscores these points further still: "...more and more faculty around the globe realize that academic freedom does not necessarily include a protection from social and economic trends affecting the rest of society. Growing interests in strengthening the accountability and responsiveness of higher education to society form part and parcel of the realities of twenty-first century academe everywhere." Consequently, we may observe how higher education scholars posit a demand for a universal academic freedom, while at the same time many such scholars note increasingly global ways in which it is compromised. Altbach (2007, p. 49) has offered the additional paradox by seeing that "academic freedom is far from secure in many parts of the world," yet "also more widespread in the early 21st century"—a phenomenon attributable to the growth and development of academic systems around the world, as discussed in the previous section of this chapter.

Academic freedom in a limited number of national systems, particularly the United States, is strongly associated with tenure. But globally, most systems of higher education do not have tenure. This fact begs the obvious question of how academic freedom, however construed, can exist in an absence of tenure protections. Answers to the question are not straightforward, but are rather, again, seen by many as conditioned by histories and traditions, long or limited, that situate professors' work in a relationship between the state and higher education (Altbach, 2003). The issue is encumbered by the additional fact that a very large and increasing number of academic staff throughout the world are employed in part-time positions or in other types of positions with fixed contracts (Altbach et al., 2012). This, too, is a consequence of global growth and accretion in higher education (Altbach, 2016; Shin & Teichler, 2014a).

The reality that academic freedom is understood differently in different parts of world makes comparison difficult—a recurrent theme of the present chapter (Altbach, 2002). This very likely accounts for the relative paucity of explicitly empirical treatment of academic freedom in international comparative focus. We do not even know, for example, but only infer through a Western lens, that academic staff outside the West take academic freedom as importantly as those in the West, most especially the United States. They may in various ways, but they still work without it, strictly speaking.

Those who have ventured to make comparative assertions about the actual operation of academic freedom do so by implying an empiricism but are in actuality

writing in general, observational terms. This has value, because it is all that we have with which to understand academic freedom in several systems throughout the world. The degree of generality and absence of empirical elaboration place limits, however, on our current means to analyze academic freedom comparatively.

Altbach (2002) notes that academic freedom is now more robust in central and eastern Europe, as well as in Russia, than it was in the former Soviet period. The idea that professors ought to have freedom in research, teaching, and expression is reportedly gaining greater acceptance in the political and social spheres. In Latin America, full-time permanent staff are a small proportion of the academic labor force, but even full-time academics have little job protection. There is not tenure, but there is de facto security; rarely are they let go (Altbach, 2003). Many universities in developing countries, including in Latin America, operate as centers for activism and incubators of social movements (Altbach, 2003). In addition, especially in developing countries, the history of higher education is an expression of state control (Altbach, 2003). This combination of forces places limitations on academic freedom in these substantial parts of the world.

Philip Altbach, who has been a long observer of, and has written about the global conditions of academic freedom, perhaps more than anyone else, has suggested the creation of a "world academic freedom barometer," akin to global measures of human rights. The idea places on a differentiated scale efforts that are an impetus behind groups such as the former Network for Education and Academic Rights (NEAR), sponsored by UNESCO (Akker, 2006), the Foundation for Individual Rights in Education (FIRE), as well as the *Scholars At Risk Network*, whose mission is to protect scholars and promote academic freedom (see: https://www.scholarsatrisk.org/). Definitional difficulties notwithstanding, Altbach proposes six qualitatively-based categories into which academic systems might be placed (Altbach, 2001, pp. 210–217):

1. Severe restrictions—systems where academic freedom is non-existent, such as those of Myanmar, Iran, North Korea, and Syria.
2. Significant limitations and periodic crisis—systems where academic freedom may exist in small degrees but accompanied by significant restrictions, as in the systems of China, Viet Nam, and Cuba.
3. Tension in the context of limited academic freedom—systems that have general academic freedom but only where classroom and research activities are not considered sensitive by the state, characteristic of many countries in Africa and Asia.
4. Academic freedom with limits—systems that impose formal restrictions on topics of research and forms of public expression, such as those of Singapore and Malaysia.
5. Re-emergence of academic freedom—systems where academic freedom is gaining strength, such as those of Latin America, Eastern and Central Europe, and Russia.
6. Industrialized countries—systems where academic freedom is most strongly established, such as the United States and modern Japan and Germany.

Finally, *academic freedom* and *autonomy* have come to be terms used interchangeably and confusedly. Let us remind ourselves that they are distinct. Academic freedom, in whatever society and culture it may exist, personifies individuals—teachers, scholars, researchers, students, and administrators. No human individuals of any time or place are autonomous; many universities in the world strive to be, but even in those countries where their autonomy is most complete, they are not fully autonomous. No university has been or could be completely autonomous (unless it were a strictly private commercial enterprise). University autonomy is:

> the freedom of the university as a corporate body from interference by the state or by the church or by the power of any other corporate body, private or public, or by any individual such as a ruler, a politician, government official, publicist, or businessman. It is the freedom for members of the university, acting in a representative capacity and not as individuals, to make decisions about the affairs of their university (Shils, 1991, pp. 5–6).

In the case of institutional degrees, for example, the right to award them has historically been a privilege conferred through a charter granted by a state or church (Shils, 1991). "Those who acknowledge the degree believe that it has been authorized by the highest authority in the society, be that authority the church or the state" (Shils, 1991, p. 6). As another example, the case of academic appointments represents an occasion in which university autonomy is constrained by a process wherein ministry officials decide on the acceptable candidate, as found in the German system, or where the decision is made by a national appointed body other than the state, such as a group of academic representatives from many universities, as found in the French and Italian systems (Shils, 1991).

The financial dependence of universities on outside bodies creates a condition for infringement on the autonomy of institutions (Shils, 1991), and sometimes also on the academic freedom of persons working and studying in institutions. This has been understood for a very long time. Further, the degree of autonomy that institutions enjoy can affect the conditions in which professors work, including the extent of their academic freedom, as illustrated in discussion above concerning especially parts of Asia, Africa, and Latin America. It is also true that infringements upon institutional autonomy can affect academics' perceptions of, as opposed to their actual, academic freedom. In this sense the conditions of autonomy affect the satisfactions academics possess about their professional lives. But this may have nothing to do with academic freedom as such.

Academic freedom and autonomy are analytically and empirically separate; neither are they necessarily proportional to each other. The universities of the Middle Ages, for example, had from time to time arguably much autonomy, but staff had little academic freedom (Rashdall ([1895] 2010; Shils, 1991). In the contemporary United States institutional autonomy may be said to have eroded, especially in the public sector (Rhoades, 1998). But the freedom enjoyed by academics there is substantial. As autonomy is a property of institutions, not the professoriate, I thus leave the full subject of autonomy to reviews about institutions.

In summary, academic freedom is often viewed as a core element of the academic profession. But academic freedom does not exist formally in most colleges,

universities, and institutes around the world. Its close ties to the tenure systems in the United States makes it serve as a model that is dominant in the West. And yet even where it is most institutionalized, as in the U.S., it is enshrouded with difficulties in its definition, application, and defense. Whereas threats to academic freedom in most parts of the world are external (i.e., having their sources in the State or other ruling bodies), in the West threats are more often internal, that is, having their origins within institutions themselves. Understandings of academic freedom are not fixed. Rather they have evolved and become plural. Like other elements of the professoriate, the plurality of academic freedom renders it difficult to make country by country comparisons. Still, because it is vital to academic work in all places where teaching and research are undertaken, empirical comparative research on academic freedom awaits.

6.3.2 Contracts and Compensation

The global institutionalization of higher education, along with the effects that massification is bringing about around the world, corresponds to a relatively new concern for how academic labor is contracted and paid for. Research on contracts and compensation of the international professoriate, now having begun, essentially did not exist prior to a dozen or so years ago. Moreover, contracts and compensation of academic labor pertain of course to academics throughout the world, but this corner of the literature on the professoriate is dominated by U.S. researchers. This may owe itself to the fact that the U.S. system was the first to massify and consequently the first to employ on a large-scale non-regular faculty as a departure from a norm. Given that European, Asian, and Australian researchers are highly engaged with the topics of massification and managerialism (e.g., Altbach & Umakoshi, 2004; Arimoto, 2010; Azman, Jantan, & Sirat, 2009; Enders, 2001a; Kwiek, 2012; Locke, Cummings, & Fisher, 2011; Marginson & Considine, 2000; Maassen & van Vught, 1996; Shin & Teichler, 2014b), and because of the intensifying centrality of higher education to most countries, and because of perceived world-wide worry about the decline of the professoriate as discussed earlier, it is quite likely that the subject of contracts and compensation will see a spread of research work around the globe. It is not today a theoretically exciting subject, and one can have doubts about it ever being so. Scholars could theorize compensation in an account of academic labor, or study contracts toward a theory of stratification, but there is practically no current evidence of such endeavor. Such work is on hand through alternative lenses of career structures, to be discussed in the next section of this chapter. Like purely demographic profiles, contracts and compensation are a timely subject that will likely sustain crude-level empirical interest and possess a kind of value. It is also important to note that some of the work described below includes systematic measurement of compensation and thus—unlike a substantial sweep of inquiry into other subjects pertaining to the international professoriate— provides a strong basis on which to examine change over time.

The most comprehensive treatment, Altbach et al.s' (2012) work, is based on a study of 28 countries across six continents. Altbach et al.s' (2013) work is a complement to the prior study that retains a concern for contracts and compensation while focusing on the "BRIC" countries—Brazil, Russia, India, and China, in addition to the United States. In general, tenure systems entail well-defined parameters of contracts and compensation, but, as previously noted, most national higher education systems lack formal tenure policies. Where they exist, tenure systems are highly evaluative in their operation; contracts and compensation are thus outcomes of intensive peer review. The professoriate in other countries, such as Brazil, Germany, and Saudi Arabia, is part of the civil service, and thus terms of employment and pay are determined by the civil service. Employment terms and compensation are customarily structured by length of service and rank, rather than by evaluation (Altbach et al., 2012).

In many systems without formal tenure (and also without explicit academic freedom), even those that rely preponderantly on part-time teachers, as in Latin America, academic staff are understood to be rarely dismissed (Altbach et al., 2012, p. 7). Thus, world-wide, comparatively few academics work in systems offering formal tenure, but most academics allegedly work with virtual tenure. "There is. . .a certain degree of inertia in the academic culture of many systems, leading to nearly automatic contract renewal except in cases of gross negligence" (Altbach et al., p. 15).

Formal and "virtual" tenure are not, however, to be mistaken for each other. In Great Britain, for example, formal tenure was eliminated as part of the restructuring of its higher education system in the 1980s. Lord Jenkins, the chancellor of the University of Oxford, created a coalition involving Tory and Labour leaders to include in the major Higher Education Bill of 1988 the provision that academic staff "have the freedom within the law to question and test received wisdom, and to put forward new ideas and controversial or unpopular opinions, without placing themselves in jeopardy of losing their jobs or privileges" (Crequer, 1989, p. 11). Shattock (2001) explains that while academic staff in Great Britain receive the protection of the Jenkins amendment, institutions are able to terminate their contracts with three months' notice subject to "redundancy" provisions. This authority has been used to accommodate enrollment declines in specific departments and financial shortfalls in specific institutions (Shattock, 2001, p. 38).

In order for international compensatory comparisons to be made, researchers speak not of salaries but of remuneration, since it is a convention in many parts of the world, especially in developing countries, to pay academic staff not only by basic salary but also by supplements, bonuses, allowances, and subsidies (Altbach et al., 2012). What is more, in most of the countries studied by Altbach et al., academics earn additional money through employment in varieties of academic and non-academic work (Altbach et al., 2012). The capacity to maintain a standard of living by one's main academic position applies to a minority of national higher education systems in the most developed countries of the world where, too, in the course of their own beginnings, this was not possible to accomplish (Geiger, 1999; Rashdall [1895] 2010). In the most developed higher education systems of the world

it took time measured in centuries for academe to develop into a full-time occupation that enabled financial self-sufficiency.

Currency conversions alone are an inadequate means by which to compare compensation. Recent work has used the purchasing power parity (PPP) index, which takes into account variation in the cost of living across countries (Altbach et al., 2012). The index is based on an item or set of items (a basket of goods) whose prices are compared to the equivalents in a reference country. Remuneration is in turn adjusted using the index, in conjunctions with the Penn World Tables (Heston, Summers, & Aten, 2011), in order to arrive at more meaningful compensation comparisons.

Altbach et al. (2012) report base academic salary ranges for regular academic staff at public institutions in the countries represented; the salary ranges include three points of data—entry-level, average, and top. The highest academic salaries are found in Canada and South Africa, the lowest in Armenia, Russia, and China. At middle levels are Japan, France, and Norway (Altbach et al., 2012, table 1.1., p. 11). Academic staff are able to sustain a comfortable living standard on their base academic salary alone in less than half of the countries studied (Altbach et al., 2012). For a listing of the importance that academics assign to specific alternative sources of income, by country, see Altbach et al. (2012) table A.5. The authors contend that major systems—in Japan, Germany, Israel, and the United States, among others—will find it difficult to recruit young talent to academia if salaries do not improve in these countries. The authors also recognize that by aggregating data from institutions in the public sector, the results exclude a rapidly growing private sector of higher education in several countries, China foremost among them, and mask significant differences across institutional types within the public sector in various countries (Altbach et al. p. 9 & 16).

Enders and Musselin (2008) call attention to several trends in academic salaries (excluding other types of remuneration) in European countries. First, they argue that the relationship between academic and non-academic salaries within a country are influenced by the degree of massification in higher education, which by turn affects the size of a cadre of academic staff. As the rate of student access to higher education increases, salaries become less attractive, and a gap widens between academics and Ph.D.-holders who opt to work in non-academic sectors.

Second, they contend that salary variations among academics within countries increase as more assessment and performance measurement is used. This effect is moderated by societal context, wherein academics employed as civil servants are firstly compensated according to civil service pay scales. But in countries with less standardized salary schedules, the effects of differentiation apply to academics, as to members of other labor forces who have also been subject to commensurative performance evaluation (Espeland & Stevens, 1998).

Third, Enders and Musselin (2008) argue that salary differences among countries have intensified. This is accounted for by variations in economic development, but also by a pattern, noted above, wherein when non-academic salaries are more differentiated, so are academic salaries. Consequently, a gap grows between countries where overall economic growth has been relatively weak and/or where

differentiation has also been moderate from those countries exhibiting stronger growth and greater salary differentiation. Countries where academic salaries are comparatively low are more likely to turn to other components to supplement income, including housing subsidies, stipends, and special loan provisions. These complements to salary can operate as comparative advantage, even at times against some countries whose higher education systems are highly developed but whose prevailing economic performance has been damp.

Finally, Enders and Musselin (2008) state that multi-affiliation develops when regular employment does not provide adequate income to academics, a point elaborated upon by Altbach et al. (2012), as detailed above. Enders and Musselin (2008) draw attention not only to Latin America, where this phenomenon is long-running, but also to countries of the former Eastern Block, as well as Poland and Russia, where academic salaries are frequently complemented by additional work in and/or outside of academia (see also Kwiek, 2003; Slantcheva, 2003; Smolentseva, 2003).

A notable strength of Enders and Musselin's work is found in the undercurrent of comparison to non-academic labor markets (see also Enders & de Weert, 2009b). A contemporary and heretofore inadequately addressed question—will academic work become less attractive?—is situated among employment options. Enders and Musselin (2008) contend that many of the changes in academia (expressed variously as concerns about salary decompression, managerialism, transformations in loci of control over the terms of work, and the like) are found in non-academic labor arrangements throughout Europe if not also many other parts of the world (Chandler & Daems, 1980; Edwards, 1979; Hodson, 2001; Kalleberg, 2011; see also Musselin, 2009). Where academic work can be seen as less attractive than it once was, so can many other types of work in historical comparison. The core issue for Enders and Musselin (2008) is the *relative* attractiveness between academic and non-academic types of employment.

International mobility is often construed as a related pattern of globalization. This is true, for example, among many undergraduate students and "study abroad" programs, as well as in graduate and professional education where students leave (and sometimes do not return to) their home countries in order to obtain training in better institutions located elsewhere. "Brain drain," "brain gain" are the colloquialisms used to acknowledge some degree of increased frequency of these behaviors. A greater occurrence of international collaboration among scholars and scientists is also testimony of globalism (Altbach, 2016, p. 10; Huang, 2009).

But when it comes to academic staff, those who are appointed at a university in a given country are not only very likely to remain in that country but also to never move from their initial place of faculty employment. This pattern holds across the world (Altbach et al., 2012). It is true even in the most developed higher education systems—in Germany, France, Britain, Italy, Japan, the United States, to name only a few (Altbach et al., 2012), which reflects both the constraints of structure in hiring and advancement in careers of specific systems (e.g., Germany, France, Italy) and constraints on institutions to hire regular, full-time academic staff at both junior, but most especially senior, levels. There are exceptions to the patterns—some

individuals do of course move among institutions and between countries—and where they are found, they concentrate in the most developed systems and typically display exceptional achievement, but they nevertheless remain exceptions that demonstrate the more general pattern (Altbach et al., 2012; Musselin, 2005a, 2005b). The United States is arguably the most fluid system for specifically inter-institutional mobility among faculty, but still about one-third of academics remain at their first institution of academic employment, and another third move only once over the entirety of their academic career (Schuster & Finkelstein, 2006, p. 208).

Research on contracts and compensation has to-date generally excluded part-time academic staff. This is a significant omission, since the use of such staffing, largely interpreted as a consequence of massification, has become normalized in universities throughout the world. Musselin (2011, p. 429) has noted a need to study and better understand "casual staff" who comprise an "invisible" or "shadow" workforce. This need applies to the contracts and compensation of part-time academic staff, as much as to other facets of their work, including their educational backgrounds, training, and career characteristics, professional trajectories, and employment conditions. To act on any such need, however, under the rubric of the international academic profession or of a professoriate commits the observer to including such types of staff as constitutive parts of these bodies. This presents a conceptual juggernaut whose resolution is evaded, not confronted, by a prevailing fashion of speaking about a profession or professoriate in the honorific sense as a plural noun.

It is unlikely that part-time or itinerant academic staff anywhere self-identify as members of "the academic profession," because they understand that they are not members of a profession in the proper sense (see Hermanowicz, 2009, note 11, pp. 295–296). Electricians, though in many countries possess a license which makes their work critical, typically do not say that they are members of the electrical profession. Even in Latin America, where academic staff consist centrally of a part-time labor force, it is unclear whether they understand themselves as members of an academic profession, or rather as members of legal, medical, and other professions, semi-professions, and occupations who in turn teach at universities on a part-time basis. Part-time and temporary academic staff in perhaps all parts of the world are more likely to answer affirmatively that they teach or work at such and such college, school, or university. To study them is indeed important, for they perform much work on behalf of universities and in the name of the academic profession. This is not the same as saying they are the academic profession in any given place.

6.3.3 Career Structures and Roles

The widespread existence of ranks for faculty personnel across national systems is suggestive of the idea of *career*, even amidst permutations among systems in nomenclature, phase duration, sequencing, and role expectations. For illustration, a consolidated listing of ranks as operating in 28 national systems of higher education

can be found in Altbach (2012, appendix A1). In the case of academic staff, we may understand a career "to be the set of hierarchically ordered and professionally relevant positions within a field or discipline in which entrance and progression are regulated by peers" (Lawrence, 1998) *and/or* external bodies, such as a government ministry, national assembly, or the state.

Enders (2006) posits two dominant career structures for academic staff: the *chair-model* and the *department-college model*. The chair model is marked by a deep separation between a professional core who hold tenured positions (often as part of the civil service) as chairholders and a largely untenured class of junior academics who aspire to senior positions as they pass through two or three career stages of relatively long duration (Enders, 2006, p. 13). In Germany, the start of an academic career actually pre-dates the conferral of the Ph.D. Staff are employed on contracts for approximately six years, and then for up to another six years upon receipt of their degree as part of a second formal qualification phase (Kehm, 2006). Incumbency in a junior position is not understood as an inevitable path to promotion. Appointment to senior professorships is made only after a national search (Altbach, 2002).

Chairs possess considerable independence and power, junior staff comparatively little. Junior academic staff are often employed at the will of a doctoral supervisor or chair-holder (Kehm, 2006). Chair-holders are also often affiliated with and directors of institutes which accentuates their authority and deepens their independence from university controls (Neave & Rhoades, 1987). Similar disciple-apprentice relationships and controls are predominant in the career structures found in France (Musselin, 2006). The structure is expressly hierarchical and indeed premised on the idea of patronage in which aspirants to full-fledged professorships are highly dependent on individual chair-holders both for admission into academia and for subsequent career advancement (Neave & Rhoades, 1987, pp. 211–212). A version of the chair-model is found in Japan where the arrangement permits just one powerful senior professor in each department (Altbach, 2001, p. 167). For an extended description of the chair-model and career processes as paradigmatically found in Germany, see Enders (2001b).

By contrast, a department-college model is both more collegial and egalitarian, even as it displays divisions by rank and corresponding authority. Academic staff in lower ranks up to full professor generally carry-out the same basic functions; status in all ranks, not only the most senior, is more greatly dependent on achievement, rooted in demonstrated expertise, and conveyed by recognition garnered from the academic community (Enders, 2006, p. 13). In this model, probationary periods are shorter, promotion into tenured positions comes earlier, and intermediate career phases are more regularly organized (Enders, 2006, p. 13). Junior academics understand themselves as incumbents on a career path of promotion to one or more advanced ranks; such advancement does not entail an open search. There is thus greater predictability and continuity about the career structure.

Groupings of academics are organized into departments overseen by a head. The headship rotates among members of the senior faculty, a further dispersion of authority. Desire to hold a headship is typically inversely related to the prestige of the department or institution (Blau, 1973). Among active scholars, individual

professors in a well-reputed department understand how authentic status is won—through scholarly, not administrative, achievement; in such departments, consequently, very few people actually desire to be head. Less reputed departments and institutions exhibit more bureaucratic forms of organizational control. In such settings, bases of status are pluralized, and they include administrative roles. Consequently, some professors actually aspire to headships and other administrative posts; this variation in structure is more hierarchical than its purest counterpart just articulated, but nevertheless more egalitarian than the chair-model. The tenure-track system in the U.S. is indicative of the department-college model (Enders, 2006, p. 13).

Neave and Rhoades (1987) argue that the British system stands midway between the structures of Western Europe and the U.S., even as the early U.S. system was inspired in an organizational way by the clusters of colleges at Oxford and Cambridge. In Britain a departmental structure is linked to a version of the chair system. Chair- and department-college models thus run in parallel, with greater drift to the latter. Faculty stand above departments but without a hierarchy of vertical control (Neave & Rhoades, 1987, p. 217). They function as intermediaries and advisors and respond to initiatives coming from other professors and from deans (Neave & Rhoades, 1987, p. 217). Departments have power over chairs and all professors, and they thereby constrain autocratic behavior exercised by chairs over junior staff (Neave & Rhoades, 1987, p. 217).

Enders and Musselin (2008) offer a variation on the above patterns while maintaining most of the main elements indicative of the chair- and department-college models set forth in other works (Enders, 2006; Neave & Rhoades, 1987). They argue that everywhere, careers have been based on a two-stage process: the first stage is characterized by apprenticeship, selection, and time-limited positions; the second stage by permanent position (Enders & Musselin, 2008, p. 4). But massification has differentiated career structures into three predominant models in which a greater variety of career patterns are evident, including a prevalent use of part-time academic staff discussed in this chapter's prior section (see also Finkelstein, 2010). These models include: the tenure model, the "survivor" model, and the "protective pyramid."

The tenure model, corresponding most directly to the U.S., selects some Ph.D.s for tenure-track positions of a specifically limited duration, which leads to the tenure procedure—the complex review of a candidate to make his or her existing position permanent. While this model has been described as an "up or out" process, in actuality very few faculty members are "pushed out" of the professoriate altogether. They are rather pushed out of specific institutions. Junior academics who are not awarded tenure at their institution are more apt to take tenure-line positions at other universities. Depending on the conditions of the position, which reflect the constraints of specific institutions, these new posts either require the individual to work toward a second tenure review, or the individual is appointed with tenure in light of demonstrated achievement.

The survivor model, most indicative of the chair-system as it has operated in Germany, puts candidates, after having received a Ph.D., through trials that are

meant to provide evidence of talent and in a wait for a permanent position. Only those who survive these long periods and open competitions involving many candidates become the individuals selected for a limited number of senior professorships (Enders & Musselin, 2008).

The "protective pyramid" depicts the public systems of Italy, Spain, and France. Access to a permanent position occurs relatively early after a highly selective tournament, in which a panel of senior academics assesses and ranks the merits and prospects of a set of candidates. The panel may include a candidate's doctoral supervisor—a nod to the chair system and customs of patronage. Once chosen, different categories of positions are organized hierarchically with procedures that lay out promotion of some from one category to another. But the career structure does not assure promotion. A rise within the pyramid is contingent on the growth rate of the overall pyramid and the age/seniority of those at the top (Enders & Musselin, 2008, pp. 3–4). For in-depth treatments of career structures and advancement processes where this model is found, see Chevaillier (2001) in the case of France, Moscati (2001) in the case of Italy, and Mora (2001) in the case of Spain. The Dutch system presents a melding of forms as it has sought to remove appointive authority from the Crown and retain the civil service linkage to the professoriate while attempting to grant more power to departments and universities (de Weert, 2001).

These models and their distinctions notwithstanding, we may additionally observe the introduction of a multitude of means by which to evaluate academics—regardless of a historically situated career structure and regardless of the power that any given structure endows or fails to endow individual academics. What is more, the ascendance of evaluation applies to a broad array of roles that academics perform. The proliferation is not confined to research performance, even though research activity and publication productivity arguably have been made the most commensurate of the academic roles, but extends increasingly to teaching and service roles, where varieties of examples of peer review and/or administrative oversight, both internal and external to institutions, are evidenced in the control of academic work. The Research Assessment Exercises in Britain are an extreme illustration of this pattern (Lucas, 2006); the idea of an analogue in the form of teaching assessment exercises is an equally extreme illustration. Other illustrations, representing both formal and informal mechanisms of control, are readily at hand in the supervision of expenses, travel, and even speech and behavior (Bilgrami & Cole, 2015; Enders & Musselin).

Throughout the world the professoriate has entered an era of hyper-monitoring. It is easy to interpolate how such controls affect academic freedom (where traditions of academic freedom exist). But we await explicit study of the contests between the *control* of academic work on the one hand, and *freedom* in academic work on the other. Fundamental to this tension is the idea of *trust* (Cook, 2001; Kramer & Cook, 2004). Trust is in turn key to professional occupations (Parsons, 1949). An interactive matrix of control, freedom, and trust constitutes a topic possessing crucial theoretic and practical significance.

How do academics get jobs, and enter one of these prototypical career structures? To the extent that comparative work on academic labor markets and hiring processes

is available, the answer is that conventions are entrenched in national traditions. There is arguably greater plurality in the norms that govern recruitment and hiring than in the structures that organize careers once academics are on the inside. Career structures avail themselves to greater analytic consolidation; recruitment practices are more idiosyncratic.

Nevertheless, Musselin (2010) has produced a theoretically robust study that compares the hiring practices for academics at research universities in France, Germany, and the United States. Universities are characteristically understood to operate according to principles of meritocracy (Hermanowicz, 2013). But Musselin's work goes to show that in practice this is often far from the case. In her terms, the processes of academic labor markets are based less on considered judgment than on price. Markets interact with procedures internal to universities and departments.

For Musselin (2010), hiring processes are composed of three components: "the construction of job supply" (deciding that there is a job to be filled); "the judgment phase" (evaluation of candidates' scholarship, teaching, and other activities); and "pricing" (the determination of work conditions, duties, and salary for the successful candidate). These tasks are performed by different sets of people in different national systems. With respect to "the construction of job supply," research ministers in Germany determine which positions to fill. In France, national authorities authorize positions. In the United States, a university provost controls all academic positions, allocates them to deans of colleges and schools within an institution, and then deans in turn allocate them to heads of departments.

Importantly, Musselin sees merit playing an understated role in the "judgment phase" in processes found across the three systems. Hiring committees actively and explicitly work against a clock; they seek to secure candidates for further scrutiny before they are lost to other universities, and before the position is revoked. It is clear that in the United States, at least, that these conditions do indeed work against meritorious hiring. Faculties of departments are extremely reluctant not to fill a line for fear of not getting the line back from the dean the following year. It is at this very point where all kinds of compromises and rationalizations—antitheses of merit—are made by department faculties who are about to hire. The decisions entail effects for departments for decades; at most U.S. universities, especially in the public sector, hiring decisions are now effectively tenure decisions, owing to deeply-rooted departmental concerns that faculty will not easily get a replacement line, and almost certainly not at an equivalent level of seniority, should they let someone go. These behaviors, at these specific junctures in hiring processes, are very likely among the most powerful in lessening, even destroying, the long-term quality of departments and programs in higher education. It is a strike against rational decision-making for a department to believe it is better-off with having hired someone sub-par than going without having hired anyone at all. Musselin implies that such compromises and rationalizations—a consequence of clock-work combined with imputed fears about how hiring systems operate—also infect the French and German systems, although these systems may possess greater capacity to let go or not promote incumbents.

Musselin (2010) observes in all three systems during the judgment phase that very little actual reading of work produced by candidates is done by screening committees. This is yet another blow to meritocracy. The lack of reading candidates' work by most people in any way connected to the hiring weakens meritocratic operation in multiplicative fashion. It may be said that many academics obtain their positions without academic colleagues (and administrators) having read much if any of their work. And this likely holds for both junior- and senior-level hiring. Instead, listings of work (in the form of a vita), and campus visits in the the case of the U.S. and *auditions* in the case of France, operate as principal sorting mechanisms (Musselin, 2010).

What is more, in all three systems Musselin finds that "personality" figures prominently in hiring (Musselin, 2010). "Personality" is thought about by faculties both for how they imagine a candidate getting along with colleagues and for how well they would be able to teach. We can add that "personality" may also be used as a proxy of future voting behavior, in those systems where the person filling the position has voting privileges. Hiring is thus a process by which current academics protect themselves, which can have little if anything to do with "merit."

Finally, according to Musselin (2010), in the third phase—hiring—emphasis is not on the candidate, but on price. In France, the price is fixed by a national index of the civil service. In the United States, department heads negotiate with deans about the market price, which now varies by field; heads weigh-in on what departments of comparable quality are paying; and heads assess a candidate's competing offers, the quality of the candidate next in the queue, and the salaries of current faculty members (Musselin, 2010; Tuchman, 2010). For non-comparative, country-specific views of hiring practices and job conditions of beginning faculty members, see Yudkevich, Altbach, and Rubley (2015a). For still additional work on early career paths and employment conditions in seventeen countries, see Bennion and Locke (2010). For other work on the broad issues of academic recruitment and career paths, see Galaz-Fontes, Arimoto, Teichler, and Brennan (2016) and Teichler and Cummings (2015).

By these varied observations on academic hiring, Musselin challenges traditional conceptions of reward systems and how they function (Merton ([1942] 1973a))— that is, academic life as meritocratically oriented. The principal foil is work of the late sociologist of science, Robert K. Merton, one of the great theorists of modern social science (Calhoun, 2010; Merton, 1957, 1996; Zuckerman, 1988). His work inspired many other scholars who wrote in an institutional tradition of understanding scientific and/or academic work and occupational settings, to which Musselin's efforts may be viewed as a complement (for a review of this work, see Hermanowicz, 2012).

Other research has found that inbreeding—the practice of a faculty hiring its own graduates without the graduates' having first established their professional careers at other institutions—is common in many parts of the world (Yudkevich, Altbach, & Rumbley, 2015b). The most recent comprehensive examination of these hiring practices covers eight countries consisting of Argentina, China, Japan, Russia, Slovenia, Spain, South Africa, and Ukraine (Yukevich, Altbach, & Rubley,

2015b) In many different parts of the world, inbreeding is not considered unusual or problematic. As a general phenomenon the practice has been in place for centuries, and is in many systems considered a point of pride, tied to an idea that institutions display a scarce charismatic authority by their capacity to retain the best candidates (Yudkevich et al., 2015b).

Counter perspectives hold that inbreeding, both as isolated occurrences as found throughout the world and as a systemic procedure found in many national systems as illustrated above, constrains meritocracy. Hiring is not viewed as open to the best available candidates. What is more, inbreeding is argued to institutionalize other counterproductive practices among faculties and make organizational reform more difficult (Yudkevich et al., 2015b). It may also hamper broad institutional goals of science and scholarship—to advance certified knowledge (Merton ([1942] 1973a, [1957] 1973b). Inbred faculty collectives are thought of as less open to new ideas and to ideas that challenge prevailing group "ways of knowing" and decision-making. Inbreeding is also associated with local, as opposed to cosmopolitan, work orientations (Gouldner, 1957–58). Consequently, such faculty tend to demonstrate greater loyalties to their employing institutions, rather than to their profession, field or discipline. In these ways, the scholarly ambitions and publication productivity of inbred faculty are weakened (McGee, 1960).

What roles do academics perform within a given way in which their career and work are structured? To many, the question may seem trite. In the most developed systems, the answer is the customary role-triumvirate of teaching, research and/or scholarship, and institutional/professional service roles—though even within these systems the distribution of time among these roles is highly variable for academics (Hermanowicz, 1998, 2009). From a global point of view, however, the professoriate is mainly a teaching occupation (Altbach, 2003; Enders, 2006). Massification intensifies this dominance, but even in the absence of massification this pattern would still hold true. As noted earlier, globally, many of those who teach in universities hold only a first academic degree, not an advanced degree or doctorate. This pattern is antithetical to research and scholarship. It also makes apparent that advanced professional qualifications are an instance of structural lag with massification (Riley, Johnson, & Foner, 1972).

Arimoto and Ehara (1996) have proposed a classification of work orientations that encompass national systems: a type with a strong research orientation, such as Germany; a type with an allegedly balanced emphasis on research and teaching, such as the United States; and a type with a strong teaching orientation, such as the countries of Latin America. This classification has utility, but at the same time it understates internal variation within types and understates the global pattern of teaching dominance. A model of work orientations that I have proposed to capture variation in career patterns of academics *within* one system—the U.S.—can be applied with requisite adaptations across national systems (Hermanowicz, 1998, 2005). A critical goal of such a model is to capture variation and simultaneously modalities in work patterns.

As for teaching, Altbach reports that in many parts of the developing world few classrooms contain anything more than the very basics of chairs and desks (Altbach,

2003, p. 17). Classes are large by international standards; the mode of instruction is consequently the lecture; teaching loads are comparatively high (Altbach, 2003, p. 17). In not too few places academics do not have a private office or even their own desk, let alone a computer or private email account (Altbach, 2003, p. 9). In developing countries of Africa and Asia, access to the internet remains mixed and, where available, with sporadic connection (Altbach, 2003, p. 9). Nevertheless, the internet remains a growing and crucial resource in these countries, and has been utilized to conduct distance education. Indeed, developing countries comprise seven of the ten largest distance education providers in the world (Altbach, 2003, p. 10). In general, academics in developing countries who hold doctorates are a minority, have earned them abroad, and introduce in their home countries a status hierarchy in which more favorable work conditions and responsibilities are leveraged (Altbach, 2003).

In a comparison of developed higher education systems across nineteen countries, Teichler et al., (2013) find variation in academics' preferences for teaching and research, but a tilt is generally observed toward research in most of the countries for both junior and senior academics (Teichler et al., 2013, see tables 5.1 and 5.2). Aggregating survey respondents of junior and senior career stages and fields, some differences are evident in publication productivity among these countries. The three top producers of articles are stated to be South Korea, Italy, and Japan (at an average of 11.3, 9.1, and 8.9 articles, respectively, per individual over the past three years); the overall average among the thirteen *most advanced* systems included is 6.7 articles (Teichler et al., 2013, see table 5.8 and p. 76 for explanation of division by country-type). The averages suggest a relatively high-level of publication output in the professoriate across many countries, which is a pattern that coincides with contemporary developments of managerialism and accountability (Enders, 2001a; Lucas, 2006), commensuration (Espeland & Stevens, 1998, 2009; Power, 1997), and organizational status competition as reflected in global rankings of higher education institutions (Shin et al., 2011; Yudkevish, Altbach, & Rumbley, 2016).

Related work finds differing results. Bentley and Kyvik (2012), for example, contend that working-time patterns vary significantly among academics even for those located in the comparatively advanced national systems of Europe, and that role preferences evince sharp divides between junior and senior academic staff. What is more, faculty members holding the highest professorial rank tend to demonstrate greater commonality and greater identification with the research role (Bentley & Kyvik, 2012). Cavalli and Moscati (2010), researching Finland, Germany, Italy, Norway, and the United Kingdom, similarly stress dissimilarity over similarity in work orientations. Studying academics in eleven European countries, Kwiek (2015, 2016) draws the significant conclusion that the top ten percent of highly productive faculty members produce an average of almost half of the research output. This was a condition that characterized the acceleration of the research university as an institutional form in the United States in the mid-twentieth century; a minority of researchers produced the bulk of publication (Cole & Cole, 1973). In the United States, this pattern no longer holds (Hermanowicz, 2016). Research has

become standardized with academic careers, even in a system noted for its range of institutional differentiation.

6.3.4 The CAP Project: Antecedents, Aims, Outcomes

Readers' attention is called to the flurry of work produced under the auspices of the *Changing Academic Profession* (CAP) project. The CAP involved a survey study of the professoriate in eighteen countries around the world plus the special administrative province of Hong Kong during the period 2004 to 2012. A team of over 100 researchers were involved in the planning, design, and fielding of the survey. In undertaking a project of this kind, leaders of the project readily acknowledged the many challenges in studying the professoriate in the prolific variety of socio-cultural contexts. The very terminology used in the project speaks of this complexity; terms such as "academic", "professor", "profession", "university" are neither universally applicable nor possess identical meanings across countries. Nevertheless, a generalized survey instrument was used in the project; the survey contained both identical and/or roughly similar questions for respondents in all countries, as well as questions directed more specifically to respondents in particular countries. The survey contained 53 questions, mostly closed-ended, that produced approximately 400 variables to be analyzed. For an elaborated discussion of the background, aims, and execution of the CAP project, see Teichler et al. (2013, pp. 1–35).

The CAP project was situated via three contemporary macro-level phenomena in order to contextualize how the professoriate is changing and in what ways it is responding to its environment in the given national systems examined. These phenomena included: *relevance*, that is, the nature of the linkages between the academy and external constituencies; *internationalization*, which involves the effects of globalization, and; *management*, the ways in which the professoriate is monitored, controlled, and regulated (Teichler et al., 2013, pp. 16–17).

Two additional major projects were launched from the CAP project. The first consisted of "The Academic Profession in Europe: Responses to Societal Change" (EUROAC). For EUROAC, six additional European countries were added to those European countries original to the CAP project—netting a total of 12. An almost identical survey instrument was used between the projects, enabling a merging of data. The second project consisted of an examination of the professoriate in Asia, led by researchers from Japan (Teichler et al., 2013, p. 19).

The CAP project and its two major off-shoots has yielded nothing short of an industry of publication on the professoriate as well as many related topics, flagged in the introduction of this chapter, that are connected to and/or bear on the professoriate. What may be fairly characterized as the core work emanating from the CAP, EUROAC, and Asia projects consists of 16 edited volumes, as part of a series entitled "The Changing Academy—The Changing Academic Profession in International Comparative Perspective," published by Springer between the years 2011 and

2016. For consolidated reference, and to stimulate use by other researchers, the volumes are listed below.

1. *The changing academic profession: Major findings of a comparative survey*. (2013). U. Teichler, A. Arimoto, and W.K. Cummings (eds.).
2. *Changing governance and management in higher education*. (2011). W. Locke, W.K. Cummings, and D. Fisher (eds.).
3. *University rankings: Theoretical basis, Methodology and impacts on global higher education*. (2011). J.C. Shin, R.K. Toutkoushian, and U. Teichler (eds.).
4. *Scholars in the changing American academy*. (2012). W.K. Cummings and M.J. Finkelstein (eds.).
5. *The academic profession in Europe: New tasks and new challenges*. (2013). B.M. Kehm and U. Teichler (eds.).
6. *Institutionalization of world-class university in global competition*. (2013). J.C. Shin and B.M. Kehm (eds.).
7. *Job satisfaction around the academic world*. (2013). P.J. Bentley, H. Coates, I.R. Dobson, L. Goedegebuure, and V.L. Meek (eds.).
8. *The work situation of the academic profession in Europe: Findings of a survey in twelve countries*. (2013). U. Teichler and E.A. Höhle (eds.).
9. *Teaching and research in contemporary higher education*. (2014). J.C. Shin, A. Akimoto, W.K. Cummings, and U. Teichler (eds.).
10. *The internationalization of the academy*. (2014). F. Huang, M. Finkelstein, M. Rostan (eds.).
11. *The changing academic profession in Japan*. (2015). A. Akimoto, W.K. Cummings, F. Huang, and J.C. Shin (eds.).
12. *Academic work and careers in Europe: Trends, challenges, perspectives*. (2015). T. Fumasoli, G. Goastellec, and B.M. Kehm (eds.).
13. *The relevance of academic work in comparative perspective*. (2015). W.K. Cummings and U. Teichler (eds.).
14. *Forming, recruiting and managing the academic profession*. (2015). U. Teichler and W.K. Cummings (eds.).
15. *Re-becoming universities? Higher education institutions in networked knowledge societies*. (2016). D.M. Hoffman and J. Välimaa (eds.).
16. *Biographies and careers throughout academic life*. (2016). J.F. Galaz-Fontes, A. Akimoto, U. Teichler, and J. Brennan (eds.).

In addition to these books, hundreds of articles have been published using data from the CAP, EUROAC, and Asia projects. A bibliography of these works, running 51 pages, may be found in the appendix to volume 16 (Höhle & Teichler, 2016). Selections of these books and articles have been incorporated into the present review when relevant to the discussion. Another round of the CAP project is underway at this writing.

The CAP project as a whole represented the second foray into studying the professoriate internationally by way of a survey. Its antecedent was, as customarily called, the "Carnegie Survey of the Academic Profession." The Carnegie project, conducted in the early 1990s, was initiated by Ernest Boyer and was carried-out in

14 countries plus Hong Kong. A short summary of results from the Carnegie project was initially published in 1994 (Boyer, Altbach, & Whitelaw, 1994). A more elaborate analysis was published in 1996 and included country reports (Altbach, 1996). A European analog, focusing on the attractiveness of the academic workplace, and also including a format of 19 individual country reports, was produced in 2004 (Enders & de Weert, 2004).

Cross-national work conducted with surveys, with all of its ambitions, and all the greater as more countries are added to the mix, provides researchers with industrial levels of activity. Some of this activity has been worthwhile. To what extent has the most recent storm of work pushed further our understanding of the professoriate? Finkelstein has commented that, "The new availability of vast reservoirs of data for comparison thus forces us to confront the question: how do we allow for salient features of national context to enter into our data analysis in ways that ensure that we provide appropriate nuance to our juxtaposition of the numbers?" (Finkelstein, 2015, p. 318). Indeed, in much of the latest work, as in parts of the past, the question is dodged: the work is "international" but in actuality not comparative (Altbach, 1977). Various topics of the professoriate are treated in one country alone, a point echoed by Musselin (2011, pp. 423–424). Teichler is candid:

> The relevance of [how academics are socially arranged and organized]. . .is by no means trivial for a comparative study. In some countries, the average number of publications produced by a person defined in this project as belonging to the academic profession might be considered to be an interesting piece of information. In other countries, this information might be considered as irrelevant as the average temperature across days and night across the whole year. . .(Teichler, 2013, p. 10).

How would Ben-David or Clark, discussed in this first section of this chapter, make sense of the enormity of empirical results produced by the survey studies of late? For all the emphasis on comparison in the CAP and related projects, *we do not have sufficient tools to actually compare*. We lack a compelling framework by which to properly account for both similarity and difference in a phenomenon found, now, globally: a global professoriate. 'Here is a pile of x. Here is a pile of y. There is a pile of z.' But how can we meaningfully make sense of their likenesses and non-likenesses? This is our chief theoretic task to enable advancement in the field. We must develop a structure by which to study the professoriate in order to speak meaningfully of categories and their relationship to each other.

The foregoing discussion has identified key topical forays of scholarship and research on the international professoriate by way of four major clusters of both strongly analytic and explicitly empirical work. These clusters have included the topic of *academic freedom*, most often examined with richly analytic lenses; *contracts and compensation*, a subject of practical though under-theorized significance that nevertheless lends itself readily to continued inquiry; *the career structures and roles* that organize the professoriate in many parts of the world; and, finally, an identification and circumscribed commentary on the *"Changing Academic Profession" project* and its related spin-offs that present a recent surge of empirical work on the professoriate.

6.4   Conclusion

I have addressed the subject of the international professoriate first by way of the theoretic foundations that have undergirded its comparative study and, second, by way of the topical forays that characterize the current broad clusters of analytic and empirical work. The narrative is depicted in Chart 6.1, which provides an organizational map of the chapter. I conclude with observations that concern future comparative scholarship on academics.

To recommend work to be undertaken on various topics is the standard summative procedure. I shall not do that. It is not especially the case that there are specific topics left uncovered by work on the professoriate. It would be foolish under the present circumstances of extant work to say that the subject of x, y, or z has yet to be studied or that the subjects of a, b, and c need to be examined. Something always needs to be studied; that is our business; but that is not where our most pressing challenges lie when it comes to comparative work on the professoriate.

To move forward, we need to take a long look and consider what researchers are, and have been, doing. The problem for future comparative scholarship on the professoriate—for it indeed to be scholarly, lies in *conceptualization*. Ben-David and Clark, for example, were excellent at conceptualization. So have been the likes of Teichler, Enders, Altbach, Arimoto, and Musselin. We need more of these kinds of minds—those who cultivate a scholarly reach and ambition to attempt serious work, in new, authentically comparative undertakings. Charts 6.2 and 6.3 provide ideas on which future formulations may be made.

Most current topics of study on the international professoriate are undertheorized or atheoretical. A broad sweep of prevailing empirical work is wholly descriptive and, in many instances, executed with but banal goals. This type of literature has been built so high it has begun to collapse upon itself. We could question how much would be lost if we were to dispose of the current survey work on the international professoriate and begin anew with a clearer vision for comparative work.

If we consider the most successful comparative work on academics, and there are many examples used deliberately throughout this review, it is possible to discern three essential qualities that distinguish it as a league of its own. The most successful comparative work on the professoriate is undertaken with a *theoretic* objective. The work seeks to explain, not only to describe. Ben-David and Clark sought to explain the social organization of academics in paradigmatic systems of higher education. Comparative thinkers might envision, for example, how to go about analogous studies that make demonstrative inroads into the East, and into the developing world, where actually quite little comparative work on the professoriate exists. Another strategy would be to overlay, in rigorous and elaborated fashion, the center and periphery idea on bodies of empirical work on the professoriate in many parts of the world. As explained in the prior section of this chapter, we are desperately in need of structure—of an organizing framework—by which to make global, and even partly-global, sense of similar and dissimilar patterns.

In addition to theory, the most successful comparative work on the professoriate roots itself in analytic *concepts*. The concepts work in conjunction with theory. Clark's theory of the social organization of academics put to work the concepts of authority, market, and oligarchy. He identified, for his purposes, why these concepts were central, and used them as central elements to formulate a theory. Ben-David, in his theory of academic social organization, focused on the concept of function wherein the burden for his work was to explain how organization arose from how systems of academics differently managed core functions. These are, to be certain, not the only concepts available. But good work needs conceptual rooting of some kind. It is noteworthy that in these two illustrations, the scholars were conceptually rooted in disciplines. They were not adrift in a boundaryless sea of a higher education arena. They could have been, for higher education was absolutely their domain, but they chose not to be. Sociology was their base. Clark brushed, if remotely, with economics. And they both had an abiding capacity for a third field—history—which is the third element of excellent comparative work on academics.

The most successful comparative work, on the professoriate, as undoubtedly on many subjects, is made possible by a deep understanding of *history*. One must develop, as these scholars did, and put to use, a working history of the subject that one goes about studying. There is tremendous historical depth to their work, and to other outstanding work on the professoriate. These two scholars, at least, were also consummate readers. Shils also read, widely and voraciously, to a nearly incredulous degree. They produced excellent work, but they also read *a lot*. This is very likely a root problem of the most recent attempts at work on the international professoriate. It is very likely a root problem now in all academic work. Students have stopped reading; their teachers have, too. In the United States, if not elsewhere, most professors do not as much anymore read the work of their own colleagues, while at the same time they impose more and more strenuous demands upon each other to produce this work. And yet I am talking about further reading beyond the work of one's immediate colleagues, beyond even one's own field, and beyond that of academic work. Reading hooks people up with ideas. Reading is not innate; it is a matter that pertains to the allocation of time. Academics' ability to allocate time for reading may *itself* exist an an obliterating object of neoliberalist forces (Berg & Seeber, 2016; Vostal, 2016; Wajcman, 2015). Academics must do better in their allocation of time for reading for the sake of a higher learning.

Ben-David, I will add, was also a keen listener. He wanted to "find-out." There is little doubt that this characterizes the habits of others' who create excellent work. Wherever in the world he travelled, Ben-David was more intent on asking questions and listening to people about higher education in their countries than he was on

speaking about it, even as he had much he could say.[1] It remains lamentable—it always will be so—that he indeed had more in store to give us. Short of formal training in history, listening to others, but especially reading, are the best tools by which to acquire history, and with which to create imagination that links the past to an understanding of the present.

It is obviously true that theory, concepts, and history are not all it takes. But they together constitute a great share of remarkable comparative work. If we are more deliberate in directing our attention to *theory*, *concepts*, and *history*, there is a chance of our producing in the future comparative scholarship on the professoriate that is, like some of its progenitors, outstanding.

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[1]Professor Ben-David died at the age of sixty-five in 1985, before I had the opportunity to meet him upon my arrival as a student at the University of Chicago in 1987. I know about him through his work and through others' direct contact with him. I credit especially personal communication with Ulrich Teichler in 2013 and 2015 at the annual meeting of the Consortium of Higher Education Researchers in Lausanne and Lisbon, with Teresa Sullivan in 2013 at the annual meeting of the American Sociological Association in New York, and with Charles Bidwell, Terry Clark, and Edward Shils over the course of many years between 1989 and 1999 in Chicago, in informing my remarks.

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Chapter 7
Categorical and Limited Dependent Variable Modeling in Higher Education

Awilda Rodriguez, Fernando Furquim, and Stephen L. DesJardins

7.1 Introduction

Often the types of outcomes that higher education researchers examine are represented by categorical variables. These may include dichotomous or binary dependent variables, such as whether a student enrolls in college or not, whether they persist to their sophomore year (or not), or whether they graduate. In addition to studying binary representations of underlying constructs, we are often interested in studying outcomes that are multi-categorical, also referred to as polytomous. These might include outcomes that have some natural ordering (i.e., are ordinal) or those that are not ordered but have multiple nominal categories (i.e., are "multinomial"). Examples of ordered outcomes include survey questions evaluating teaching with response categories of excellent, good, fair, and poor or a Likert scale of agreement where the categories include strongly agree, agree, neutral, disagree, and strongly disagree. In terms of multinomial responses, where no order in the relationships among the categories is evident, examples include a person's college choice (e.g., no college, attend least selective, selective, or most selective college) or college major choice (e.g., liberal arts, engineering, science, business, other).

In addition to there being binary and multi-categorical outcomes, there are also other types of outcomes that require specialized estimation techniques. These include variables where the range of values for the outcome are restricted due to

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censoring or truncation (known as limited dependent variables) and outcomes that are measured as counts or proportions. Examples of limited dependent variables include outcome values with ranges that are censored, such as income obtained from a survey with the top end of its distribution censored at some value (e.g., $150,000 and above). An example of truncation is when we examine the effects of a developmental program where students are placed into the program based on a placement test, but we only have observations for individuals whose test score was below some threshold. Examples of a count outcome are the number of applications a student sent to colleges, the number of AP classes a student took, or the number of students receiving Pell grants in a college. In terms of proportions, examples include the percentage of students in a college who are from underrepresented groups, the proportion persisting from the freshman to sophomore year, or what fraction in the public vs. for-profit sector default on their loans. The higher education literature is replete with studies examining binary and polytomous dependent variables, and to a lesser extent studies of limited, count, and dependent variables that are proportions.

When faced with estimating regression models with categorical or specialized dependent variables, researchers often simply employ linear (ordinary least squares, or OLS) regression. However, there are some well-known statistical and practical problems in doing so, including violations of important underlying assumptions when the dependent variable is not continuous, and problems (e.g., bias and/or inefficiency) with the estimates produced when using such an approach. Given these potential problems, knowing more about how to adequately model outcomes that are categorical or limited in some way is important. In an earlier edition of this Handbook, Cabrera (1994) provided a description of how to employ statistical models designed to deal with categorical dependent variable models, thereby providing higher education researchers with a grounding in these approaches. However, since Cabrera's (1994) chapter there have been important changes in the application of statistical methods to the study of categorical dependent variables. These include advances in the underlying statistical aspects of estimating such models, including an improved understanding about the strengths and weaknesses of some of the formal tests often used. There are also many new software packages available to estimate these models, with features that make estimation easier and improve our ability to interpret the results through tabular and graphical displays. Categorical dependent variable models are also widely used in software packages used to estimate some quasi-experimental models (e.g., propensity score matching; instrumental variable regression) now often employed for causal inferences. In addition, Cabrera's (1994) chapter focused almost exclusively on binary categorical dependent variable models. Given the ubiquity of the use of categorical dependent variables in higher education research, and advances in the application of these models, this chapter will build on Cabrera's (and others) work by (1) providing some of the conceptual and statistical underpinnings and rationale for the use of categorical and limited dependent variable regression models, (2) demonstrate how to estimate some of these models using a running example of a higher education issue, (3) provide examples of extensions of these models, and (4) to promote the use of the methods,

point readers to additional literature and (in the appendix) provide the statistical code (in Stata) used to produce the results from our running example.

In the next section, we introduce the empirical example we will use for much of the chapter. We use the study of student college choice because (1) it is an important issue in postsecondary education; (2) the topic and underlying mechanisms should be well-known to many Handbook readers, permitting them to focus on the statistical content; and (3) we have access to very current, national data not yet extensively used to study student choice. After introducing the running example and data, we focus our discussion on binary outcome models, then move on to a discussion of estimating multi-categorical outcomes, and finish the chapter with other limited dependent variables, including an example of modeling count outcomes and brief discussions on modeling proportional, censored, and truncated outcomes. Throughout the chapter, we insert in the text the Stata commands we have used for analysis, highlighting them in a different font. We also include much of the statistical code used to conduct the analysis presented herein in the appendix.

7.1.1   Studying Categorical Outcomes in Higher Education

Student college choice is one of the most studied phenomena in higher education research. In the context of changing landscape in college preparation, increased competition for admission, and concerns about college affordability, college choice remains an active area of inquiry. Many scholars pay particular attention to the ways in which student characteristics (e.g., academic performance, family background, prior schooling) are associated with college application and enrollment behavior– especially in the context of enduring social stratification in postsecondary education. Previous quantitative research into college choice has studied whether students apply to or enroll in college (Bielby, Posselt, Jaquette, & Bastedo, 2014; Roderick, Coca, & Nagaoka, 2011; Kim, DesJardins, & McCall, 2009); where students enroll (e.g., by institutional sector or selectivity, Belasco, 2013; Chung, 2012; O'Connor, Hammack, & Scott, 2010; Perna & Titus, 2004; Posselt, Jaquette, Bielby, & Bastedo, 2012; Taggart & Crisp, 2011); how many college applications high school seniors submitted (Long, 2004); as well as the college-going rate of high schools (Engberg & Gilbert, 2014). All such outcomes are measured as categorical or limited dependent variables, and researchers frequently employ nonlinear regression techniques to study them. We therefore use various operationalizations of college choice outcomes throughout this chapter to illustrate regression techniques that are often employed to estimate models with these types of dependent variables.

7.1.2   Data and Sample

All analyses in this chapter make use of data from the High School Longitudinal Survey of 2009 (HSLS:2009). The National Center for Education Statistics (NCES) surveyed over 23,000 high school 9th grade students in 944 high schools in 2009, with follow-up surveys in 2012 as well as surveys of parents and school personnel. HSLS:2009 includes information about students' backgrounds, academic performance, course transcripts, college expectations, college applications, and high school environment.[1] We limited the data to high school graduates and excluded observations missing key measures, resulting in 10,940 students. Our choice to not account for missing data is based on our goal to focus on the modeling the various categorical and limited outcomes, and a concern about how much space it would take to include a detailed discussion of how to deal with missingness. A robust literature on missingness and imputation methods is available (Allison, 2002; Little & Rubin, 2014).

7.1.3   Variables

Dependent Variables In order to demonstrate the application of the methods used to study categorical and limited dependent variables, we used the HSLS data to construct three different outcome variables. To demonstrate how to model binary outcomes, we created a dichotomous variable measuring whether students enrolled in college after completing high school or not (discussed in Section II). To demonstrate the modeling of polytomous dependent variables, we created a multi-categorical measure that disaggregates whether the student enrolled in college into finer grains based on the selectivity of the institution attended. This dependent variable has four categories: no college, chose a less selective, selective, or most selective institution (see Sections III and IV). The third outcome we modeled is students' self-reported number of college application submitted, which we use to demonstrate the utility of count regression techniques (presented in Section V).

Independent Variables In the regressions estimated, we control for constructs thought to affect whether a student goes to college, and the type of institution they decide to attend. These constructs were chosen based on theories used to explain the college choice process and were operationalized using variables included in prior studies and available in the HSLS data set.

Academic Ability Given its strong sorting function in the provision of college opportunity and specifically in the college admissions process, academic ability is arguably the most important construct included in inferential studies of college

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[1]Although we utilized a restricted version of the HSLS data, there is also a publicly available version (see https://nces.ed.gov/edat/).

choice (Clinedinst, Koranteng & Nicola, 2015). When modeling college choice, researchers often include prior academic achievement measures such as students' high school grade point average (e.g., GPA, a local measure of achievement); exam scores, which are often state- or nationally-normed measures (Engberg & Allen, 2011; Posselt et al., 2012); as well as academic *preparation* measures such as the highest-math course completed (Kim, Kim, DesJardins & McCall, 2015) or the number of college-preparatory courses taken in high school (Engberg & Wolniak, 2010). To operationalize prior academic achievement and preparation in the models estimated, we include 10th grade GPA; students' scores on the math exam administered by NCES; the highest level of math taken by 12th grade; and the total number of AP course credits students acquired during high school.

Demographic Characteristics Given the (1) historic exclusion of non-White, female, and low-income students from many forms of higher education; (2) persistent differences in high school resources across race and income (Office for Civil Rights [OCR], , 2016; Palardy, 2015); and (3) presence of Minority-Serving Institutions (MSIs) that shape choice (Freeman & Thomas, 2008; Teranishi & Briscoe, 2008), we follow most previous college choice studies and include race/ethnicity and income as explanatory variables in the models estimated. Gender is also another important characteristic to consider when studying college choice, as women are generally more likely to enroll in college but less likely to do so at selective institutions (Bielby et al., 2014). We also include a measure of parental education as parents who attended college are typically more able to assist their children with the college choice process, and because some scholars argue that students whose parents did not attend college rely on their high schools to help them navigate the complex college choice process (Ceja, 2001; Perna & Titus, 2005; Rowan-Kenyon, Bell & Perna, 2008).

College Expectations A number of college choice studies also control for students' stated college plans or aspirations (Gonzales, 2011; Posselt et al., 2012). In the student surveys, NCES asks students how much postsecondary education they intended to acquire, which we included and coded as: high school or less, some college, two-year degree, four-year degree or more. Another important measure that shapes college choice and is frequently included in choice models is peers' college enrollment plans (Engberg & Wolniak, 2010; Taggart & Crisp, 2011).

School Characteristics Many researchers include school-level measures in their college choice models to reflect that students are nested within schools, and that schools are an important context for students. High schools provide resources and present college-going norms that, in turn, shape individual student choice (McDonough, 1997; Perna, 2006; Roderick et al., 2011). But a school's college-going norms are challenging to measure. In this study, we use the share of students enrolled in two- and four-year colleges as proxies for college-going norms. Existing studies have also controlled for high school characteristics to acknowledge differences in demographic composition (representation by race or income); operating status such as charter and/or magnet schools; and urbanicity. We include these

measures as well. Table 7.1 describes the dependent and independent measures discussed above and used in the applications of the modeling techniques demonstrated in this chapter.

Table 7.1 Description of variables

Dependent variables	Proportion/ Mean	S. D.	Description
N = 10,940			
College enrollment			Postsecondary institution attending as of Nov 1, 2013.
No college	33.7		
College enrollment	66.3		
Enrollment by selectivity			Enrolled college IPEDS selectivity code, as found in 2012 IPEDS institutional characteristics file
No college	34.0		
Less selective college	27.2		
Selective college	21.6		
Most selective college	17.2		
Number of applications	2.7	2.8	Self-reported.
Independent variables			
Demographics			
Race/ethnicity			Collected from the student questionnaire, school roster, or parent questionnaire, in order of preference.
Native American	1.0		
Asian	7.9		
Black	8.0		
Latino	14.2		
Multiracial	8.7		
White	60.2		
Income			Total family income from all sources 2008.
<35 K	23.5		
35–55 K	16.7		
55–75 K	13.9		
75–95 K	12.1		
95–115 K	9.2		
115 K and above	24.6		
Parental education			Highest level of education, taken from the base year parent questionnaire.
HS diploma or less	32.1		

Table 7.1 (continued)

Dependent variables	Proportion/ Mean	S. D.	Description
Associate's or certificate	4.2		
Bachelor's or more	63.7		
Academics			
GPA, 10th grade	2.7	0.9	Ranges between 0 and 4.
Math test scores	42.2	11.6	Ranges between 16 and 70.
AP credits	1.3	2.2	Ranges between 0 and 16.
Highest math			Highest level mathematics course taken/pipeline in the 12th grade; drawn from transcript files.
Algebra I or below	3.4		
Algebra II/geometry	27.9		
Precalculus/ advanced	47.7		
Calculus or above	20.9		
Expectations			
Friends' PSE expectations	93.0		9th grader's closest friend plans to go to college.
Students' PSE expectations	91.4		Expect AA/BA as of senior year.
School controls			
Pct. 4-Yr college enrollment	54.7	26.4	Ranges between 0 to 100.
Pct. 2-Yr college enrollment	24.4	16.4	Ranges between 0 to 100.
Urbanicity			Characterizes the sample member's base year school from the common Core of data (CCD) 2005–06 and the private school survey (PSS) 2005–06.
Urban	28.0		
Suburban	35.4		
Town	12.8		
Rural	23.9		
School type			Drawn from school survey; special program school [or magnet school] includes a science or math school, performing arts school, talented or gifted school, or a foreign language immersion school.
Regular	93.2		
Charter	2.0		
Special program	2.9		
Career/ vocational	1.9		

Source: HSLS:2009

7.2 Binary Outcomes

There are three prevalent approaches to modeling binary outcomes–logistic, probit, and linear regression (i.e., linear probability models). Several texts discuss binary outcomes at length (e.g., Hosmer, Lemeshow, & Sturdivant, 2013; Long, 1997; Long & Freese, 2014; Menard, 2002; Pampel, 2000). Below, we situate binary outcomes in the higher education context and highlight post-estimation techniques that aid in the interpretation of the findings. We start with a discussion of some important statistical concepts—odds, odds ratios, probabilities, risk ratios, and relative risk ratios—as these measures serve as an important foundation for modeling binary and multinomial outcomes.

7.2.1 Odds, Odds Ratios, Probabilities, and Risk Ratios

Before moving into an explanation of binary regression techniques, first we formally define distinct ways of summarizing categorical outcomes that are, at times, conflated in common language usage— odds, odds ratios, and probabilities. We also formally present the risk ratio and relative risk ratios—measures that are essential in understating the estimation of multinomial models in Section IV.

The odds of an event occurring is the quotient of two probabilities: the probability the event will occur ($Pr(y = 1)$) divided by the probability that it will not occur ($Pr(y = 0)$), which takes the form:

$$Odds(y = 1) = \frac{Pr(y = 1)}{Pr(y = 0)} = \frac{Pr(y = 1)}{1 - Pr(y = 1)} \tag{7.1}$$

Odds have a lower bound of zero and upper bound of $+\infty$. An event with a break-even probability of occurring (e.g., 0.50) has odds equal to 1. In our running example, the *probability* of college enrollment for the overall HSLS:09 sample is 0.52 (Table 7.2).[2] The *odds* of four-year enrollment in our sample of high school seniors in 2013 is therefore 1.08 (or, 0.52/[1–0.52]).

An odds *ratio* allows for comparisons of the odds of an event occurring between two groups as a quotient—the odds of the event ($y = 1$) given an additional condition ($x = 1$) divided by the odds of the event given another condition ($x = 0$). The odds ratio is defined below as:

$$Odds\ Ratio(y = 1|x = 1) = \frac{Odds(y = 1|x = 1)}{Odds(y = 1|x = 0)} \tag{7.2}$$

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[2]Defined as two- or four-year college enrollment as of November of 2013.

Table 7.2 Comparison of probability, odds, and odds ratios for college enrollment[a] by gender, 2013

	(1) Probability	(2) Odds	(3) Odds ratio	(4) Risk ratio
Total[b]	0.52	1.08	–	–
Gender				
Female	0.55	1.24	1.41	1.17
Male	0.47	0.88	Ref.	Ref.
Race				
Native American	0.39	0.65	0.51	0.70
Asian	0.63	1.70	1.32	1.12
Black	0.46	0.85	0.66	0.82
Latino	0.44	0.77	0.60	0.78
Multiracial	0.51	1.05	0.82	0.91
White	0.56	1.28	Ref.	Ref.

Sources: HSLS:2009
Notes: (a) College enrollment includes two- and four-year colleges; (b) sample includes all students with base year, follow-up data ($N = 25{,}210$)

Odds ratios have a lower bound of 0 and upper bound of $+\infty$. Using our HSLS sample, the odds ratio of four-year college enrollment for women relative to men equals the odds of four-year enrollment when female $= 1$, divided by the odds of enrollment for men (i.e., female $= 0$). In our sample, the odds of college enrollment for women is 1.24 and the odds for men is 0.88, yielding an odds ratio of 1.41 (1.24/0.88, see Table 7.2, column 3). In other words, the odds of women enrolling in college are 1.41 times those of men, or 41% greater odds (we subtracted 1 from the odds ratio to arrive at 41%).

With some algebraic rearranging of Eq. 7.1, the probability can be defined in terms of odds as:

$$Pr(y = 1) = \frac{Odds(y = 1)}{1 + Odds(y = 1)} \qquad (7.3)$$

However, unlike odds and odds ratios, probabilities are bounded by zero and one. Continuing with our running example, the predicted probability of enrollment, given the student is female is $[1.24/(1 + 1.24)] = 0.55$ and for males the predicted probability is $[0.88 / (1 + 0.88)] = 0.47$.

The risk ratio (also sometimes called the relative risk) is the ratio of two probabilities—the probability of outcome y occurring under condition $x = 1$ divided by the probability of outcome y occurring under another (base) condition $x = 0$ (Eq. 7.4).

$$Risk\ Ratio\ (y = 1|x = 1) = \frac{Pr(y = 1|x = 1)}{Pr(y = 1|x = 0)} \tag{7.4}$$

For many, the term "risk" connotes a negative event, as its use is historically rooted in the health fields (e.g., a patient's "risk" of an adverse health event). In our example where y is college enrollment and x is gender, we divide the aforementioned probability of enrolling ($y = 1$) for females (where $x = 1$) of 0.55 by 0.47, which is the probability of enrolling for males (where $x = 0$) resulting in 1.17. This number represents the risk of women enrolling in college, relative to men. We can interpret this ratio as indicating that women's risk of enrolling in college is about 1.17 times that of men. Note that the calculation of the risk ratio is different than the odds ratio, with the former being the ratio of two probabilities (Eq. 7.4), and the latter being the ratio of two odds (Eq. 7.3). When the event occurrence (e.g., enrollment) is small (<10%), the odds- and risk-ratios will be similar. But these two measures diverge as the event becomes more common. Also, the relationship between ORs and RRs depends on the direction of the relationship between the outcome and regressor. When there is no association between the outcome and regressor OR = RR. When there is a negative (positive) relationship OR < RR (OR > RR). Thus, using these two terms interchangeably depends on the context.

The *relative* risk ratio relates the risk ratios for two possible outcome categories, for example, outcome m relative to a baseline outcome b out of J possible outcomes.

$$Relative\ Risk\ Ratio\ (y = m|x) = \frac{Pr(y = m|x)}{Pr(y = b|x)} \tag{7.5}$$

The interpretation of the relative risk ratio is always in relation to a base outcome, which is important to note when you have multiple outcome categories, so we will return to this topic in section IV.

Next, we discuss the three main regression-based approaches to estimate binary outcome models –the logit, probit, and the linear probability models. We begin with a formal presentation of the logit model and use it to frame our discussions of goodness of fit and interpretation of coefficients—much of which is applicable to the probit model. Throughout, we note the estimation and post-estimation commands available in the Stata software package that one can employ to estimate models and after the regressions are estimated, to facilitate the interpretation of results. Next, we turn to a discussion of the probit model, underscoring the points where it diverges from logit regression. The explanation of the probit model is followed by a presentation of the linear probability model, where we consider the conditions under which it might not be appropriate to use when modeling binary dependent variables. We close this section with a summary of the pros and cons of the three binary modeling techniques.

7.2.2   Logistic Regression

The logit model is commonly used in education studies to model the relationship between a set of predictors and a binary outcome. The outcome of interest takes on only two values, typically represented in the data by a 1, indicting the event of interest (e.g., enrollment in college), and 0, indicating the event did not happen (e.g., non-enrollment in college). For statistical reasons, and to ease in the estimation of such a model, we would like this binary dependent variable to be linear in the parameters. For this to be the case, the dependent variable is transformed into a continuous measure that ranges from $-\infty$ to $+\infty$. Conceptually, we can think of our observable binary outcome of interest (denoted by y) representing an unobserved latent construct (y^* representing, for example, the underlying propensity to enroll in college), that ranges from $-\infty$ to $+\infty$. Higher values of y^* are associated with the observable binary outcome y = 1, and lower values of y^* are associated with y = 0. We can relate observed measures (x's) with the continuous latent y^* formally using:

$$y^* = X'\beta + \varepsilon \tag{7.6}$$

To illustrate, while we only actually observe whether students enroll in college (or not), individuals have some underlying unobserved probability (or propensity) to enroll. Some individuals are very likely to enroll in college (i.e., have higher values of y^*) while others are very unlikely to enroll (have lower values of y^*). Another set of individuals are somewhere in the middle, whereby they might enroll if the conditions are right (e.g., a conversation with a mentor, a subway ad, or a campus visit). There are a whole host of reasons why some students have high probabilities of enrolling in college and others do not. Potential x's for Eq. 7.6 may, for example, include a student's academic performance in high school, their family income, or peer influences. Given this unobserved probability to enroll, imagine there is also an unobserved threshold (τ) that separates those who attend from those who do not. Formally this can be represented as:

$$y = \begin{cases} 1 \text{ if } y^* > \tau \\ 0 \text{ if } y^* \leq \tau \end{cases} \tag{7.7}$$

where y is what we observe in the data. The task at hand, then, is to transform the observed binary y into a continuous measure that ranges from $-\infty$ to $+\infty$ in order to model the unobserved or latent tendency (y^*) to enroll.

Mathematically, we perform several steps to transform a binary measure into a continuous measure that ranges from $-\infty$ to $+\infty$. First, we transform the outcome into the probability of the event occurring because it allows us to conceptualize the outcome in a continuous form. We then take the (natural) log of the ratio of the probability of the event occurring or not. Known as the "logit," this variable is bounded by $-\infty$ to $+\infty$ allowing this outcome measure to be linearly related to the

parameters. Taking the natural log of Eq. 7.1 above, and conditioning on a set of covariates X', the logit model can be formally defined as:

$$\ln \left(\frac{Pr(y = 1|x)}{1 - Pr(y = 1|x)} \right) = X'\beta + \varepsilon \qquad (7.8)$$

eliminating subscripts for ease of expression, the left-hand side of the equal sign is the natural log of the odds of an event occurring; with intercept α; a vector of covariates x with a corresponding vector of coefficients β; and errors ε. The logit model is typically estimated using maximum likelihood estimation (MLE), an iterative technique that estimates parameters sequentially until the likelihood that the estimates produced best fits the underlying data is maximized. This method is different from ordinary least squares (OLS) regression, which identifies parameters that minimize the sum of squared residuals. Several texts provide thorough overviews of maximum likelihood estimation (Eliason, 1993; Wooldridge, 2002). For our purposes, it is sufficient to keep in mind that estimates produced from the likelihood function are consistent, asymptotically normal, and asymptotically efficient (Long, 1997). However, given maximum likelihood's asymptotic properties, the logit model is not well-suited for small samples.[3] In fact, this caution holds for all of the regression techniques discussed in the chapter – when employed using small samples, their foundational assumptions may not hold, yielding potentially inconsistent estimates.

To identify the logit model, we need to make a number of assumptions. First, unlike a linear regression model—which assumes errors are normally distributed—the logit model assumes a distribution of errors that are logistically distributed ($\sigma = \pi^2/3$) with a mean of zero (the *zero conditional mean of ε* assumption). Since the error distributions from binary data are not directly observed, the variance is set to $\pi^2/3$ because the probability density and cumulative distribution functions are simpler to ascertain when using this value. When plotted, the probability density function for the logistic distribution has thicker tails than the normal distribution (see Fig. 7.1). As a result, the cumulative logistic distribution increases at a faster rate than the normal distribution. With a defined distribution for the errors, we can then estimate $Pr(y = 1)$. Also, the right-hand side of Eq. 7.8 indicates that using the logit functional form forces a linear relationship between the outcome (the natural log of the odds) and the model parameters. Thus, the model is linear in the logit, or log-odds, but *not* linear in the probability. A third assumption of the logit model is that the included regressors cannot be a linear combination of each other (*no multicollinearity*, Menard, 2010).

Violations of these assumptions could lead to inefficient and biased estimates, making it difficult to establish the true effect of regressors on the dependent variable. Relatedly, the nature of the data and the covariates—particularly in small sample sizes with categorical predictors—can undermine model estimation due to separation

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[3]For studies with few observations (e.g., fewer than 100), use exact logistic (Mehta & Patel, 1995).
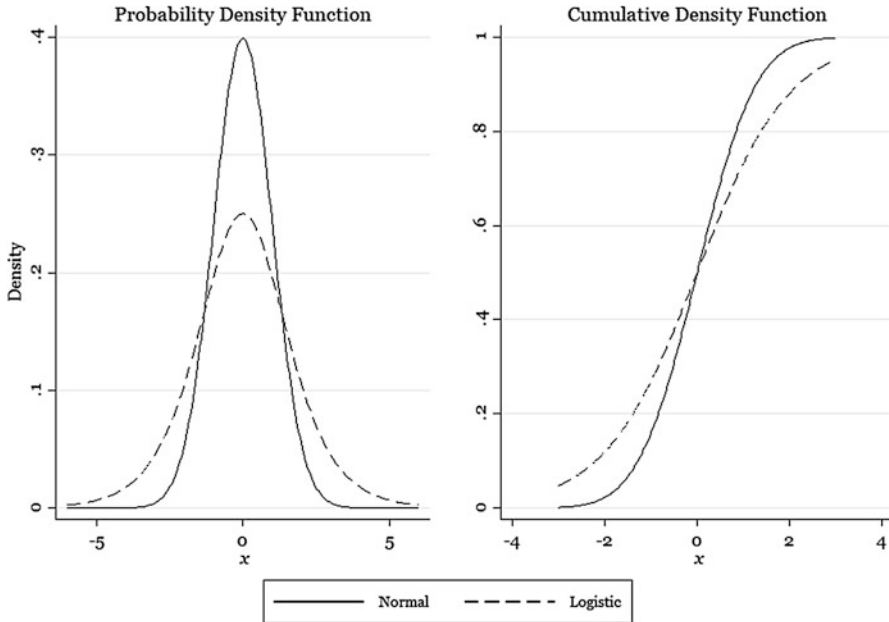
Fig. 7.1 Probability & cumulative density plots for normal and logit distributions

and empty cells. Perfect separation occurs when there is no variation for an independent variable across the dependent variable. For example, if every student who took calculus enrolled in college, highest math would perfectly (or near-perfectly) predict college enrollment. Maximum likelihood estimation procedures will tend not to work under such conditions. Another consideration is empty cells, which are a result of insufficient observations in a particular category of an independent categorical variable. This can be an issue for categories that are traditionally underpowered; such as the multi-racial category in race/ethnicity or for inferences into the intersection of categorical variables (e.g., low-income students who have taken calculus). See Menard (2010) for a detailed discussion of violations of these assumptions and how to address them.

Example: Modeling College Enrollment To demonstrate the use and interpretation of binary outcome models, we estimated college enrollment as our outcome of interest. We first estimated an unconditional (or restricted) model, that is, a regression with no covariates (an intercept only model) to compare with our manual calculations above. Using this model, we found the odds ratio for college enrollment is 1.04 (the same as the odds ratio we calculated by hand in Table 2). The full
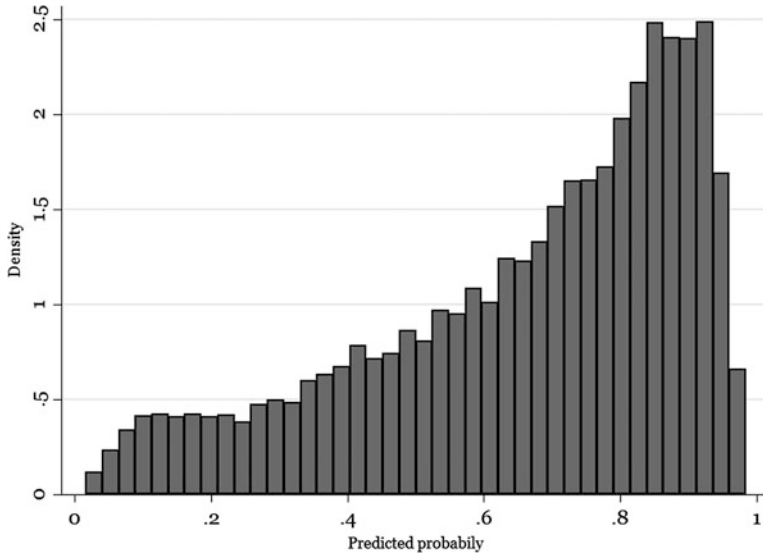
Fig. 7.2 Density plot of predicted probabilities of college enrollment, full model (Source: HSLS:2009)

(or unrestricted) model includes covariates that we hypothesized to explain four-year college enrollment:

$$Pr(Enroll = 1) = \beta_0 + \boldsymbol{\beta_1}DEMS + \boldsymbol{\beta_2}ACAD + \boldsymbol{\beta_3}EXPECT + \boldsymbol{\beta_4}SCHOOL \quad (7.9)$$

that includes student demographics (*DEMS*, gender, race/ethnicity, family income, parental education); academics (*ACAD,* high school GPA, test scores, number of rigorous courses in high school, highest math course completed in high school); the students and their friends' college-going expectations (*EXPECT*); and a number of high school controls (*SCHOOL*).[4] We visually checked the distribution of predicted probabilities using Stata's *predict* and *histogram* commands to get a general sense of the data (see the accompanying appendix for the presentation of the Stata code used in the chapter). Figure 7.2 indicates a left-skewed distribution—a sizeable share of the population has a greater than 50% predicted probability of college enrollment. A summary of our predicted probabilities indicates the mean predicted probability is around 0.66, with a range of 0.02 to 0.98.

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[4]Our students were nested within high schools, which might suggest we adjust standard errors due to the heterogeneity found within high schools through the use of a vce(*cluster*) Stata option. However, there is a tradeoff here. As Long and Freese (2014) discuss, using robust standard errors no longer makes maximum likelihood an appropriate estimator. After comparing our model with and without school-level clustered errors, we confirmed little difference in our findings and decided to proceed without the robust errors. Models that include robust standard errors should rely on the Wald, rather than the likelihood test (Sribney, n.d.).

Goodness of Fit Next we take stock of how well our data fit the model by examining the goodness-of-fit measures. The likelihood ratio test is calculated as the difference between the logs of the likelihoods of the full (unrestricted) model and unconditional (restricted) model, multiplied by 2, whereby a worse fit is denoted by larger values:

$$Likelihood\ Ratio = 2lnL(Model_{Full}) - 2lnL(Model_{uncond}) \qquad (7.10)$$

The likelihood ratio test statistic has a chi-squared distribution and we can therefore treat it as a chi-square statistic (Menard, 2002) to test the null hypothesis that all independent variables are simultaneously equal to zero (Long, 1997). Using Stata's *fitstat* post-estimation command provides a likelihood ratio test statistic of 2911,[5] allowing us to reject the null hypothesis because a chi-square of 2911 with 1 degree of freedom yields $p < 0.001$. The likelihood ratio test can also be used to compare goodness-of-fit across nested models. For example, perhaps theory or prior research indicates that English language learner (ELL) status would help improve the fit of the model. Adding a dichotomous variable that denotes whether students are classified as ELL (or not), the likelihood for the model drops slightly to -5531 (from -5533 in the previous model). A likelihood ratio test between the models with and without the ELL flag yields evidence of a modest improvement in model fit when adding the ELL measure ($\chi^2 = 3.53$, df = 1, $p < 0.10$). While there is strong conceptual justification for inclusion of this variable in prior literature (see Taggart & Crisp, 2011), we see that empirically doing so only marginally improves the fit of the model. Its inclusion is a matter of choice for the researcher. For the sake of consistency, we will use the model without the ELL covariate throughout the chapter.

As one of many post-estimation commands in Stata, *fitstat* displays a suite of summary diagnostic indicators.[6] For example, if we wanted to compare either non-nested models or the same model across different samples, we could use the Akaike Information Criterion (AIC) and/or the Bayesian Information Criterion statistics (BIC, Long & Freese, 2014). Both the AIC and BIC measures are calculated using the model's likelihood, the number of parameters P, and the size of the sample N:

$$AIC = -2lnL(Model_{full}) + 2P \qquad (7.11)$$
$$BIC = -2lnL(Model_{full}) + Pln(N) \qquad (7.12)$$

The models with the lower (rather than higher) AIC and BIC suggest a better fit.

As there is for linear regression models, there is no formal R^2 statistic to assess a logit model's goodness of fit. However, researchers have derived a number of

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[5]$2*[(-6988)-(-5533)]$.

[6]If using survey data, Archer and Lemeshow (2006) argue one should account for survey sampling design to calculate goodness-of-fit using the Stata command *svylogitgof*.

Table 7.3 Comparison of estimates of college enrollment from the logit model[a]

	(1)	(2)	(3)	(4)	(5)	(6)
	Logit coefficients		Odds ratios		Marginal effects	
	Estimates	S.E.	Estimates	S.E.	Estimates	S.E.
Female	0.130***	−0.048	1.138***	−0.055	0.022***	−0.008
Race						
Native American	−0.074	−0.221	0.929	−0.205	−0.012	−0.038
Asian	−0.084	−0.1	0.92	−0.092	−0.014	−0.017
Black	0.251***	−0.087	1.285***	−0.112	0.041***	−0.014
Latino	0.131*	−0.07	1.140*	−0.079	0.022*	−0.011
Multiracial	−0.1	−0.083	0.904	−0.075	−0.017	−0.014
White	–	–	–	–	–	–
Academic controls						
GPA, 10th grade	0.567***	−0.035	1.762***	−0.061	0.095***	−0.006
Math test score	0.005*	−0.003	1.005*	−0.003	0.001*	0.000
Number of AP credits	0.129***	−0.018	1.137***	−0.02	0.021***	−0.003
Other student-level controls[b]	x		x		x	
School-level Control[c]	x		x		x	
N	10,940		10,940		10,940	

Source: HSLS:2009

Notes: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, ~ $p < 0.1$; (a) sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates; (b) other student controls includes parental education, income, highest math taken, whether friends plan to go to college; (c) school-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges

pseudo-R^2 measures that are available when using Stata (and other software packages) by invoking the *fitstat* command. As the default in Stata, McFadden's R^2 compares the log-likelihood of the full (unrestricted) model to an unconditional (restricted) model. Like the R^2 used in linear regression, this statistic is bounded by 0 and 1. The McFadden's R^2 for our unrestricted model is 0.204. An adjusted R^2 measure is also presented. Similar to its linear regression equivalent, this R^2 version accounts for the number of parameters included in the model. For a more detailed discussion about diagnostic statistics used for logistic regression see Long and Freese (2014).

7.2.3   Interpretation of Findings

Coefficients and Odds Ratios   Now that we have a sense of model fit, we can turn to the model results reported in Table 7.3. This table includes a number of different point estimates for selected regressors included in the model. For example, given the functional form specified for the variance of the errors ($\pi^2/3$), the (raw) coefficients in column 1 are measured in log-odds or logit units, (Long, 1997). These coefficients

are very difficult to interpret, as they lack any practical meaning. But for completeness, the 0.13 logit for the female variable indicates that the log-odds (logit) of enrollment for women is 0.13 higher than that of men.

To ease interpretation, one can transform the logit coefficients (β) into odds ratios (ORs) by exponentiating each raw (logit) coefficient using e^{β} = odds ratio (OR), where e is a mathematical constant that approximates to 2.718. To demonstrate, the logit coefficient for females can be changed to an odds ratio by taking $e^{0.13}$. Stata and other statistical packages will compute the OR for you automatically; or you could compute it using the exp. function either using a calculator or in Microsoft Excel, where $e^{(0.13)}$ produces an odds ratio of 1.138, or, about 1.14 when rounded the nearest hundredths (see the entry for "Female" in column 3 in Table 7.3).[7] Our unconditional (no regressors included) odds ratio for women presented in Table 7.2 was about 1.41, indicating that when we do not control for any other variables, women have about a 41 percent [(OR – 1) $\times$ 100 = (1.41–1) $\times$ 100 = 0.41] higher odds of enrolling in college than their male counterparts.[8] However, when we control for a set of variables that may confound this relationship, women have about 14 percent greater odds of enrolling in college than men (OR = 1.138, $p < 0.01$), which is statistically significant (Table 7.3, column 3). Additionally, when compared to the unconditional odds ratios of Black and Latino students' (OR = 0.66, $p < 0.001$ and OR = 0.60, $p < 0.001$, respectively), odds flip signs when we control for other factors, with the conditional model indicating higher odds of college enrollment for Blacks and Hispanics versus conditional (OR = 1.285, $p < 0.01$ and OR = 1.140, $p < 0.10$) compared to their White peers. Examining continuous academic measures, we find that for every AP course credit received, the average increase in the odds of college enrollment increases by about 76% (OR = 1.762, $p < 0.001$). Although odds ratios are easier to interpret than the estimated logit coefficients, it is important to note that odds ratios and probabilities are not on the same scale (see Eq. 7.3). Therefore, a doubling of odds is not equivalent to a doubling of the probability (see Long & Freese, 2014, for details).[9]

Marginal Effects In Column 5 of Table 7.3 we present the estimates as marginal effects, or the change in the probability of the outcome given a unit increase in an independent variable. Marginal effects have the desirable property of being measured as percentage point changes in the probability of the outcome, which is likely of substantive interest to researchers and their audience, and makes for a more direct interpretation of coefficients in nonlinear models such as logit and probit models. For

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[7]Stata will automatically output odds ratios instead of raw coefficients by using the *logistic* command, or one can obtain odds ratios by invoking the option when using the *logit* command.

[8]A logistic regression model with college enrollment as the outcome and gender as the only covariate will confirm that the odds ratio is indeed 1.41 ($p < 0.001$).

[9]In other words, there is a built-in nonlinearity to the relationship between each covariate and the outcome. However, even with this nonlinearity imposed by the functional form, researchers still need to consider whether any higher order (i.e., polynomials) of covariates are appropriate to account for nonlinear relationships in the logit (or log-odds).

indicator (dummy) or categorical variables, the marginal effect represents the contrast between the reference (or omitted) category and the level of interest. From Table 7.3 we observe that the marginal effect for females (female = 1) is significant but very small—women (female = 1) have predicted probabilities of enrolling in college that are 2.2 *percentage points* (0.022 x 100 = 2.2) higher than men (female = 0), and this effect is significant at the $p < 0.01$ level. Calculated as a partial derivative of a covariate (x) with respect to the outcome (y), the marginal effect for *continuous* independent variables is the change in probability associated with an instantaneous change in the given explanatory variable, holding all other covariates constant. We see (Column 5 in Table 7.3) that the effect of a marginal increase of one Advanced Placement credit is associated with an increase in the probability of college enrollment of 2.1 percentage points ($p < 0.001$). In Stata, marginal effects for the covariates can be obtained using the *margins* post-estimation command invoked after estimating any regressions.

There are a number of ways that marginal effects can be computed, and there is robust discussion about the pros and cons of each (Long & Freese, 2014). As noted above, the marginal effect of any given independent variable depends on the values of all other covariates (i.e., the values at which we hold them constant). A marginal effect at the means (MEM) uses the mean values for each independent variable to calculate the marginal effect.[10] Therefore, the marginal effect is calculated for someone who is average on all of the independent variables included in the model. Though familiar and computationally less intensive than most alternatives, one drawback of the MEM approach is that it raises the question of who, exactly, is "average." This is particularly salient for covariates measured categorically or as integers. Does it make sense to hold the value of AP courses constant at 3.4, even though taking fractional courses is impossible? Or, when controlling for gender using a variable where female = 1 and the proportion of women in the sample is 0.52, does it make sense that the average "gender" in the sample is held constant at this value?

The average marginal effect (AME) approach is a more computationally intensive alternative to MEM that bypasses the concerns mentioned earlier. To calculate AMEs, we first compute the probability of the outcome (in our case, enrollment) for each observation (person) using their actual values for the explanatory variables included in the model. Then one variable is changed by some amount, often 1 unit for categorical variables (i.e., the "delta" method), or a very small amount for continuous measures, (but any interval *could* be used depending on the context), and the outcome probability is recalculated for each person. The difference between these two calculated probabilities is calculated for each observation (person) and then averaged over the entire sample, leading to the AME. As such, the AME is interpreted as the average change in the probability of the outcome resulting from changing the independent variable by some amount. Because of advances in

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[10]Computed by adding the *atmeans* option when using the Stata *margins* command.
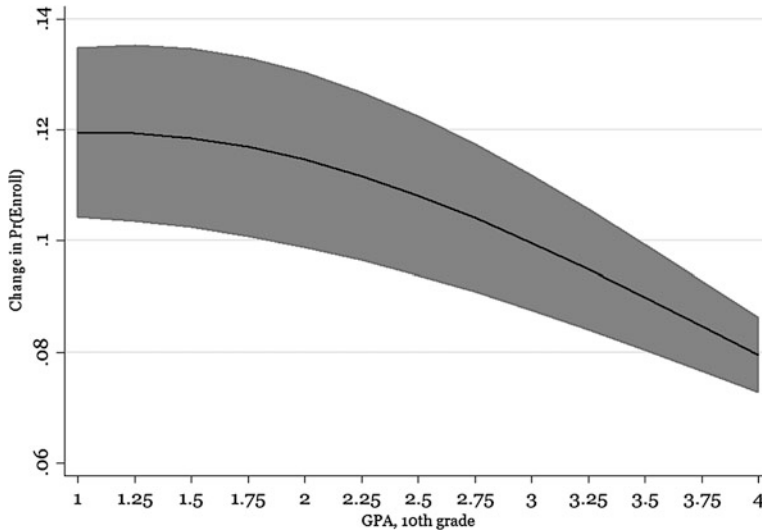
Fig. 7.3 Average marginal effects on college enrollment by student GPA (Source: HSLS:2009)

statistical software, average marginal effects have become more prevalent in the literature (Long & Freese, 2014). Note, however, that both approaches yield a single point estimate for the marginal effect, but this effect may vary depending at what point on the independent variable's distribution the value is chosen. In both approaches, a change in an independent variable in the tails of the S-shaped logit (or probit) curve would yield different changes in probability than a one-unit change near the center (at the mean) of this distribution due to the nonlinear nature of these functions. Therefore, before choosing one of these approaches to interpretation of the results, it is important to consider the pros and cons of AMEs and MEMs and which one seems most appropriate given the objectives of the study.

A third approach is to calculate marginal effects at representative values (MER), where marginal effects are calculated while holding the explanatory variables at user-specified values. MERs allow for the computation of marginal effects along different points of the distribution of independent variables (and not just the mean). For example, we examined the marginal effect of high school GPA on college enrollment across a wide range of plausible GPA values (1.0 to 4.0), and these marginal effects are plotted in Fig. 7.3. While the marginal effect of GPA on enrollment (the solid black line) remains positive (>0) across the different values of GPA, the marginal effect decreases with increases in GPA, and the precision of the marginal effect (as indicated by the confidence interval) increases with GPA. That the marginal effect declines with GPA is unsurprising because college enrollment for high-achieving students is quite high and distinctions between a 3.75 and a 4.0, for example, are challenging to isolate. Regardless of the way the marginal effects are calculated, they are now quite easily available using statistical software

packages, and are often reported in tabular format or—for ease of interpretation—plotted graphically.

Predicted Probabilities An alternative to coefficients or marginal effects is to directly compute $\widehat{p}$, or the predicted probabilities of the outcome of interest. Predicted probabilities are particularly useful for the interpretation of interaction terms. Remember that marginal effects compute partial derivatives, allowing one variable to change while holding all others constant. For interactions, however, such a calculation is impossible – to vary the interaction term, $x_1 * x_2$, we cannot hold either variable constant. Further, interaction coefficients can be difficult to interpret in logistic regressions because of the log-odds transformation, which leads to frequent misinterpretation in the literature (see Norton, Wang, & Ai, 2004, for a detailed exposition). In the computation of marginal effects and predicted probabilities, some software packages (such as Stata) automatically aggregate the effect of interacted and polynomial terms.

To illustrate the use and interpretation, we added to the full model (Eq. 7.9) a vector (*INTERACT*) of interaction terms of race, gender, and GPA (female*race, GPA*race, female*GPA), as well as squared and cubed terms of GPA (GPA^2 and GPA^3):

$$P(Enroll = 1) = \beta_0 + \boldsymbol{\beta_1}DEMS + \boldsymbol{\beta_2}ACAD + \boldsymbol{\beta_3}EXPECT + \boldsymbol{\beta_4}SCHOOL \\ + \boldsymbol{\beta_5}INTERACT \tag{7.13}$$

The raw coefficients table is different than in main effects models (models without interactions) in two important ways. First, we can no longer interpret the estimated coefficients for GPA, race/ethnicity, and gender as main effects, but rather simple effects for White males with average GPAs (the reference group). Second, coefficients that include gender, race, and GPA appear multiple times in the regression output (not shown here) –3, 3, and 5 times, respectively—rendering the net relationships between these measures and college enrollment challenging to interpret. Most of the interaction terms as well as the cubed GPA term were statistically significant. A table of predicted probabilities may be helpful in interpreting differences across categorical groups (e.g., race and gender), which can be attained using the *mtable* post-estimation command with the at() option in Stata to specify values for the covariates (table not shown here, see Appendix for relevant Stata code). Creating an *mtable* for Black, Latino, and White and by gender revealed that, net of student- and school-level variables, the probability of college enrollment is quite similar across groups (the probabilities range from 0.649 for White men and 0.704 for Black women).[11]

For continuous variables (e.g., GPA), researchers may also want to examine predicted probabilities over the plausible values—perhaps through graphical

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[11]A formal statistical test can be applied to test the difference between two probabilities using *mtable* and *mlincom*. For more, see Long and Freese (2014).
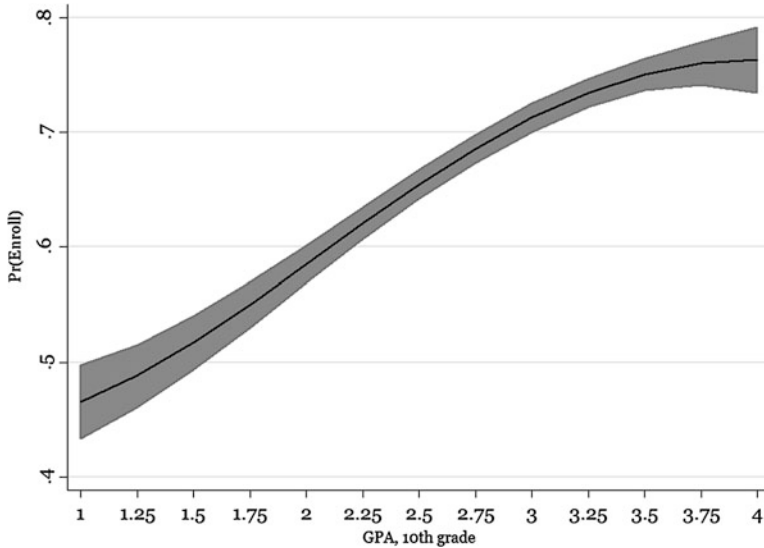
Fig. 7.4 Predicted probability of college enrollment by GPA (Source: HSLS:2009)

analysis. We plotted the probability of college enrollment across the range of high school GPAs (Fig. 7.4). As expected, students with higher GPAs have higher probabilities of college enrollment. There is an inflection point at a GPA at about 2.5, where the slope of the curve begins to flatten out – a function of both the logit functional form and of the polynomial terms of GPA included in the regression. This shape of the curve indicates there is less differentiation in probability at the upper end of the GPA curve, as A and B students are going to college at similar rates. Continuing with our interrogation of college enrollment by gender and race, we plotted the predicted probabilities of college enrollment for Black and White students including an interaction of race and gender. Figure 7.5 shows that the probability of enrolling in college increases for both women and men as GPA increases, net of other variables. Although they are largely parallel, the gender gap increases slightly at the upper end of the GPA distribution. On the other hand, while Black students are more likely to enroll in college, students with approximately a GPA of 3.0 enroll in college at similar rates, irrespective of race or gender. Plots of predicted probabilities can illustrate the nuances that exist across the range of values as well as interactions.

Subgroups of Interest   Another advantage of using margins to explain the results of binary regression models is the ability to estimate predicted probabilities for specific groups within one's sample. For example, if you want to produce marginal effects for student profiles of interest, you can use the Stata *mtable* command. Using our running example, if we want to examine the probability of college enrollment for female students by parental education and income, a table of the marginal effects for each of these contrasts can easily be produced (see Table 7.4). First, we employ a
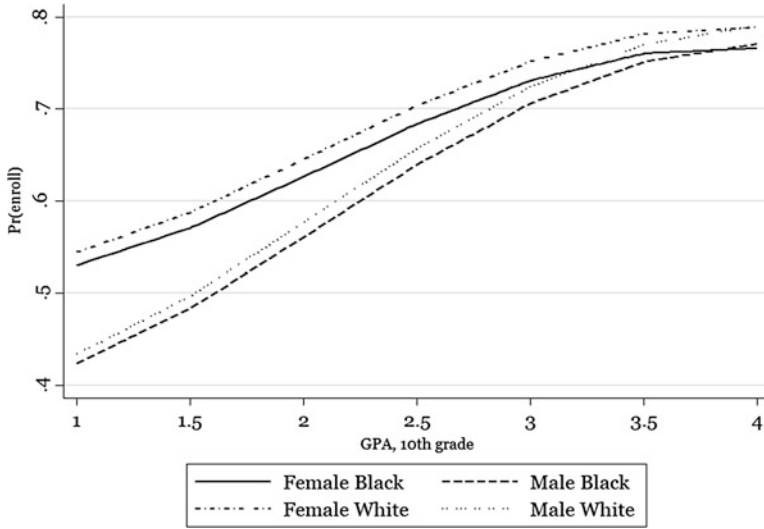
Fig. 7.5 Probability of college enrollment by race, gender, and GPA (Source: HSLS:2009)

Table 7.4 Comparison of the probability of female college enrollment by select income and parental education levels

	Pr(college enrollment)	Lower CI	Upper CI
Panel A: at the means			
Low-income student whose parent(s) has no more than high school degree	0.637	0.604	0.670
Middle-income student whose parent (s) enrolled in but did not attain a college degree	0.650	0.592	0.708
High-income student whose parent(s) earned a college degree	0.808	0.787	0.829
Panel B: at local means			
Low-income student whose parent(s) has no more than high school degree	0.554	0.520	0.587
Middle-income student whose parent(s) enrolled in but did not attain a college degree	0.618	0.557	0.679
High-income student whose parent(s) earned a college degree	0.902	0.890	0.914

Source: HSLS:2009
Notes: Student-level controls include: gender, race, parental education, income, highest math taken, whether friends plan to go to college; School-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges. Sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates ($N = 10{,}940$)

crosstab of parental education and income (using tab in Stata) to estimate clustering of observations to build our profiles. We find there is a cluster of low-income students whose parents have no more than a high school degree (low-income first-generation college goers). There is also a cluster of high income students whose parents have bachelor's degrees (high-income non-first-generation college graduates). There is an additional set of students we can identify as being first-generation four-year college-goers (their parents have not completed a four-year degree) and are middle-income. We then examined the probability of college enrollment for these three groups using *mtable* to set the values for gender, parental education, and income associated with these three profiles and calculate their probabilities while holding all other independent variables at their means (Panel A in Table 7.4).

In terms of their enrollment probabilities, there is about a 17 (probability) point difference between the least (0.637) and most advantaged (0.808) students. These findings may be limited because parental income and education is often related to other measures, for example the availability of AP courses to students, with low-income students being less likely to gain access to such advanced courses. Therefore, plugging in mean values of the overall sample to calculate predicted probabilities (as in Panel A) may not be as meaningful as plugging in local means for covariates that are more representative of each group. This is an important difference when you have covariates that are markedly different across groups (e.g., the mean GPA for the least advantaged group is 2.59 versus 3.24 for the most advantaged group). To recalculate the predicted probabilities using the local means, we first created variables that identify each group of interest (e.g., low-income students whose parents did not go to college). Then we used these three identifiers to construct three separate *mtables* each producing sets of probabilities where the covariates are held constant at their local means. These results allow us to observe how students with high-income and bachelor's degree holding parents are advantaged. Their probability of enrolling in college is much higher (a 45-point difference) relative to their low-income, first-generation peers (see Panel B in Table 7.4). Long and Freese (2014) discuss how to formally test for differences in these probabilities among subgroups. In general, predicted probabilities are useful for interpreting differences in outcomes across subgroups, and computing predicted probabilities ($\hat{p}$) using local means can adjust for differences in covariates by subgroups.

Classification or Predictive Accuracy Binary regression models are typically used to predict the probability of outcomes for individual observations and they can also be used to classify individuals (using these predicted probabilities) into categories. For example, in higher education research, previous studies have predicted individual student enrollment propensities (DesJardins, 2002) and others have used predicted probabilities to classify students into groups based on their chances of gaining admission into selective colleges (2013). A simple way to examine how well your model predicts the outcome of interest, another measure of goodness of fit, is to extract the classification diagnostic information produced by logit regression

techniques. In Stata, this classification information is available by invoking the *estat classification* command. The classification rate is a calculation of how often a model correctly classifies observations into either y = 1 or y = 0; in our running example, how well our logit model classifies college enrollment or not. A correct classification rate (CCR) of 0.5 means the model correctly predicts outcomes 50% of the time. Such a model would not outperform a random classifying scheme (e.g., flipping a coin to categorize). In addition to the overall classification rate, there are two measures that researchers also often examine. One is sensitivity, or the rate at which the model will correctly classify those experiencing the event or outcome.[12] The unrestricted logit model we estimated correctly identified college-goers 89% of the time (sensitivity of 0.89). Specificity is the rate at which the model correctly classifies those who do not experience the outcome. Our model was not very accurate in classifying non-college-goers (specificity of 0.50). Overall, our model correctly classified college-going across the entire sample 76% of the time.

Hosmer et al. (2013) note that sensitivity and specificity are calculated based on a single threshold value used to classify observations. Statistical programs such as Stata, SPSS, and SAS all use a default predicted probability threshold of 0.50, but researchers may want to specify a different cutoff probability for events with particularly high or low probabilities of occurrence. One way to try to assess whether a 0.50 cut point is optimal is by using the *lsens* command in Stata. This command produces a plot of the sensitivity and specificity across the entire range of possible threshold cut points that could be used. Ideally, we would select a cut point that maximized both sensitivity and specificity measures – at their intersection. In the left side panel in Fig. 7.6, we find the ideal probability cut point for classification is about 0.68. While the *lsens* graph can provide some indication of alternatives to the 0.50 default cut point, it does not tell us how well our model can discriminate college goers from non-college goers in our data. To do so, we need a measure that captures our ability to identify 100% of college-goers (sensitivity) and misidentify non-college-goers 0% of the time (1-specificity) over all possible cut points. This plot is known as the receiver operator characteristic (ROC) curve, whereby the area under the curve is used to determine model fit—the closer to 1, the better the fit of the model. The right-hand side panel of Fig. 7.6 illustrates the ROC curve, plotted with the *lroc* command. The diagonal line represents random assignment to 0 or 1. Therefore the area above that line represents a net increase in sensitivity and reduction in specificity. In our example, the area under the curve is 0.795, which is on the margin of being considered a "very good" fit.[13] Hosmer et al. (2013) warn that the extent to which a model can discriminate between outcomes is not only dependent on the fit of

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[12]The default classification threshold in Stata is a probability of 0.5 – observations with probabilities above 0.5 are classified as 1; 0 otherwise.

[13]To be clear, there are no absolute definition of an area under the curve measure that is a "good fit," but rather rules of thumb ranges: 0.5 is no discrimination (or no better than chance); 0.5 to 0.7 is considered poor; 0.7 to 0.8 is acceptable; 0.8 to 0.9 is excellent; and greater than 0.9 is outstanding (Hosmer et al., 2013).
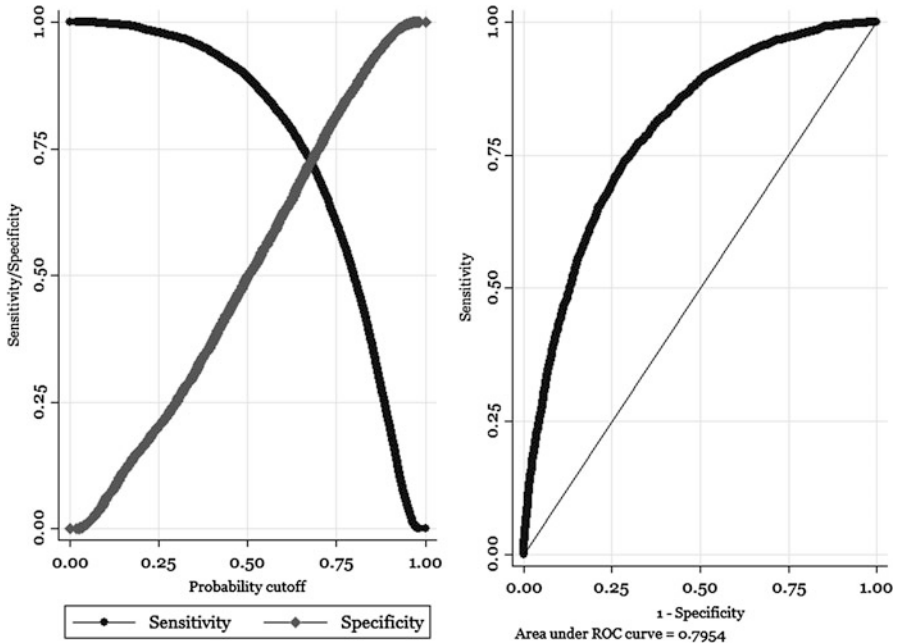
Fig. 7.6 Sensitivity and specificity versus probability/receiver operator characteristic curve (Source: HSLS:2009)

the model, but on the nature of the outcome and differences between the two groups: "we can have a well fitting models that discriminate poorly, just as we could have models with poor fit that discriminate well" (Hosmer et al., 2013, p. 174).

Some scholars note that the aforementioned measures that assess predictive accuracy actually overestimate the precision of these models (DesJardins, 2002; Hosmer et al., 2013). If the researcher's intention is to use data outside of the sample used to derive the model (e.g., in predicting admission or enrollment behaviors using historical data), they should not assume that their models will have similar predictive accuracy. Therefore, in order to better make the case for a model's accuracy in classifying observations or predicting outcomes, researchers should first estimate the model with a random subsample of observations, and then test their predictive accuracy on the reserve (or validation) sample using these tests. See DesJardins (2002) and Chapter 5 of Hosmer et al. (2013) for more on the out-of-sample validation approach.

7.2.4   Probit Regression

We now turn to another technique often used to model binary outcomes, the probit model, and juxtapose it to the logit model discussed above. To transform probabilities into a continuous variable that ranges from $-\infty$ to $+\infty$, the probit approach relies on the inverse cumulative distribution function based on a normal distribution, called the probit link. The cumulative distribution function can transform any value into a value between 0 and 1. Therefore, its inverse can transform the probabilities that range from 0 to 1 into $\pm\infty$. The probit function is formally defined by:

$$\Phi^{-1}[Pr(y = 1|x)] = X'\beta \tag{7.14}$$
$$Pr(y = 1|x) = \Phi(x\beta) \tag{7.15}$$

Where Φ is the cumulative normal distribution function, the -1 takes its inverse, and $X'\beta$ results in a z-score for the probability of the outcome occurring for each record. As such, the coefficient of a probit regression is interpreted as the change in the z-score of the probability of the event occurring. As with logit, probit is typically estimated using maximum likelihood estimation. One assumption of the probit that is distinct from logit is that the errors are assumed to be normally distributed, with a mean of zero and a variance of 1. Recalling Fig. 7.1, the distribution of errors follows the normal curve for both the probability and cumulative density functions, with thinner tails for the logit than for the probit. Approaches to ascertaining goodness-of-fit are similar to those discussed for logit regression.

Interpretation   We estimated the same unrestricted model used for the discussion of the logit model. In Table 7.5, the probit coefficients are presented as well as their accompanying marginal effects. The coefficients estimated using the probit model are interpreted in the following way: for each one unit change in the regressor of interest, the z-score of enrollment changes by $\widehat{\beta}$, with larger z-scores being associated with higher probabilities for the outcome of interest. In our running example, we find women's probabilities of enrolling in college are 0.075 standard deviations higher than that of their male counterparts ($p < 0.01$). Interpreting these results in a slightly different way, each one-point change in high school GPA (measured from 0.0 to 4.0) increases the probit index by about one-third of a z-score ($\widehat{\beta} = 0.337, p < 0.01$).

When compared to the logit coefficients in Table 7.3, the magnitude of the probit coefficients are smaller by roughly $\sqrt{3}/\pi$, the conditional variance of the errors assumed for the logit. (Equivalently, the logit coefficients are larger than the probit coefficients by a factor of about 1.7). This difference in the magnitude of the point estimates reflects the assumptions made about the distribution of the (conditional) error variances in the logit and probit models.

Some people find it difficult to interpret the z-score coefficients from probit regressions directly, as they are not expressed in readily understood units. Researchers often revert to presenting probit regression results using predicted probabilities and marginal effects, and we include the latter from our estimated

Table 7.5 Comparison of estimates of the probability of college enrollment, probit and linear probability models[a]

	(1)		(2)		(3)	
	Probit coefficients		Probit MEs		LPM coefficients	
	Estimates	S.E.	Estimates	S.E.	Estimates	S.E.
Female	0.075***	−0.028	0.022***	−0.008	0.020**	−0.008
Race						
Native American	−0.055	−0.129	−0.016	−0.038	−0.013	−0.039
Asian	−0.064	−0.056	−0.019	−0.016	−0.013	−0.016
Black	0.147***	−0.051	0.041***	−0.014	0.045***	−0.015
Latino	0.075*	−0.041	0.021*	−0.011	0.022*	−0.012
Multiracial	−0.06	−0.048	−0.017	−0.014	−0.018	−0.014
White	–	–	–	–	–	–
Academic controls						
GPA, 10th grade	0.337***	−0.02	0.096***	−0.006	0.111***	−0.006
Math test score	0.003**	−0.002	0.001**	0	0.001**	0
Number of AP credits	0.066***	−0.01	0.019***	−0.003	0.013***	−0.002
Other student-level controls [b]	x		x		x	
School-level control[c]	x		x		x	
N	10,940		10,940		10,940	

Source: HSLS:2009

Notes: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, ~$p < 0.1$; (a) sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates; (b) other student controls includes parental education, income, highest math taken, whether friends plan to go to college; (c) school-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges

model results displayed in the third column of Table 7.5. Not surprisingly, the marginal effects derived from the probit are quite similar to those produced by the logit model presented in Table 7.3, and are interpreted in an equivalent manner.

7.2.5 Linear Probability Model

It is not uncommon for researchers to use the linear probability model (LPM) to estimate models where the outcome is binary (e.g., Dynarski, 2004; Hurwitz, 2012). The appeal of the LPM stems from the straightforward interpretation of its coefficients because the coefficients are, simply, marginal effects (i.e., changes in probabilities), holding all other variables constant. A dichotomous dependent variable takes on only two values (e.g., enrollment in college = 1; non-enrollment = 0), thus, OLS regression estimates the mean of that dichotomous outcome – i.e., its expected frequency, and the predicted dependent variable from an LPM, $\hat{y}$, is the (conditional) predicted probability of enrollment.

Formally the LPM model can be defined as:

$$Pr(y_i = 1|x) = X'\beta + \varepsilon_i \tag{7.16}$$

where y is a categorical outcome for student i who enrolls in college ($y = 1$) or not ($y = 0$); X' is a vector of explanatory variables (e.g., academic ability, demographic characteristics, college-promoting networks, and school measures) thought to be related to one's enrollment probability; β is a corresponding vector of parameters to be estimated, and ε represents the error term, which is assumed to be normally distributed.

The LPM has the same set of assumptions as an OLS regression using a continuous dependent variable, and interrogating these assumptions is essential to understanding whether the model is appropriate to the estimation task at-hand (Long, 1997). One assumption is *linearity*, where the dependent variable (y) and the independent variables ($x's$) are assumed to be linearly related through the parameters in vector β. A second assumption is *collinearity*, where the x's are assumed to be independent, that is, none of the regressors (x's) are a linear combination of the other covariates. Next, the error term (ε) is expected to be normally distributed (*normality*) with a mean of zero given a set of x's (the *zero conditional mean of ε* assumption). Additionally, the errors are assumed to be uncorrelated (*uncorrelated errors*) and to have a constant variance across observations, the latter being known as *homoscedasticity*. Intuitively, these last two assumptions suggest that the values observed for one student should not depend on the observed values of another student, and the distribution of the errors should be similar across each covariate (x). A common way to estimate the LPM is using ordinary least squares (OLS), where the objective is to minimize the sum of the squared errors (Long, 1997).

Example: Modeling College Enrollment As with our examples discussed above, we estimated the probability of college enrollment using the following model:

$$Pr(Enroll = 1) = \beta_0 + \beta_1 DEMS + \beta_2 ACAD + \beta_3 EXPECT \\ + \beta_4 SCHOOL \tag{7.17}$$

where *Enroll* is 1 if a student enrolled in college, and 0 if they did not; *DEMS*, *ACAD*, *EXPECT*, and *SCHOOL* are vectors of independent variables (described previously) and their corresponding parameters β's that are to be estimated, and ε is a randomly distributed error term accounting for mis- and unmeasured explanatory variables related to college enrollment. The LPM relies on the same measures of goodness of fit, such as the R^2, as when using OLS to estimate a continuous dependent variable. Our results indicate that the R^2 for this model is 0.24, which is a measure that is not (technically) comparable to McFadden's R^2 often used for the logit and probit models.

Interpretation of Findings The interpretation of the coefficients $(\widehat{\beta})$ is similar to that of a standard linear regression model with a continuous outcome–a one unit change in an explanatory variable x (e.g., one's high school GPA), results in a $\widehat{\beta}$
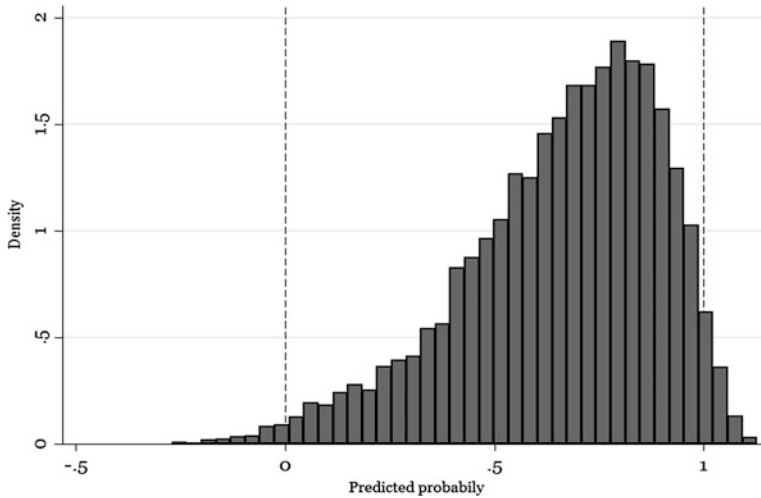
Fig. 7.7 Distribution of predicted probabilities of enrollment: Linear probability model (Source: HSLS:2009)

change in the *probability* of the outcome, in this case, college enrollment (ceteris paribus). The fifth column in Table 7.5 displays the coefficient estimates produced by the LPM (as well as the associated standard errors). On average and net of other variables, women have probabilities of college enrollment that are about two percentage points higher than men $\left(\widehat{\beta} = 0.020, p < 0.05\right)$. When examining race, Black (Latino) students' probabilities of enrolling in college are 4.5 (2.2) percentage points higher than White students. In terms of high school GPA, each one-unit increase results in an 11.1 percentage point increase in the probability of college enrollment ($p < 0.001$). All of these estimates are similar to the marginal effects produced by the logit and probit regressions (see Table 7.3). However, an important distinction is that the LPM imposes a linear constraint such that the effect $\left(\widehat{\beta}\right)$ for each variable (x) is the same (constant) no matter the value of x (i.e., plotting the OLS estimate in Fig. 7.4 would produce a horizontal line at about 0.11).

As is true for the non-linear logit and probit regression models, we can predict the probability of college enrollment for each individual using the LPM results, and these results are presented in Fig. 7.7. It may be troubling that some predictions (about 4%) fall outside of the [0,1] probability interval, thereby providing clearly nonsensical predictions.

We then examined how to use the OLS results to classify students. Although we are unable to use post-estimation commands for classification as we did for logit and probit, we classified students into college enrollment using a threshold of 0.5 and compared it to the observed outcome. We found that similar to the logit model, the LPM's sensitivity (the percent of observations it correctly classified as college-

going) was 90.0 percent and the specificity (the percent of non-college-goers it correctly classified) was slightly lower at 47.8 percent.

Drawbacks of the LPM Although LPM is appealing due to its familiarity and intuitive coefficient estimates, the out-of-range predictions in Fig. 7.7 suggest there are limitations to this model. Indeed, many of the assumptions used in the linear regression framework are violated when using a dependent binary outcome. Long (1997) points to four issues with the LPM that we illustrate with our data, below.

Functional Form A fundamental assumption about the linear model is that a given variable (x) will have the same relationship with the outcome (y) across all values of x. In our example from Table 7.5, a one-unit increase in GPA results in a constant change a student's probability of college enrollment across all values of GPA, holding all other variables constant. This implies that the difference in the probability of college enrollment between students with GPAs of 4.0 and 3.0 to be 11 points—the same as the difference between students with 1.0 and 2.0 GPAs (net of other variables). However, we know that college enrollment is quite high among B students; and the differences in college-going may be greater between C and D students than A and B students (as suggested in Fig. 7.3). Therefore, a linear relationship may not best describe how changes in GPA influence changes in college enrollment. One potential way to address such nonlinearity in the relationship between y and a given x is to include nonlinear terms or other transformed versions of x (e.g., polynomials or logged terms).

Heteroscedasticity The assumption that there is constant variance in the x's across the ranges of values is categorically (no pun intended) violated. Mathematically, the variance of a binary outcome y is $\mu(1-\mu)$, given mean μ. When conditioning on variables $\boldsymbol{x}$, then:

$$Var(y|x) = Pr(y = 1|x) * [1 - Pr(y = 1|x) = x\beta * (1 - x\beta) \tag{7.18}$$

meaning that the conditional variance of y, conditional on x, varies with x. Thus, as Long (1997) notes, the variance of the errors for a binary outcome is not constant, nor are the values of the x's independent. We plot the residuals from the LPM model against its predicted values (using the *rvfplot* command in Stata) in Fig. 7.8, which demonstrates significant heteroscedasticity in the observations in our sample. If the variance was constant, we would expect to see a random pattern of observations around the length of the horizontal line located at y = 0. Although such graphical approaches are useful, to formally test whether the variance is constant we use the *estat imtest* command, which tests the null hypotheses that the variance of the errors is constant and normally distributed. The results of this test (not shown) indicates that the residual variance of the errors is heteroskedastic, thus "the OLS estimator of β is inefficient and the standard errors are biased" (Long, 1997, p. 38).

Non-Normality of Errors The errors of a binary outcome are not normally distributed around the x's. Residuals, you may recall, are calculated as the difference between the observed and estimated (or fitted) values. Because binary outcomes can
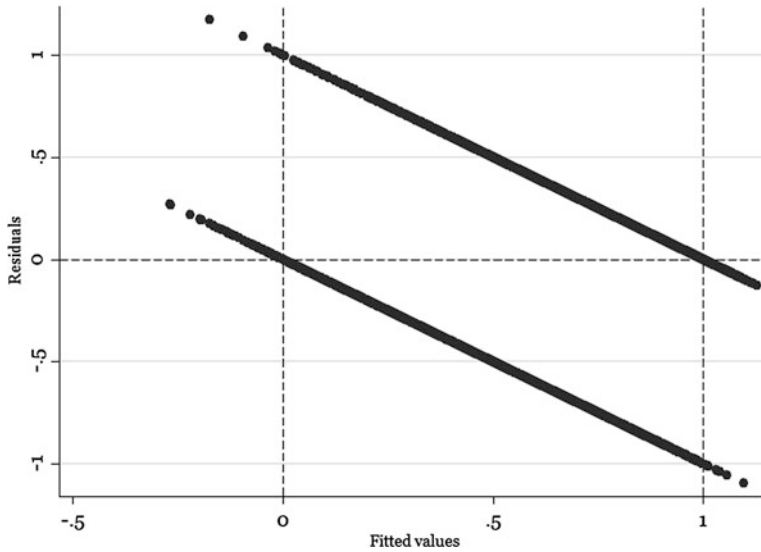
Fig. 7.8 Results of residual-versus-fitted plot for the linear probability model (Source: HSLS:2009)

only take on the values of 0 or 1, residuals can take on only one of two values (Fig. 7.8). For example, for all students who a have an estimated probability of enrollment of 0.80, they have one of two residual values: +0.80 if they actually did not enroll in college or −0.20 if they did. Therefore, structurally, the distribution of errors cannot be normal. You can also examine the normality of the distribution in Stata (Chen, Ender, Mitchell, & Wells, 2003). We first stored the errors using the *predict* command and then compared the density plot of the errors to the normal distribution using the *kdensity* command (Fig. 7.9), which shows a skewed distribution of errors. In addition to a visual inspection of the errors we can also employ one of a number of statistical tests of normality in finite samples. The skewness and kurtosis test for normality (*sktest* in Stata) assesses the symmetry and tail thickness of a distribution, which indeed confirms our visual inspection of Fig. 7.9 ($p < 0.001$ for both skewness and kurtosis).

Out-of-Range Predictions As we illustrated in Fig. 7.7, the LPM can produce probability estimates that are out of the range of plausible values. Indeed, 4% of our sample had predicted probabilities that were either less than zero or greater than 1. However, the college enrollment rate for this sample is somewhat balanced (66%), but when modeling rare or very common events—where the majority of the probabilities are in the tails of the distribution, a LPM will likely produce a larger share of out-of-range predictions. To demonstrate this issue we produce an example where we modeled student *expectations* to enroll in college –which is known to be universally high (91% of our sample expects to go to college)—we find that the
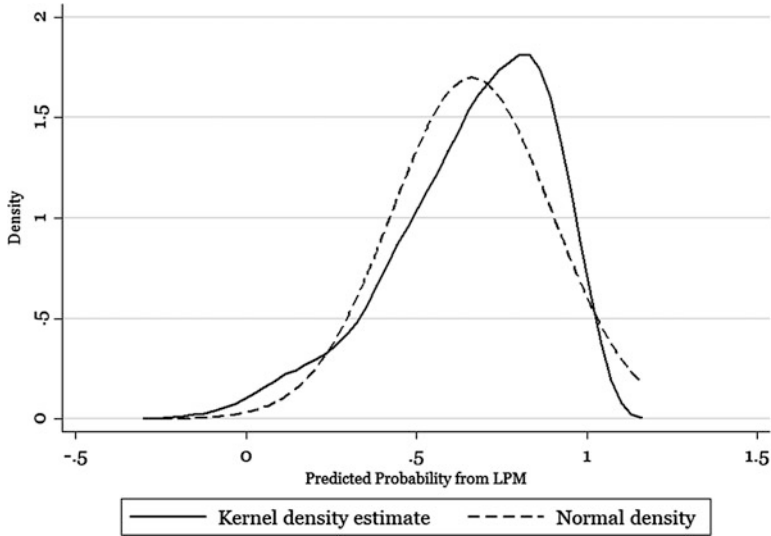
Fig. 7.9 Comparison of kernel density plots, linear probability model estimates and normal distribution (Source: HSLS:2009)

LPM produces predicted probabilities greater than one for almost one-quarter (22%) of the sample, but none less than zero. These findings are, however, sample dependent, as indicated by no predicted probabilities less than one which is due to the very high percentage (91%) of students in the sample who have expectations for going to college. To further illustrate these differences, the boxplot in Fig. 7.10 compares the range of predicted probability estimates for college expectations for the logit, probit, and LPM college expectations model. The LPM has a slightly lower mean predicted probability of expecting to go to college, a larger range of predicted values than the logit and probit, and the upper whisker extended beyond the upper limit of 1, whereas the predicted probabilities for the logit and probit models are bounded by 0 and 1 by construction.

A final illustration details the differences in predicted probabilities in the tails of distribution. Because the probabilities of college enrollment would largely lie in the linear portion of the probit's s-curve, we would expect the college enrollment probability estimates derived from the probit model not to deviate as much from the LPM (save for the tails). However, because the range of probabilities for the college expectations model are generally at the upper end of the distribution, we would expect the linear probability model to diverge for many of the aforementioned reasons. We therefore plotted the predicted probabilities produced by the LPM against those produced by the probit (the logit exhibits a similar result) in a scatter plot for both the college enrollment (Panel A) and college expectations (Panel B) models to illustrate the differences in results (Fig. 7.11). A perfect alignment
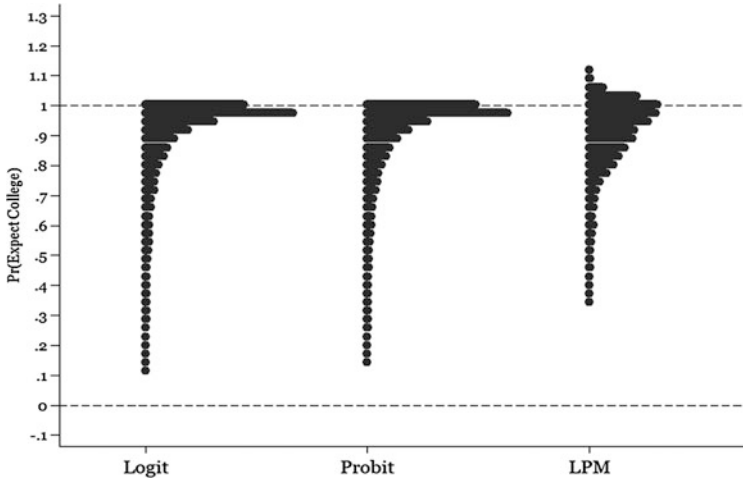
Fig. 7.10 Comparison of predicted probabilities for college expectations (Source: HSLS:2009)
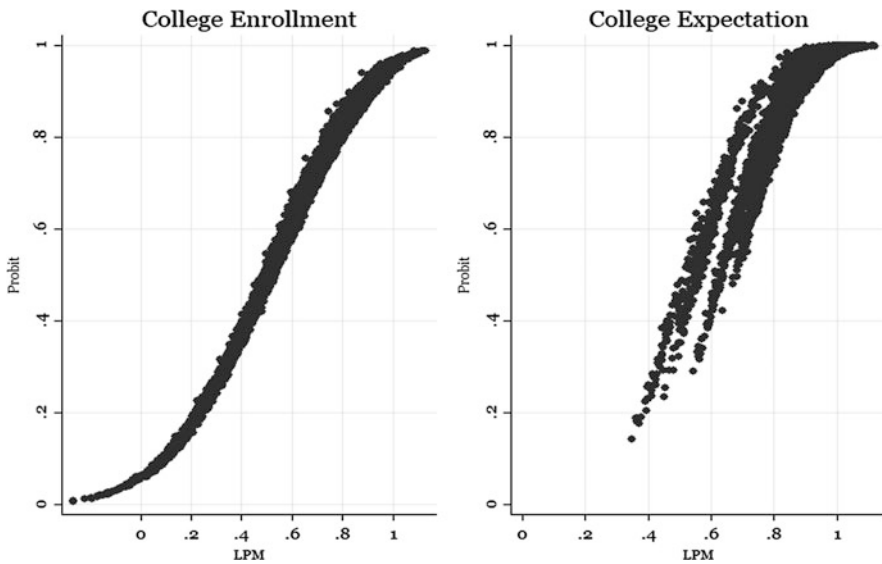
Fig. 7.11 Scatter plot of predicted probabilities for probit and LPM estimates, for college enrollment and college expectations (Source: HSLS:2009)

between the probit and LPM predictions would produce a diagonal line from (0, 0) to (1,1). In Panel A, we observe that the deviations between the linear and probit models are largely in the tails of the sigmoid (S-shaped) curve, which is consistent with their underlying assumptions about the distribution of errors. In Panel B, we find there are large differences in the probit and LPM estimates when modeling an event at the top end of the probability distribution (e.g., where over 90 percent of events occur). This provides further evidence that the LPM may be an inappropriate approach when modeling rare or common.

Moreover, some measures in an LPM may require transformations that are not necessary in logit and probit models. Consider the measure number of AP credits, which the LPM exhibits a small negative (but insignificant) relationship with college expectations of ($\widehat{\beta}$ = -0.001, p > 0.10) yet the probit estimates a positive and significant relationship ($\widehat{\beta}$ =0.011, p < 0.001, Table 7.6). A plot of the predicted probabilities indicates that the LPM estimates diverge from the probit and logit as the number of AP courses increases, and the LPM estimates also become much less precise with increases in the number of AP courses completed (Fig. 7.12). A closer look at AP credits reveals that it is heavily skewed right, as many students take none or only one AP course. Due to the linear relationship assumed in the functional form when using the LPM, modeling of nonlinear outcomes with highly skewed distributions while using highly skewed covariates may yield unexpected results. Without transformations of covariates into nonlinear terms, the LPM may not properly account for the clustering of observations at the extremes of the variable distributions. Researchers should consider the prevalence of their outcome and distribution of their covariates before employing this approach.

7.2.6 Conclusion

The ubiquity of binary outcomes in education research has necessitated the use of nonlinear estimation approaches such as the logit and probit. To be sure, linear probability models remain quite popular for estimating dichotomous dependent variables. Notwithstanding the problems noted, some of the reasons the LPM remains popular is its familiarity and the simplicity of the interpretation of the point estimates. Also, there are adjustments that can be made that will remedy some of the assumption violations, such as employing the use of robust standard errors and transforming independent variables that one may think are non-linearly related to the outcome. Nonetheless, the decision of whether to use LPM, logit, or probit when estimating binary outcomes remains a topic of active discussion. Some scholars contend that researchers who employ the LPM should do so with caution because of functional form violations (Long, 1997) and/or the production of

Table 7.6 Comparison of marginal effects on college expectation from logit, probit, and linear probability models[a]

	Logit MEs		Probit MEs		LPM Coefficients	
	Estimates	S.E.	Estimates	S.E.	Estimates	S.E.
Female	0.021***	−0.005	0.019***	−0.005	0.018***	−0.005
Race						
Native American	0.031	−0.019	0.027	−0.02	0.041*	−0.025
Asian	−0.006	−0.014	−0.013	−0.013	−0.001	−0.010
Black	0.031***	−0.007	0.032***	−0.007	0.044***	−0.010
Latino	0.003	−0.007	0.002	−0.007	0.005	−0.008
Multiracial	0.002	−0.009	−0.001	−0.009	0.007	−0.009
White	–	–	–	–	–	–
Academic controls						
GPA, 10th grade	0.040***	−0.003	0.041***	−0.003	0.056***	−0.004
Math test score	0.002***	0.000	0.002***	0.000	0.002***	0.000
Number of AP credits	0.018***	−0.004	0.011***	−0.003	−0.001	−0.001
Other student-level controls[b]	x		x		x	
School-level controls[c]	x		x		x	
N	10,940		10,940		10,940	

Source: HSLS:2009

Notes: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, ~$p < 0.1$; (a) sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates; (b) other student controls includes parental education, income, highest math taken, whether friends plan to go to college; (c) school-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges

inaccurate estimates (Horace & Oaxaca, 2006). In contrast, other scholars argue that the LPM is a parsimonious estimation approach that yields similar results to logit or probit modeling under a variety of common conditions (Angrist & Pishke, 2009).

There are, of course, tradeoffs to using each approach, and understanding one's data, the conceptual foundations of the issues being examined, and underlying statistical assumptions and how robust the method is to violations of these assumptions are important considerations when choosing an estimator for binary outcomes. The choice between logit or probit is largely dependent on researcher preference and disciplinary norms, though under some circumstances, the probit will have a marginally better fit than the logit (see Hahn & Soyer, 2005, for details). However, given the assumption used for the error distribution, the logit performs well with explanatory variables containing extreme values concentrated in the tails of the distribution. In addition, the logit link function allows for the calculation of the odds ratio, which may be useful in interpretation of one's findings. Moreover, there are some statistical applications that use a specific link function, such as the two-step Heckman selection model which relies on the probit link function for the first step/first-stage equation because the technique assumes bivariate normal errors (Greene, 2002), so understanding it is necessary when employing these techniques.
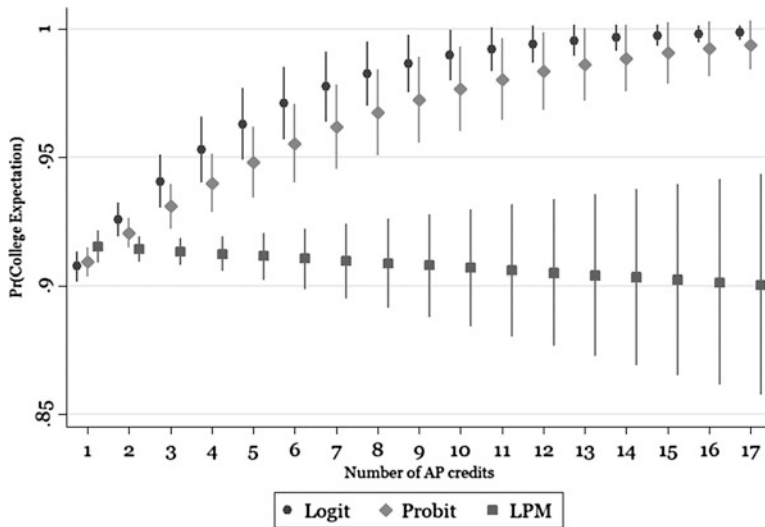
Fig. 7.12 Comparison of predicted probabilities of college expectations by AP credits and modeling approach (Source: HSLS:2009)

7.3 Ordinal Outcomes

In higher education research, there are a number of commonly studied categorical outcomes that take on more than two values and have values that can be *ranked* or set in some *hierarchy.* For example, researchers may want to analyze higher education public opinion data using Likert scales (e.g., ranked from "strongly disagree" to "strongly agree"); one could estimate the probability of students enrolling in colleges according to hierarchical categories of institutional selectivity (e.g., from "least" to "most" selective institutions); we could estimate the probability of earning a particular grade in a college course where grades are ranked from "A" to "F"); or we might estimate high school students' postsecondary expectations from "no college" to "doctoral degree." To model the probability of the event when the outcome measure is ordinal, scholars have employed the ordered logit or ordered probit models (Brasfield, Harrison, & McCoy, 1993; Cheng & Starks, 2002; Doyle, 2007; Morrison, Rudd, Picciano, & Nerad, 2011; Myers & Myers, 2012). For example, in their study of prestige and job satisfaction, Morrison et al. (2011) used ordered logistic regression to examine responses from survey data of faculty perceptions of institutional prestige.[14]

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[14]An additional approach that is not discussed here but may of use to higher education researchers is the sequential logit, which models events that individual experience in sequence—for example course-taking (Algebra I, Algebra II, Pre-Calculus); admission stages (application, admission, enrollment); tenure-track faculty positions (Assistant, Associate, Full).

Ordinal outcome variables may represent an underlying continuous latent construct. Drawing from the aforementioned examples—faculty's perceptions of job satisfaction, institutional selectivity, learning (as captured through course grades), etc.—are all complex constructs that may have underlying but unobserved values that are actually continuous. However, we only observe the realizations of this underlying continuous construct. As an extension of binary regression, ordinal regression is similar to logit or probit modeling except there are several (rather than one) cut points along the distribution of the latent dependent variable that cut this distribution into categories that can be observed. To illustrate this latent variable concept, the structural model can be defined as:

$$y^* = X'\beta + \varepsilon \tag{7.19}$$

where y^* is a latent continuous outcome that is unobserved and ranges from $\pm\infty$; X' is a vector of regressors; β is a set of corresponding parameters; and ε is a vector of error terms. The categories of outcomes are then defined by thresholds (τ) using the following measurement model:

$$y = c \text{ if } \tau_{c-1} \leq y^* \leq \tau_c, \text{for } c = 1 \text{ to } J \tag{7.20}$$

where the observed outcome (y) provides "incomplete information about an underlying y^*" (Long, 1997, p. 116) but these thresholds assign the cth outcome category of J possible categories depending on whether the latent measure y^* falls between a lower bound τ_{c-1} and upper bound τ_c (Long, 1997).[15] To illustrate, our latent construct we use the selectivity of an institution that a student might choose to attend and we want to model this as a four-category ordinal outcome. These categories are defined as follows:

$$y = \begin{cases} 1, & \text{no college} & \text{if } \tau_0 = -\infty \leq y^* < \tau_1 \\ 2, & \text{less selective college} & \text{if } \tau_1 \leq y^* < \tau_2 \\ 3, & \text{selective college} & \text{if } \tau_2 \leq y^* < \tau_3 \\ 4, & \text{most selective college} & \text{if } \tau_3 \leq y^* < \tau_4 = \infty \end{cases}$$

Using some algebraic manipulation and making some assumptions about error distributions allows us to provide estimates of the *probabilities* that a student will be in each of the categories noted in Eq. 7.20. Formally,

$$Pr(y = c|x) = F(\tau_c - X'\beta) - F(\tau_{c-1} - X'\beta) \tag{7.21}$$

where F is the cumulative distribution function (for either the logit or probit), x is a vector of covariates; and β is a corresponding vector of parameters. The probability of observing outcome c is equivalent to the difference between the probabilities of

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[15]For a graphical representation of the cut points, see Long (1997).

being bounded by two thresholds along the cumulative distribution function. Similar to the binary models, this model is estimated using maximum likelihood estimation techniques.

7.3.1 Assumptions

In order to estimate the ordinal regression model, a number of assumptions need to be made about the distribution of errors that are similar to those noted in the binary outcomes section. The ordinal logit has a logistic error distribution with a mean of zero and a variance of ($\pi^2/3$), and the errors are assumed to be normally distributed with a mean a zero and variance of 1 for the ordinal probit model. One additional assumption for ordinal regression is that the slopes of the included regressors are constant across all the outcome categories, which is known as the *parallel slopes (or proportional odds) assumption*.[16] To illustrate, if we modeled enrollment across institutional selectivity categories and included gender as a covariate, women would have the same slope coefficient ($\widehat{\beta}$) for enrollment at a less selective college as they would for a most selective college. This is a very stringent assumption that commonly fails formals tests. There are formal tests of this assumption that are commonly used (discussed below), one comparing the fit of the model using its log likelihood to a model with relaxed assumptions, known as the generalized ordered logit model[17] (likelihood ratio and score tests) or a test whether the $\widehat{\beta}$ s are significantly different across categories (Wald or Brant tests).

There are a number of approaches one can take when the parallel slopes (or parallel regression) assumption fails. First, one can identify and remove variables thought to differ across outcome categories, but this strategy may not appeal to researchers if the variable(s) in question are conceptually important. Second, one can fit the model using multinomial regression (discussed in the following section). When employing a multinomial regression (*mlogit*), the assumption that the categories are ordered is relaxed and thus the parallel slopes assumption no longer applies. Imposing a rank-order of outcomes that are not ordinal (and thereby the parallel slopes assumption) will bias your estimates (Borooah, 2002). However, if the dependent variable is truly ordinal and we treat it is as nominal, we may be faced with a loss of efficiency because we have "fail[ed] to impose a legitimate ranking on the outcomes" (Borooah, 2002, p. 3). In choosing between the tradeoff of model efficiency and estimate bias, the former is usually favored, and therefore applying a multinomial regression would be an appropriate course of action..

In some cases, researchers have used OLS regression to model ordinal outcome variables (e.g., modeling Likert-scale responses as continuous). Conceptually, such

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[16]See Long (1997) for the derivation of the parallel regression assumption.

[17]The generalized ordered logit model does not assume that the $\widehat{\beta}$'s are equal. See Long and Freese (2014).

an approach assumes that the categories are spaced equidistantly. However, this equidistance assumption may not be true for ordinal data because the magnitude of the differences between categories can vary in ways that are unknown. For example, when employing OLS to estimate our college selectivity dependent variable, the magnitude in the underlying latent construct between not going to college and choosing a less selective college is assumed to be the same as the distance between choosing a very selective and most selective college. However, this may not be case, as there is a lot of heterogeneity within institutional selectivity categories, particularly among less-selective institutions (Bastedo & Flaster, 2014). As a result, the use of OLS to model ordinal outcomes may violate a number of assumptions – particularly the normality and heteroscedasticity assumptions. Winship and Mare (1984) discuss how the ordinal probit and OLS models can produce disparate estimates, some of which parallels our own discussion of the use of linear probability models in Section III above.

7.3.2   Our Example: College Enrollment by Institutional Selectivity

In this section we build on our example from the binary outcomes section where the dependent variable is a dichotomous outcome of enrollment/not in college. In this section the dependent variable is one containing four college choice categories: did not attend college, attended a less selective, selective, or most selective college, which is (a priori) assumed to be ordinal. In terms of how students are distributed across these four categories, 49% of students did not enroll in college; 23% enrolled in a less selective institution; 15% enrolled in a selective college; and 12% enrolled in one of the most selective colleges. We included as covariates the same variables used in the binary outcome model discussed above (demographic, academic, expectations, student networks, and school controls), and estimated the ordinal model using the *ologit* command in Stata.

Before interpreting the point estimates produced by the ordinal regression,[18] we check whether the parallel regression assumption is satisfied using a likelihood ratio test (*oparallel*) and Brant test (*brant*). The likelihood ratio test compares the overall model fit of a ordinal logit with a generalized ordered logit model that does not impose the parallel regression assumption.[19] Here, the null hypothesis is that the two models fit the data similarly. For our running example, the likelihood ratio test is statistically significant ($p < 0.001$), meaning we can reject the null hypothesis because the generalized model is a better fit. You can also test the extent to which individual covariates violate the parallel regression assumption using the *brant* command. Brant test results are displayed in the first column of Table 7.7 and

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[18]For brevity, we do not include hypothesis tests of the ordered logit or probit, but refer readers to Long and Freese's (2014) overview.

[19]For more on generalized ordered logit models, see Long and Freese (2014).

Table 7.7 Comparison of marginal effects for ordinal logit and multinomial logit models of enrollment by selectivity

		Ordinal logit estimates				Multinomial logit estimates			
	Brant test	No college	Less Sel.	Sel.	Most Sel.	No college	Less Sel.	Sel.	Most Sel.
Female	FAIL	−0.010	−0.001	0.004	0.007	−0.024**	0.024**	0.011	−0.011
		(0.006)	(0.000)	(0.002)	(0.004)	(0.008)	(0.008)	(0.008)	(0.006)
Race									
Native American		0.034	0.001***	−0.013	−0.022	0.011	0.047	0.019	−0.077**
		(0.028)	(0.000)	(0.011)	(0.017)	(0.039)	(0.041)	(0.040)	(0.028)
Asian	FAIL	−0.030**	−0.003*	0.011**	0.022**	0.022	−0.024	−0.027	0.029**
		(0.011)	(0.001)	(0.004)	(0.008)	(0.018)	(0.018)	(0.014)	(0.010)
Black		−0.027**	−0.003*	0.010**	0.020*	−0.039**	0.021	0.007	0.010
		(0.010)	(0.001)	(0.004)	(0.008)	(0.014)	(0.015)	(0.016)	(0.013)
Latino	FAIL	0.004	0.000	−0.001	−0.003	−0.015	0.061***	−0.039***	−0.006
		(0.009)	(0.001)	(0.003)	(0.006)	(0.012)	(0.013)	(0.012)	(0.010)
Multiracial		0.029**	0.001***	−0.011**	−0.019**	0.021	0.013	−0.009	−0.025*
		(0.011)	(0.000)	(0.004)	(0.007)	(0.014)	(0.015)	(0.014)	(0.011)
White	–	–	–	–	–	–	–	–	–
Academic controls									
GPA, 10th grade	FAIL	−0.096***	−0.007***	0.035***	0.068***	−0.106***	−0.021***	0.047***	0.081***
		(0.004)	(0.001)	(0.002)	(0.003)	(0.006)	(0.006)	(0.007)	(0.006)
Math test score	FAIL	−0.002***	−0.000***	0.001***	0.002***	−0.001	−0.002***	−0.001	0.003***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

	FAIL				FAIL			
Number of AP credits	−0.031***	−0.002***	0.011***	0.022***	−0.007*	−0.019***	0.010***	0.016***
	(0.002)	(0.000)	(0.001)	(0.001)	(0.003)	(0.003)	(0.002)	(0.001)
Other student-level controls[b]	x				x			
School-level control[c]	x				x			
N	10,940				10,940			

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ~ $p < 0.1$; (a) sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates ($N = 10{,}940$); (b) other student controls includes parental education, income, highest math taken, whether friends plan to go to college; (c) school-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges

indicate that the test fails for about half of our $\widehat{\beta}$ s, which is not wholly uncommon. Parallel assumption tests are highly sensitive and can fail due to factors unrelated to the parallel regression assumption (Long & Freese, 2014). A less formal way to test whether the parallel regression assumption is violated is to compare the estimates produced by the ordinal model to estimates produced by a multinomial regression model. We did so (see Table 7.7) and when comparing the marginal effects[20] between the two models we find that some of the estimates are substantively different across the ordinal and multinomial models (e.g., gender, Asian students). Taken together, we have evidence that the ordinal regression approach is not appropriate for examining the probability of enrollment across institutional selectivity in this sample, thus, in the next section we demonstrate how to employ a multinomial regression as an alternative.

Although the parallel slopes violation indicates that the ordinal model is not appropriate in this context, for illustrative purposes we discuss and interpret the ordinal regression model estimates (not shown here) to serve as a reference for researchers employing ordinal regression approaches. Similar to coefficients resulting from binary regression, ordinal logit and ordinal probit coefficients differ by a factor of 1.7, given underlying assumptions of the distribution of errors (as discussed in Section III). Moreover, a two-category ordinal regression yields the same coefficients as a binary regression. It is important to note that regression output from common statistical packages also includes estimates for the J-1 cut points. If you recall from Eq. 7.20, the ordinal outcome is conceptualized as a latent continuous measure (y^*) which is carved up into J categories by the J-1 cut points. When $J = 2$ (i.e., when there are two outcome categories, as in a binary regression), the cut point is (basically) equivalent to the constant or intercept (α) in a binary model. But in our running example we have four categories ($J = 4$) which results in 3 (J-1) cut points being estimated by the model. The estimated values produced by for each of the cut points are 3.1, 4.7, and 6.5. Thus, students with an estimated y^* < 3.1 are categorized as not enrolling in college; students with an estimated y^* between 3.1 and 4.7 are categorized as enrolling in less selective colleges; those between 4.7 and 6.5 are in selective colleges; those with a y^* greater than 6.5 are in the most selective colleges group. These cut points ($\widehat{\tau}$'s) are estimated but are generally not of substantive interest and are therefore not often interpreted. However, they can provide some valuable information. If the difference between the cut points is about the same it suggests that the dependent variable is not ordinal but rather on an interval scale. Recall that OLS assumes that the outcome is interval scale, suggesting that using a linear regression may be appropriate.

The raw coefficients produced by the ordered regressions are, as is true for the binary logit case, not intuitive but they can be transformed into odds ratios (if using ordered logit) or predicted probabilities. In our example, the raw coefficient for the Female variable is 0.0675 ($p < 0.10$) which can be transformed into an odds ratio.

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[20]Marginal effects are useful here in comparing across models.

The Stata output produces these raw coefficients by default, and they represent cumulative odds of belonging to a category or higher versus belonging to the lower categories.[21] In our example the odd of females belonging to the no college group vs. all the other categories (less/selective/most) are about 1.07 ($\exp^{0.0675}$ = 1.0698) times that of males. Equivalently, the odds of females belonging to the no college/less selective groups vs. the selective/most selective groups are also about 1.07 times that of males. This demonstrates how the effect of being female on the different contrasts does not vary, which will not be the case for the multinomial models discussed later in the chapter (see Long & Freese, 2014, for a further discussion of interpretation issues).

Although there are numerous outcomes that interest higher education researchers that are ordinal in nature, ordinal regression analyses is less often used because many times the parallel regression assumption tests fail. Scholars (Borooah, 2002; Long, 1997) also caution about the use of ordinal measures when categories can take on multiple meanings and ordering. For example, if we are considering earning potential, we might order a category of institutional levels as no college, two-year college, and four-year college. However, if we are considering time to earn a degree from shortest to longest, we might reorder the institutional levels as two-year, four-year, and no college, whereby those who are not yet enrolled in college are considered to (theoretically) have the longest time to earn a degree. The main point here is that different conceptualizations of the latent construct, and the context in which the categorical ordering is being used, can lead to different conclusions (Long & Freese, 2014). When the parallel regression assumption fails or the ordering of categories is not certain, researchers may want to consider the use of one of the multinomial regression models available, discussed in the next section.

7.4 Nominal Outcomes

Some categorical outcomes are not rank ordered but are rather measured on a nominal scale. In higher education research there are many nominal outcomes of interest: choices among college majors (e.g., liberal arts, pre-professional, STEM, other); reasons for selecting or leaving a college (e.g., availability of financial aid, familial obligations, academic rigor); college-going outcomes (e.g., graduated, still enrolled, transferred, no longer enrolled); or the types of jobs PhD students select upon graduation (e.g., private industry, faculty, public service, non-research). Regression-based models used to estimate multiple nominal outcomes are known as *multinomial models* and these have been used to study many different issues in higher education (e.g, Bahr, 2008; Belasco, 2013; Eagan et al., 2013; Porter & Umbach, 2006; Wells, Lynch, & Seifert, 2011). To illustrate, Bahr used a multinomial probit model to examine the relationship between math course-taking and the

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[21]This is why this model is often called the "cumulative logit model."

long-term degree outcomes of community college students, where the outcome categories of interest were transfer with credential, transfer without credential, degree with or without certificate, certificate only, or no credential). Researchers also employ multinomial regression when they are uncertain about the ordinal nature of their data or are not able to employ ordinal regression. In their study of the representation of women at selective institutions, Bielby et al. (2014) estimated multinomial logit models of college application behaviors by institutional selectivity—arguably ordinal and consistent with our analysis above—because the ordinal model they initially estimated failed the parallel regression assumption test.

When analyzing multi-categorical outcomes, one might be tempted to run separate binary regressions to estimate each pairwise contrast of the categories. For example, we might examine enrollment by institutional selectivity by modeling separate binary regressions for: no college enrollment versus less selective enrollment; college enrollment at less selective versus selective colleges; and so forth. However, this approach results in several regression results that have different sample sizes, leading to a loss of efficiency of the estimates. Furthermore, this approach is deficient because it does "enforce the logical relationship among the parameters" for each of the categories (Long, 1997, p.151). In contrast, multinomial regression simultaneously estimates all of the possible outcome category relationships, and does so making full use of all the available data, thereby remedying the problems noted above when employing binary regression to estimate multinomial outcomes.

To demonstrate the utility of the more popular multinomial regression techniques available, below we formally present these models, how they are identified, discuss their underlying assumptions and model fit tests, and provide examples of how to interpret the results. We do so using our running example of the study of college enrollment (by institutional selectivity).

When estimating a multinomial environment, the probability of observing outcome category m among J possible categories can be modeled as:

$$Pr(y_i = m|x) = \frac{exp\left(X'\beta_{m|b}\right)}{1 + \sum_{j=2}^{J} exp\left(X'\beta_{j|b}\right)} \tag{7.22}$$

where b is the base outcome, x is a vector of covariates and $\beta_{m \mid b}$ is a corresponding vector of coefficients relating outcome category m with respect to the base outcome. The reader may notice that this equation is an extension of Eq. 7.3, which formally describes the binary outcome model. One difference is that the denominator in Eq. (7.22) is modified to accommodate more than two outcomes categories. Equation 7.4 (the binary logit representation) can also be modified to account for any number of (J) outcome categories:

$$\ln \frac{Pr(y = m|x)}{Pr(y = b|x)} = X'\beta_{m|b} \, for \, m = 1 \, to \, J \tag{7.23}$$

where b is the base outcome, X' is a vector of covariates and $\beta_{m \mid b}$ is a corresponding vector of coefficients relating outcome category m to the base or reference category. In Eq. 7.23, known as the multinomial logit, we take the natural log of the relative risk ratio, $\frac{Pr(y=m|x)}{Pr(y=b|x)}$. As noted in section III above, the relative risk ratio is not to be confused with the odds ratio – the ratio of two odds (Menard, 2010).[22] Like the binary logit model, the multinomial logit is linear in the parameters (the logits), making the underlying statistical calculation easier to perform. Also of note, in Eqs. 7.22 and 7.23 is the inclusion of a base or reference category. The parameters are estimated using maximum likelihood. Multinomial logit regression output typically only includes estimates for J-1 of the outcome contrasts, with the base or reference category estimates being omitted. Given that the pairwise comparisons of the estimates for coefficients produced by the model will be relative to the reference category, scholars are encouraged to carefully consider the choice of the base category.

7.4.1 Assumptions

One of the assumptions underpinning the multinomial logit is the independence of irrelevant alternatives assumption (IIA), whereby the odds of observing an outcome do not depend on the other available alternatives.[23] In words, this means that the addition or elimination of outcome categories (i.e., alternatives) will not change the odds of observing the outcome. For example, suppose students have three college options available to them – let's call them colleges A, B, and C—and the odds of a student choosing between College A and B are evenly split. Under the IIA, the presence (or elimination) of the third College C (the alternative) should have no bearing on the students' odds between the other two choices (A and B), essentially making College C an "irrelevant alternative." However, in practice, this assumption will not make sense from a conceptual point of view. The elimination of College C might mean that more students seek out College A, if for example it had very similar program offerings as College C, thereby fundamentally changing the relative odds between students choosing between Colleges A and B. The main argument being, if there are enough similarities between the added alternative and one of the already available options, then IIA will not hold. Empirically, there are formal tests—the

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[22]Researchers should be careful to distinguish between the risk ratio and odds ratio, as they are not interchangeable terms. In particular, odds ratios and risk ratios are most dissimilar in the middle of a distribution (Menard, 2010). Only when J = 2 are the relative risk ratio and odds ratio equal. For a clear explanation, see https://www.stata.com/statalist/archive/2005-04/msg00678.html

[23]The IIA also applies to the conditional logit (not discussed here).

Hausman-McFadden and Small-Hsiao tests—available to test whether the IIA assumption holds. However, these tests have been shown to be inconsistent in identifying violations of the IIA that are related to the size and structure of the data. Long and Freese (2014) question the relevance of these tests and argue that one should select outcomes categories that appear to be theoretically distinct, in order to argue that the multinomial categories are valid. When there is insufficient theoretical guidance and/or strong empirical evidence that the IIA assumption is violated, one can also employ *multinomial probit regression*, which does not rely on the IIA assumption (e.g., Titus, 2007). As is often the case, there are tradeoffs to consider when choosing to use the multinomial probit rather than the multinomial logit. The former does not produce risk ratios, which may ease interpretation (Long & Freese, 2014). The multinomial probit is more computationally intensive, but advances in computing power make differences in estimation time negligible for moderately sized datasets (Greene, 2002; Long & Freese, 2014). However, as was the case for logit and probit models, researchers can now easily produce predicted probabilities and marginal effects for both the logit and probit multinomial models, and there are many possibilities for displaying these results in graphical format.

7.4.2 Estimating College Enrollment by Institutional Selectivity

We revisit estimating enrollment by institutional selectivity, which failed the parallel regression assumption test for the ordinal regression analysis in the previous section. As you may recall, we are interested in understanding the relationships between college enrollment where the outcome categories are: no college, less selective, selective, or most selective colleges. We regress this dependent variable on a number of variables thought to explain this choice (e.g., student demographic characteristics; academic achievement, etc.). Given there was no evidence that the outcome needed to be estimated using ordinal regression we will now employ an alternative technique, multinomial logistic regression. Using enrollment at a less selective institution—where the majority of students enroll in college—as the base outcome, we estimate the following multinomial logit model:

$$\ln \Omega_{NC|LS} = \beta_{0,NC|LS} + \beta_{1,NC|LS}DEMS + \beta_{2,NC|LS}ACAD + \beta_{3,NC|LS}EXPECT + \beta_{4,NC|LS}SCH$$

$$(7.24)$$

$$\ln \Omega_{S|LS} = \beta_{0,S|LS} + \beta_{1,S|LS}DEMS + \beta_{2,S|LS}ACAD + \beta_{3,S|LS}EXPECT + \beta_{4,S|LS}SCH \quad (7.25)$$

$$\ln \Omega_{MS|LS} = \beta_{0,\,MS|LS} + \beta_{1,\,MS|LS}DEMS + \beta_{2,\,MS|LS}ACAD + \beta_{3,\,MS|LS}EXPECT + \beta_{4,\,MS|LS}SCH$$

$$(7.26)$$

where $\Omega = \frac{Pr(y=m|x)}{Pr(y=b|x)}$ and the numerator is the probability of observing the mth outcome category [e.g., no college (NC), selective (S), or most selective (MS) institution) relative to the probability of being in the base outcome (the denominator) b, whether the student chose a less selective (LS) college. This ratio of two probabilities (risk ratio) is, thus, a relative measure, leading to it being dubbed the relative risk ratio.[24] Included as regressors are *DEMS*, *ACAD*, *EXPECT*, *SCH*, vectors of demographic, academic, college expectation, and school characteristics, respectively, described in Table 7.1. As was true for the binary and ordinal regressions, the β's are parameters to be estimated. Recall that the ordinal regression model produced only one set of parameter estimates for the regressors included, whereas the multinomial model produces such estimates for each covariate for each of the outcome categories.

Goodness of Fit and Combining Outcomes As with the binary logit or probit, we can use Stata's *fitstat* command to examine how well the model fits the data. This command produces a number different measures of the model's goodness of fit (see help files for details). Additionally, the likelihood ratio and Wald tests can be invoked to test the null hypothesis (H_0) that all of the coefficients are simultaneously equal to zero. These tests can be conducted using the *mlogtest* post-estimation command and the *wald* and lr options, respectively.[25] Relatedly, if the coefficients ($\widehat{\beta}$'s) are not significantly different across outcome categories, then there is evidence that these non-distinct categories can be combined, which would improve the efficiency of the model and ease interpretation as there will not be as many pairwise contrasts to explain. One way to test if any of the outcome categories can be combined is by using the *mlogtest* command with the *combine* or *lrcombine* options in Stata. The former option uses the Wald test, the latter a likelihood ratio test. We employed these tests and found that, in our sample, the null hypothesis that the any of the outcome categories could be combined was rejected, providing no evidence for combining any of the four categories.

Interpretation Output from a multinomial logistic regression (MNL) can easily overwhelm because there are J-1 panels of estimates presented as regression output (as noted earlier, the base outcome results are not presented) and estimated coefficients for each of the regressors included. In our case, we have four panels of regression output, one for each of the outcome categories. Although the output produced by Stata (and other statistical packages) typically includes only the statistics for the non-base outcome category, here we use Stata's *listcoef* post-estimation

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[24]For an explanation of odds and risk ratios/relative risks see: http://www.theanalysisfactor.com/the-difference-between-relative-risk-and-odds-ratios/

[25]Only the Wald test works when using robust standard errors or survey commands, See Long and Freese (2014) for a discussion of tradeoffs between the Wald and likelihood ratio tests.

command (discussed below) to present the statistics for each of the four outcome categories (all pairwise comparisons; see Table 7.7). One should approach the interpretation of multinomial regression results with a targeted analysis plan a priori (e.g., focusing variables of interest), so that the interpretation of the results does not overwhelm the reader. Below we briefly discuss three ways to examine and present findings: relative risk ratios, marginal effects, and predicted probabilities.

Relative Risk Ratios As noted above, we have to select a base outcome in order to fit the multinomial logit (remember in our example, the base outcome is less selective institutions). However, researchers may have an interest in making contrasts to pairwise categories that do not include the base outcome. For example, we may want to contrast selective and most selective institutions, which is not available in the default output produced by Stata. Given the *somewhat* ordered nature of our outcomes by increasing levels of selectivity (i.e., no college < less selective < selective < most selective), examining contrasts of adjacent categories is one way to interpret the results. Stata's *listcoef* post-estimation command can help in presenting the results by providing results about any pairwise contrasts the analyst might be interested in examining. We used this option to produce such results, and Table 7.8 displays the relative risk ratios (the exponentiated $\widehat{\beta}$'s) for our covariates of interest: gender, race, and student GPA, for each of the outcome categories. The results provide evidence of the female advantage that was observed for the binary logit results, but this relationship is more complex than initially thought. The differences being that the gender differences are concentrated on the no college/less- selective college margins. Relative to men, women had about a 19% higher risk (probability) of enrolling in a less-selective college compared to not attending college (the base category). But no statistically significant gender differences were evident for the less selective to selective institution contrast, but between selective and most selective institutions, women had a 13% *lower* risk of enrolling at the most selective institutions, consistent with previous research (Posselt et al., 2012). These gender differences were masked when using a binary representation of the outcome of interest, demonstrating the utility of using the multinomial representation of the dependent variable and modeling approach that permits a more detailed examination of the relationships among the outcome categories and explanatory variables.

To demonstrate the interpretation of a non-categorical regressor, we present the results for AP credits. There is no evidence of a statistically significant relationship of AP credits with enrollment in less selective colleges, relative to not enrolling in any college. However, a one-credit increase in AP credits is associated, on average, with an 18% increase in the relative risk (probability) of enrollment at a selective institution, relative to a less selective institutions, and a 12% increase in the relative risk of enrollment at a most selective institution, relative to selective institution.[26]

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[26]Note these are increases in *probability*, rather than *odds*.

Table 7.8 Comparison of relative risk ratios by college selectivity[a]

	No college-less selective	Less selective-selective	Selective-most selective
Female	1.185***	0.961	0.872~
Race			
Native American	1.115	0.79	0.392*
Asian	0.844	0.989	1.428**
Black	1.257*	0.997	1.071
Latino	1.283***	0.634***	1.105
Multiracial	0.966	0.852	0.805
White	–	–	–
Academic controls			
GPA, 10th grade	1.407***	1.750***	1.801***
Math test score	0.998	1.009*	1.034***
Number of AP credits	0.964	1.181***	1.123***
Other student-level controls[b]	x	x	x
School-level control[c]	x	x	x

Source: HSLS:2009

Notes: $***p < 0.001$, $**p < 0.01$, $*p < 0.05$, $\sim p < 0.1$; (a) sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates ($N = 10,940$); (b) other student controls includes parental education, income, highest math taken, whether friends plan to go to college; (c) school-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges

Marginal Effects In multinomial regression, marginal effects are one useful way to check on the relationships between the outcome categories and the included covariates. As noted above, marginal effects help researchers understand the average change in probability associated with a change in the given covariates. One advantage of using marginal effects is the ability to compare results across models. Using marginal effects, the researcher can consider the different ways in which one might contrast the outcomes—at adjacent margins (as we did in Table 7.8), against one base outcome (the default), or some other configuration that makes most sense for your analysis. Given the myriad of contrasts available to the researcher for J-1 outcomes and k covariates, a full table of output may not be an effective way of ultimately presenting findings. Long & Freese, 2014 further caution that as marginal effects are computed using partial derivatives, they are highly dependent on the shape of the probability curve and on the levels of all variables in the model—potentially leading to large changes in sign and magnitude, depending on the place on the probability curve where relationships are being examined. Therefore, researchers are encouraged to examine marginal effects along the various points on the probability curve, similar to the presentation in Fig. 7.3. Many of the issues we covered in the Binary Outcomes section related to marginal effects apply to multinomial regression, and will not be discussed further in this section.
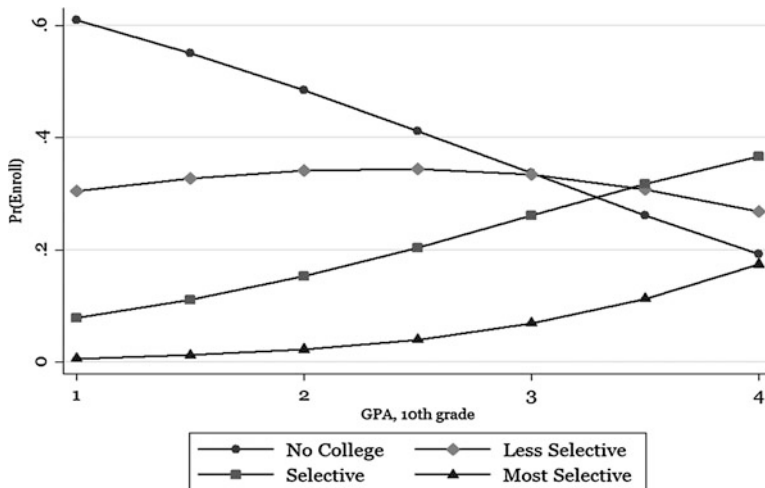
Fig. 7.13 Predicted probabilities of enrollment by college selectivity and 10th grade GPA (Source: HSLS:2009)

Predicted Probabilities Predicted probabilities also allow researchers to evaluate the relationship between covariates and outcomes at different points in the probability distribution in a readily understood metric. Predicted probabilities can be presented in tables (typically useful for categorical variables); graphical plots (for continuous variables); and for specific subgroups. In our specific example, interpreting predicted probabilities across the range of high school GPA values and for specific populations of interest, may help us better understand the relationship between gender, GPA, and institutional selectivity. In Fig. 7.13, we plotted the effect of GPA across the four enrollment outcome categories. Students with higher GPAs are less likely to opt-out of college immediately after high school than students with lower GPAs. Interestingly, the enrollment effects are relatively flat across the range of GPAs for students who are likely to enroll in less selective colleges. The probability of enrollment for students choosing the most selective colleges is relatively flat for students with average and below high school GPAs ($<=$ 2.0), but then rises to about 20% for the students with GPA's of 4.0.

Analysis of specific subgroups is also a useful approach for understanding the results produced by such models. Expanding on our example of female college enrollment from Table 7.4, for the multinomial model we find that the probability of a low-income female student whose parents had not attended college have a probability of 0.54 of not attending any college, and less than a 1 percent chance of attending a most selective institution (see Table 7.9). A middle-income woman whose parents attended college but did not obtain a degree also had high probabilities of either not going to college (0.47) or attending a less selective institution

Table 7.9 Probability of college enrollment for female students by select income and parental education levels

	No college	Less Selective	Selective	Most Selective
Low-income student whose parent(s) has no more than high school degree	0.542	0.365	0.088	0.005
Middle-income student whose parent(s) enrolled in but did not attain a college degree	0.472	0.328	0.182	0.017
High-income student whose parent(s) earned a college degree	0.113	0.174	0.371	0.342

Source: HSLS:2009

Notes: Student-level controls include: gender, race, parental education, income, highest math taken, whether friends plan to go to college; School-level controls includes urbanicity, school type, and share of students enrolled in 2-year and 4-year colleges. Sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates ($N = 10,940$)

(0.33), and very low chances of choosing to attend a highly selective college (0.02). In contrast, women from families who had high income and college-degreed parents had relatively high probabilities of attending a selective (0.37) and most selective college (0.34), net of academic, school, and other measures. These results suggest that the observed female advantage is in many ways driven by the choice of institution type as well as one's family background.

The multinomial regression models allow for the estimation of unordered categorical outcomes by relaxing some of the assumptions imposed when employing ordinal regression. While multinomial logit is commonly used to model nominal dependent variables, when there are conceptual grounds and/or empirical evidence that the IIA assumption is violated the multinomial probit is an alternative. Regardless of the link function that is chosen (logit or probit), the amount of output produced by multinomial regression models is oftentimes described as "overwhelming" (Long & Freese, 2014, p. 411). Hosmer et al. (2013) note that although the complexity of the multinomial model produces considerable output to interpret (especially when there are numerous outcome categories), the researcher has multiple estimates for each covariate, thereby providing "a complete description of the process being studied" (p.289). To ease the interpretation burden, in the section above we presented a number of different approaches to present the findings in a digestible way.

7.5 Limited Dependent Variable Models

So far, we have focused our attention on categorical dependent variables, whether they have two (binary), ordered (ordinal), or multiple (nominal) categories. We now turn our attention to limited dependent variables that may seem at first glance to resemble continuous measures but "whose range of values is substantially restricted" (Wooldridge, 2008, p. 529). These outcome variables may be restricted to integer

values, as in the case of count variables; they may be restricted to observing values only over specific ranges, such as proportions that lie between zero and one; or these variables may be censored or truncated in various ways, either by definition (e.g., variables that cannot take on negative values) or because of data generating processes (e.g., top-coded variables used in surveys, sample selection). In the next section we begin the discussion of these limited dependent variables by illustrating Poisson and negative binomial regression techniques for count variables. We then discuss analytical approaches for other forms of limited dependent variables, such as fractional logistic, Tobit, and double-hurdle regression models.

7.5.1 Count Outcomes

We begin our discussion of limited dependent variable models by discussing count outcomes. Count outcomes are those that enumerate the number of occurrences of particular events, and such outcome variables abound in higher education. Scott-Clayton (2011), for example, used a count of total semesters enrolled over 4 years as an outcome in her evaluation of West Virginia's PROMISE scholarship program. Researchers may also be interested in the number of courses students take, as enrollment intensity is associated with several educational outcomes such as time to degree and persistence (Stratton, O'Toole, & Wetzel, 2007). As demonstrated by Goldrick-Rab (2006), students' transfer behavior is also of substantive interest, as the frequency and timing of transfers vary across a number of student and institutional characteristics, with important consequences for completion and time to degree. In many cases, researchers study count outcomes using OLS regression techniques (e.g., Scott-Clayton, 2011). It is also possible to create discrete categories of count outcomes instead of using the count as the dependent variable. For example, Goldrick-Rab's (2006) research on "swirling" students defined multinomial outcome (e.g., did not transfer; stopped out and returned; transferred without interruption) from the underlying frequency and direction of student transfers. Such transformations may be appropriate for some research questions, but in other contexts may result in loss of information that is of conceptual or empirical importance.

In cases where outcomes are measured as counts of events directly, the use of OLS regression "for count outcomes can result in inefficient, inconsistent, and biased outcomes" (Long, 1997, p. 217). Count outcomes take only integer values, may have a relatively high preponderance of zeros, and may take on many small values – suggesting that alternative regression techniques that account for these characteristics may improve on OLS estimates (Greene, 2002). In this section, we use students' college applications to introduce count regression models. Today's high school graduate is more likely than ever to apply to multiple postsecondary institutions (Pryor, Hurtado, Saenz, Santos, & Korn, 2007). The increase in college applications submitted by students is the result of numerous co-occurring trends: increased competition in college admissions (Bastedo & Jaquette, 2011; Eagan, Lozano, Hurtado, & Case, 2013); simplification of the college application process
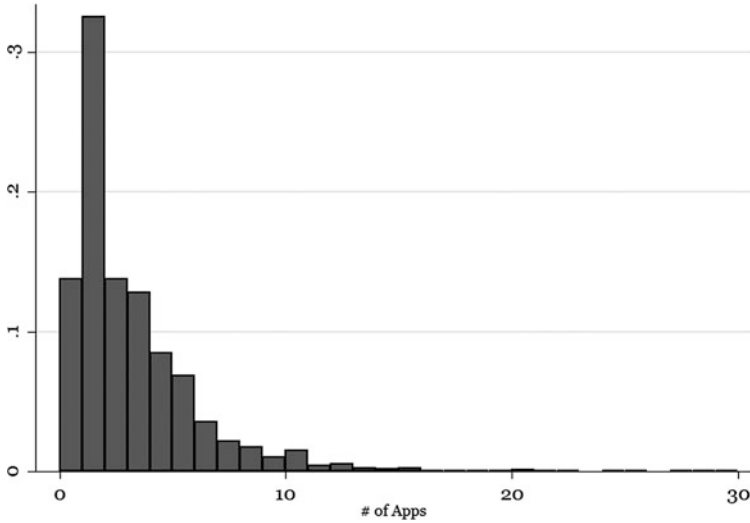
Fig. 7.14 Histogram of number of college applications (Notes: Histogram includes nonmissing values of S3CLGAPPNUM, winsorized at 30. Source: HSLS:09)

(Pryor et al., 2007); and proactive marketing and outreach by colleges and universities (McDonough, 1994). Applying to college is an important step in the college choice process, as the application set defines and constrains the choices eventually available to students and reflects students' preferences, constraints, and the appeal of institutions to individuals. The number of applications students submit to college display many of the properties that count regression techniques are intended to address. In our sample, we observe a nontrivial number (density) of students who apply to zero colleges; the modal number of applications is one; and the mean number of applications is quite low (2.7). As shown in Fig. 7.14, the distribution is skewed to the right indicating some students apply to many institutions (the maximum is 30).

An extensive literature addresses students' college application behavior, ranging from research into applications to single institutions (e.g., Gonzales & DesJardins, 2002); research into "undermatch" (e.g., Smit et al., 2013); and studies of the characteristics of students' college application sets (e.g., Arcidiacono, 2005; Blume, 2016; Niu & Tienda, 2008). A few authors have studied the number of applications students submit as an outcome. Hurtado, Inkelas, Briggs, and Rhee (1997) used standard OLS regression to explore differences in the number (count) of college applications across students' race and ethnicity, finding significant disparities particularly for traditionally underserved student populations. Howell (2010), Pallais (2015), and Smith, (2014) analyzed how various changes to application or admissions policies affected the number of applications students submit. Howell (2010) used ordinal probit regression, with the outcome specified as zero, one, two to

four, or more than four applications, to investigate the effect of affirmative action on college applications and enrollment. Pallais (2015) estimated a difference-in-difference model using OLS to identify the effect of changes to the cost of ACT score sending on the number of applications that students submitted to colleges. Finally, Smith (2014) investigated how expansion of the Common Application influenced the number of colleges to which students applied, also using OLS.

To our knowledge, no paper has made use of regression techniques specifically designed for count data to study the number of college applications students submit. There are a number of regression-based methods that can be used to study outcomes that are counts, such as when studying college application submissions, and herein we explore how to do so. The prevalent count regression techniques include Poisson and negative binomial regression, as well as the zero-inflated variants of each. Choosing among these four options depends on two characteristics of the outcome variable:

1. The dispersion of the outcome (its conditional mean relative to the conditional variance).
2. The nature of zero counts in the data: whether they are "excessive" and whether they are the product of mechanisms distinct from those governing positive count values.

7.5.2   Regression Techniques for Counts

To begin this discussion, we employ Poisson regression as the starting point in modeling count outcomes. If we are interested in a variable y that measures the number of applications students submit, Poisson regression treats the count of y as though it is drawn from a Poisson distribution with parameter μ (Long, 1997). This distribution can be related to covariates of interest through a log-linear model (Greene, 2002). The log transformation ensures that the regression model cannot result in negative values (Atkins & Gallop, 2007). Thus, we can think of the outcome as measuring the probability of student i applying to y colleges as:

$$\Pr\left(Y_i = y_i | X_i'\right) = \frac{e^{-\mu_i}\mu_i^{y_i}}{y_i!} \tag{7.27}$$

Using the log-linear model, we can associate the (natural log of the) μ parameter to our explanatory variables of interest (X') as:

$$\ln\left(\mu_i\right) = X_i'\beta \tag{7.28}$$

where X' is a vector of relevant student characteristics such as collegiate expectations, demographics, and academic achievement. This model can also be used to estimate the expected (average) count or number of applications each student submitted using:

$$E\left(y_i|X_i'\right) = e^{X_i'\beta} \tag{7.29}$$

The model is estimated by maximum likelihood.

The Poisson distribution has a few properties that may be of interest to researchers. Its shape is largely governed by the mean rate – as the mean count approaches zero, the distribution grows more right-skewed and at a sufficiently high mean count, the distribution approaches normality. In addition, as the mean increases, we would expect to observe fewer counts equaling zero (Atkins & Gallop, 2007; Cameron & Trivetti, 1998; Long, 1997). One of its most limiting characteristics is that the Poisson distribution assumes equidispersion: the variance and mean of y are assumed to be equal. In other words, the variance of y is equal to mean value, shown in Eq. 7.29 above. However, count data are frequently overdispersed, with (conditional) variance exceeding the (conditional) mean. Descriptively, we observe strong suggestive evidence of overdispersion in college application counts. The histogram of the distribution of application counts in Fig. 7.14 indicates that these counts are right-skewed, with an unconditional mean of 2.7 that is exceeded by its unconditional variance of 7.6. Table 7.10 also provides evidence that the conditional (on the variables shown) variance exceeds the conditional mean for some important variables used as regressors to explain counts in college applications (more on this below).

In the presence of overdispersion, Poisson regression yields consistent but inefficient estimates, and can understate standard errors (Long, 1997). There are several formal tests for overdispersion following estimation of a Poisson regression (Cameron & Trivetti, 1998; Greene, 2002). In Stata, we can calculate a goodness of fit Chi-squared statistic with the gof command – a large Chi-squared value indicates a poor fit that may be the result of overdispersion. When there is evidence of overdispersion, negative binomial regression is often employed. The negative binomial regression combines the Poisson distribution for the mean of the outcome variable with a gamma-distributed parameter that adjusts its variance, with the result that (conditional) variance exceeds the (conditional mean), thereby accounting for the overdispersion (Long, 1997). If we treat r as the shape parameter of the gamma function, the following describes the mean (the same as Eq. 7.29):

$$E(Y|X') = e^{X'\beta} \tag{7.30}$$

Whereas the variance for negative binomial is:

$$var(Y|X') = \mu + \frac{1}{r}\mu^2 \tag{7.31}$$

which means that the variance is larger relative to the mean for small values of r; with the negative binomial distribution converging to Poisson as r approaches infinity (Cameron & Trivedi, 1998). There are several formal tests for overdispersion, many of which are built into statistical software. Stata's *nbreg* command for negative binomial regression estimates an overdispersion parameter termed alpha, which is defined as $\alpha = r$ – in other words, the inverse of $1/r$ in Eq. 7.31.

Table 7.10 Mean and variance for college applications by student characteristics

Variable	Number of applications	
	Mean	Variance
Race		
Native Americans	2.3	6.2
Asian/Pacific islanders	4.0	12.2
Black	2.9	8.9
Hispanic	2.4	6.9
Multiracial	2.5	7.0
White	2.5	6.7
Gender		
Male	2.4	6.9
Female	2.9	8.3

Source: HSLS: 2009
Notes: Summary statistics for S3CLGAPPNUM variable

An α parameter that is statistically different from zero indicates overdispersion. The *nbreg* command performs a likelihood ratio test of the significance of α by comparing a model that constrains α to equal zero and a model where α is empirically estimated.

A final consideration when studying counts in a regression framework is how to treat values of zero. In our college application example, it is possible for students to report (in a survey) that they did not apply to any college. About 14% of respondents in the HSLS sample report applying to zero colleges, a non-trivial number of non-applicants. There are two general approaches to modeling count outcomes with zero counts. One could treat zero counts as any other positive integer, thereby not differentiating them from other values. Alternatively, if the proportion of zeros relative to positive counts is sufficiently large, *or* if the occurrence of a zero count is of substantive interest as its own phenomenon, one could employ the zero-inflated variants of count models. Zero-inflated Poisson or zero-inflated negative binomial regressions are similar in spirit to other mixture or two-part models, which we discuss in greater detail later in this chapter. Two-part models allow for the zero counts to be estimated separately from the rest of the distribution, with each model having its own set of covariates. In the case of college applications, such a model would allow us to model the decision not to apply to college at all as its own outcome. For zero-inflated count regressions, we first fit a logistic model of the probability of observing a count equal to zero, and then fit a Poisson or negative binomial regression on the positive integers (Greene, 2002).[27] In other words, we would model zero counts that occur with probability π using logistic regression, and would model positive integer counts that occur with probability 1-π using Poisson or negative binomial regression, as outlined in Eq. 7.32:

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[27]If overdispersion is the result of excess zeros, a zero-inflated Poisson model may be preferable over negative binomial regression (Long, 1997).

$$\Pr(Y_i = y_i | X_i') \sim \begin{cases} \pi_i + (1 - \pi_i) * g(Y_i = 0 | X_i') \text{ if } y_i = 0 \\ (1 - \pi_i) * g(Y_i | X_i') \text{ if } y_i > 0 \end{cases} \quad (7.32)$$

Using a zero-inflated model, we would model $\pi_i = 0$ with logistic regression – in the example we use below, this would mean estimating the probability of (not) applying to college. We would then model $g(y_i | X_i')$ with Poisson or negative binomial regression for positive integer values of y_i (i.e., conditional on applying to college at all). This approach may be valuable in instances where the underlying mechanisms governing zero and positive counts differ. For example, a study of drinking behavior on college campuses may include in its sample subgroups of students who are not at risk for drinking at all (say, for example, due to religion). Stata's zip and *zinb* commands estimate these models.

7.5.3 Applying Count Regression to College Applications

We can model the count of applications submitted by student i as a function of students' and families' characteristics, measured academic achievement, extracurricular involvement, postsecondary intentions, and characteristics of their high school:

$$\Pr(Y_i = y_i | X_i') = \beta_0 + \beta_1 race_i + \beta_2 gender_i + \beta_3 family_i + \beta_4 acad_i$$
$$+ \beta_5 extra_i + \beta_6 pse\ plans_i + \beta_7 HS\ context_i + \varepsilon_i \quad (7.33)$$

We estimate Poisson and negative binomial models of Eq. 7.33.[28] Recall that the distribution of college application counts suggested possible overdispersion. We observe that the α parameter for overdispersion is statistically significant (χ^2 =2053.3, $p < 0.001$) in the negative binomial regression. We also find that the Chi-square measure of goodness of fit for the Poisson regression is also highly significant (χ^2=15,203.4, $p < 0.001$), again suggesting the presence of overdispersion. As discussed above, overdispersion results in underestimated standard errors for Poisson regression. We observe that in the results included in Table 7.11, that this is indeed the case – the coefficients of both models are quite similar, but the standard errors of the negative binomial model are larger than for the Poisson regression because they are inflated by the overdispersion parameter. We can also look to the AIC and BIC statistics of the two models to further assess fit. All three statistics suggest that the negative binomial is preferable to the Poisson. Yet another way to compare these models is to test how well they fit the underlying distribution of college applications. In Figure 7.15, we plot the residuals of $\Pr(Y_i = y_i | X_i')$ for the Poisson and negative binomial regressions at each value of

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[28]Recall that if we were concerned about the 14% of students that do not apply to college (and thus have a count of zero), or if we wanted to understand the decision not to apply to college separately, we could estimate a zero-inflated count model.

Table 7.11 Comparison of estimates for count models

	Poisson	Neg Bin	Poisson IRR	Neg Bin IRR	AMEs (Neg Bin)
Gender (ref. male)					
Female	0.115***	0.116***	1.121***	1.123***	0.327
	(0.013)	(0.017)	(0.014)	(0.019)	
GPA, 10th grade	0.285***	0.297***	1.330***	1.345***	0.842
	(0.011)	(0.014)	(0.015)	(0.018)	

Source: HSLS:2009

Notes: ***p < 0.001, **p < 0.01, *p < 0.05, ~p < 0.1. Models include additional controls for race, parental education, family income, AP/IB credits, extracurricular activities, hours worked, and high school characteristics. Standard errors in parenthesis. Sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates ($N = 9740$)

Fig. 7.15 Comparison of residuals for poisson and negative binomial regressions of count of college applications (Notes: Positive residuals indicate underpredictions. Source: HSLS:2009)

y_i. In other words, the residuals show the degree to which the models under- or overpredict the probability of each count value. The graph indicates that the negative binomial model does a slightly better job of fitting the observed distribution of applications.[29]

We have addressed goodness of fit and, given evidence of overdispersion, have chosen negative binomial as our preferred modeling approach. Turning to the coefficients, as with other nonlinear regression techniques, interpreting regression

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[29]This may seem like a large number of goodness of fit tests to run, but in Stata the user-written command *countfit* provides all of these results simultaneously.

results can be tricky. The coefficients of a negative binomial regression are linear and additive with respect to the logged values of the expected count, as seen in Eqs. 7.28 and 7.29 - which are not easily interpretable. Table 7.11 reports coefficients for a few select explanatory variables. An increase of 0.1 in 10th grade GPA, for example, is associated with a 0.029 increase in the expected number of applications (0.1 multiplied by the coefficient of 0.297). Similarly, the coefficient for female implies that female students have an expected number of college applications that is about 11% higher than for male students. Exponentiating these coefficients yields incidence rate ratios (IRR), which may be more readily interpretable, and are reported in Table 7.11. These IRRs represent *factor changes* in the expected count $E(y_i|X'_i)$, and so can be interpreted as multiplicative like an odds ratio. That is, a one-unit increase in a covariate is associated with an increase of e^{β} in the expected outcome, all else held constant (Long, 1997). Keeping with the same two variables as examples, a one-unit (or one point) increase in high school GPA increases the expected *number* of applications by a factor of 1.35 – a 35% increase. Similarly, female students have 1.12 times the expected number of college application of male students, or 12% higher applications.

An alternative to IRR is to compute marginal effects. As we discussed in section about binary outcomes, marginal effects provide a useful way to summarize associations at mean, observed, or representative values of interest. They also help us translate coefficients from percent or factor changes in the expected number of applications to a more intuitive unit of measure; i.e., the actual count of applications. The marginal effect for high school GPA tells us that a one-point increase in GPA is associated with 0.84 additional college applications, while being female is associated with 0.33 additional applications.

Marginal effects also help us make sense of interaction terms. To demonstrate this, we estimate an additional model that includes an interaction of gender and high school GPA (as reported in Table 7.12). The interaction term in this model allows for the relationship between high school GPA and college applications to vary by gender. When we add this interaction to the previously estimated model, we find a larger main effect of gender (1.32 vs. 1.12) than before, though we must also consider the interaction effect. Interestingly, the interaction effect of GPA and gender is *negative* (or, in IRR terms, less than 1). This suggests that as GPA increases, the difference in the number of applications submitted by men and women declines.

To ease the interpretation of main and interaction effects, we graph (see Figure 7.16) the relationship between high school GPA and the number of college applications separately by gender. The graph indicates a slow convergence of the two groups, especially at higher values of GPA.

There are numerous variables in higher education that enumerate phenomena of interest. Researchers always have the option to take such outcomes and transform them into dichotomous or categorical measures, or to treat them as continuous. However, count regression techniques are simple and have desirable robustness

Table 7.12 Interaction terms in count regression for college applications

	Negative binomial (IRR)
Gender (ref. male)	
Female	1.320***
	(0.099)
GPA, 10th grade	1.381***
	(0.025)
GPA, 10th grade*female	0.949*
	(0.022)

Source: HSLS:2009

Notes: ***p < 0.001, **p < 0.01, *p < 0.05, ~p < 0.1. Models include additional controls for race, parental education, family income, AP/IB credits, extracurricular activities, hours worked, and high school characteristics. Standard errors in parenthesis. Sample includes all students with base year, follow-up, and transcript data that are not missing data on covariates ($N = 9740$)
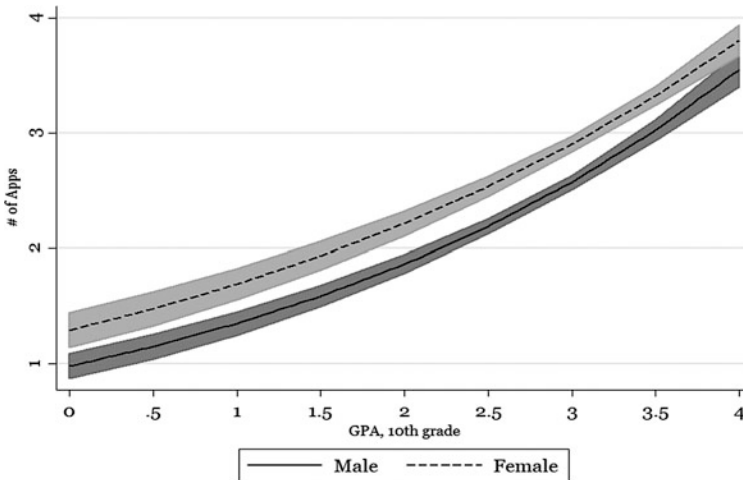
Fig. 7.16 Predicted count of college applications by gender and GPA (Notes: Shaded region indicates 95% confidence interval. Model includes controls for student characteristics; measured academic achievement; extracurricular involvement; postsecondary intentions; high school characteristics; and an interaction of gender and academic achievement. Source: HSLS:2009)

properties (Wooldridge, 2008) that enable us to study these variables with few compromises.

7.5.4 Proportional/Fractional Outcomes

Researchers in higher education frequently encounter outcomes of interest that are measured at the institutional level. Such data are widely available from sources such as IPEDS, and capture several measures relevant to scholars, prospective students, and regulatory agencies. These variables include the composition of the student body (e.g., proportion from underrepresented groups, percentage of students that are Pell-eligible) and institutional outcomes such as persistence, graduation, or student loan default rates. All such variables are proportions or fractions, with a range from zero to one.

With few exceptions, much of the research using proportions or rates as outcomes uses ordinary least squares regression. For example, scholars studying stratification of enrollments in higher education often attempt to explain such stratification across race and income, noting that there is a dearth of low-income or marginalized students at the nation's most prestigious universities (Bastedo & Gumport, 2003; Carnevale & Strohl, 2013). They often do so by employing OLS regression to examine outcome variables that are proportions. Belasco, Rosinger, and Hearn (2015) used linear regression to study the effect of test-optional admissions on the share of Black and Hispanic enrollments. Hillman, 2013 used much the same approach to study changes in the proportion of Pell students at institutions adopting no-loan financial aid policies. Institutional student loan default rates are another widely studied topic, with recent studies by Hillman, 2014, Ishitani & McKitrick, 2016, and Kelchen & Li, 2017 about individual and institutional characteristics associated with default.

In each of these studies, OLS regression provided readily interpretable coefficients and insights into policies or institutional characteristics of interest. Earlier, we highlighted the ways in which OLS regression with binary outcomes (LPM) may violate assumptions necessary for efficient, unbiased estimates. As was the case with linear probability models, "the drawbacks of linear models for fractional data are analogous to the drawbacks of the linear probability model for binary data" (Papke & Wooldridge, 1996, p. 620). Proportions or rates are bounded by zero and one, whereas fitted values from OLS regressions are not. Second, the relationship of any independent variable to a fractional outcome cannot be linear through the full range of outcome values (Papke & Wooldridge, 1996). Finally, the residuals from OLS regression of fractional outcomes are likely heteroskedastic, with greater variation at middle values and smaller variation near the lower and upper bounds (Cribari-Neto & Zeileis, 2010). As such, researchers should approach linear regression of fractional dependent variables with caution.

To be sure, under many conditions OLS regression may prove to be a reasonable enough approximation of a fractional outcome. For example, when the proportional outcome is largely distributed within the linear portion of the logistic curve, the estimates produced using a linear specification may be a reasonable approximation (Cribari-Neto & Zeileis, 2010). Institutional graduation rates are a good candidate for such an approach because graduation rates in many colleges and universities are near the middle of the distribution (the average being about 60%). However, other

outcomes may not lend themselves well to OLS regression. At selective institutions, for example, we know that the fraction of enrolled students receiving Pell grants is quite low, with many such colleges having fewer than 20% of students as Pell recipients (Carnevale & Van der Werf, 2017). Similarly, though there is much justified media and scholarly attention paid to student loan default, institutional student default rates averaged 11.3% for the 2013 cohort (Federal Student Aid, 2016). In these instances, researchers may be well served by exploring alternatives to OLS regression, just as we have done with binary dependent variables. We discuss some approaches below.

7.5.5 Alternatives to OLS for Fractional Outcomes

There are several alternatives to linear regression for the modeling of proportions. One common approach is to use a transformation of the dependent variable, such as a log transformation in Eq. 7.34 (Baum, 2008; Papke & Wooldridge, 1996). If p is the measure of the relevant fractional outcome; by log transforming the fraction the model becomes linear in the parameters, similar to what we saw in our discussion of logistic regression:

$$E\left(\ln\left(\frac{p}{p-1}\right)|x\right) = X'\beta \tag{7.34}$$

One example of using such a transformation is Scott, Bailey, and Kienzl (2006), who studied the relationship between graduation rates and the characteristics of institutions and their student bodies. However, this transformation has an important limitation: it excludes fractions at the endpoints of the [0,1] interval, as the term $\left(\ln\left(\frac{p}{p-1}\right)\right)$ is undefined for p equal to either zero or one. This transformation is also of limited interpretability: the coefficients of the regression measure changes in the log-transformed outcome, not in the actual fractional outcome of interest. Finally, this transformation does not address the heteroskedastic nature of rate or proportion data (Ferrari & Cribari-Neto, 2004).

One alternative is to use beta regression, which improves on the log transformation in two ways. First, beta regression can accommodate outcome variables in the (0,1) interval that are left- or right-skewed, or that are flatly distributed over the full range. This is because beta regression treats the dependent variable as following a beta distribution, which is highly flexible, with the beta density taking a variety of shapes. This also means that beta regression can accommodate the heteroskedacity inherent to fractional outcomes. Second, the coefficients of a beta regression are directly interpretable as changes to the mean expected value of the outcome. Thus, they require no additional effort for calculation of marginal effects or use of graphs. However, beta regression does share one important limitation with log

transformation, which is that it is only defined for fractions in the (0,1) interval – dependent variables equaling precisely zero or one are excluded (Ferrari & Cribari-Neto, 2004).

In cases where proportions at the extreme values of 0 or 1 exist and researchers want to retain such observations, neither a log-transformation nor a beta regression may be appropriate. Fractions at either extreme may seem rare or unlikely to be observed – this is certainly the case for metrics like graduation rates, for example. However, these values do occur for measures that tend to be concentrated at the tails of the distribution or among select subsamples of postsecondary institutions (e.g., retention rates at highly selective institutions, which are extremely high and could reach 100%; the proportion of low-income students at small colleges with high net prices, which are very low and may be 0%). The zero-inflated (and one-inflated) variants of beta regression can retain such observations. Similar to our discussion of zero-inflated count models, these variations on beta regressions are mixture models. These models first estimate the probability of observing a fraction equal to zero or one using logistic regression, and then estimate a beta regression model for outcomes within the (0,1) range (Ospina & Ferrari, 2012). One advantage of this approach is that it allows us to specify different covariates for each of the models estimated, which may be particularly valuable for researchers that posit different underlying mechanisms for observations at the extremes of [0,1].

Yet another alternative is the use of fractional response models, as outlined in Papke and Wooldridge (1996). Fractional response models allow for modeling proportions in the [0,1] interval, using a generalized linear model with a link function:

$$E(y|x) = G(X'\beta) \qquad (7.35)$$

Where $G(\cdot)$ is a link function, typically the logistic or standard normal (probit) cumulative density functions, and $0 \leq y \leq 1$. The model is estimated using quasi-maximum likelihood (which does not require knowledge of the full distribution of outcomes), with the link function indicating the distribution of mean values for the outcome variable.[30] The coefficients from a fractional logistic regression are not easily interpreted; their sign indicates the direction of marginal effects but otherwise convey little readily usable information. As with probit or logit models, marginal effects, graphical representations of the relationships between covariates and the outcome of interest, and predicted values provide a more easily interpretable way to communicate results (see Furquim & Glasener, 2016 for an application of fractional logistic regression to the proportion of Pell eligible students at highly selective institutions).

Though these alternative approaches to modeling proportions require transformations of the dependent variable or the use of link functions, statistical software such as R, SAS, or Stata can estimate any of them using their respective GLM

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[30]One could also use heteroskedastic probit to model the variance rather than the mean of a proportional outcome.

regression commands. Stata version 14 and higher also includes specific commands for beta regression (*betareg*) and for fractional response models (*fracreg*). These regression techniques are readily available to researchers, and may be of use to higher education scholars studying the fractional or proportional outcomes so commonly of interest to policymakers and prospective students.

7.5.6 Censoring and Truncation

Many of the dependent variables of interest to higher education scholars can be censored or truncated in ways that warrant special consideration. For example, researchers interested into students' decision to work while in school run into a censoring issue, as students cannot work fewer than zero hours. The same form of censoring affects studies of student indebtedness – students cannot borrow amounts below \$0. In many instances, this censoring is overlooked and researchers rely on OLS regression. For example, Addo, Houle, and Simon (2016) studied the relationship between parental wealth and student debt using OLS regression, and excluded nonborrowers from their analyses. If we are interested in the censored observations (non-borrowers), however, OLS estimates of censored variables can be inconsistent, as OLS fails to "account for the qualitative difference between limit (zero) observations and nonlimit (continuous) observations (Greene, 2002, p. 762).

Tobit regression provides a workaround for censored variables. As in our discussion of categorical outcomes, Tobit regression is also a latent variable technique. In the case of student loans, we can think of Tobit regression as modeling a latent demand for student loans of the form:

$$y^* = X'\beta + \varepsilon \qquad (7.36)$$

And

$$y = \begin{cases} 0 \text{ if } y^* \leq 0 \\ y_i^* \text{ if } y^* > 0 \end{cases} \qquad (7.37)$$

Where y^* is a latent construct capturing the true demand for loans; the observed outcome y is the measure of student loans that is censored at zero for negative values of y^*.[31] Taken together, Eqs. 7.1 and 7.2 tell us that in a Tobit regression a change to any element of X affects both the probability of y_i being greater than zero (in our case, of taking on student loans) as well as the conditional mean of y^* for $y^* > 0$ (Greene, 2002; Long, 1997). See Hart and Mustafa (2008) for an application of Tobit regression to study the effect of increased access to subsidized loans on student debt.

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[31]Tobit models also work for censoring from above, such as when data from surveys top-code variables like income for privacy reasons.

One limiting assumption of Tobit regression, however, is that $X'\beta$ is assumed to equally affect both the likelihood of borrowing *and* the mean amount borrowed (Lin & Schmidt, 1984). This may not be a desirable or sensible assumption in some cases. If individuals face a participating decision, such as a decision of whether to borrow at all, the double-hurdle model introduced by Cragg (1971) may be preferable. The double-hurdle model allows for the specification of a decision to participate (borrow, in our example) and then separately to model the amount borrowed. These two regressions can take different functional forms and include distinct covariates, allowing researchers to better consider the mechanisms underlying the two distinct decisions of *whether* to borrow and then *how much* to borrow (e.g., Cha & Weagley, 2002; Cha, Weagley, & Reynolds, 2005; Furquim, Glasener, Oster, McCall, & DesJardins, 2017). Double-hurdle regression is of the form:

Decision equation:

$$\Pr(Participate = 1|X') = \Phi\left(X_1'\beta_1\right) \tag{7.38}$$

Equation 7.38 is estimated via probit regression with a normally distributed error term. Then, the level equation is:

$$\begin{cases} y^* = X_2'\beta_2 \\ y = y^* \ if \ Participate = 1 \\ \varnothing if \ Participate = 0 \end{cases} \tag{7.39}$$

Equation 7.39 is estimated using truncated regression, because observations where *Participate* = 0 are excluded. The unknown parameters to be estimated, β_2, can differ from those in the decision equation (β_1), as can the included covariates. One can then analyze several outcomes: the probability of participation (Pr(*Participate*)); the conditional expected outcome (y^*); and the unconditional mean outcome ($y^* \ * \ \Pr(Participate)$).

Truncated regression can more generally be used to deal with truncation of data. Truncation occurs when the data generating process excludes "observations based on the characteristics of the dependent variable" (Long, 1997, p. 187). So while in the case of censored data we observe censored values of the dependent variable for some observations, truncated data reduces the analytic sample based on the dependent variable. Truncation may be a byproduct of sample selection (e.g., a study of family income for Pell eligible students) or other analytical choices. For example, in their study of student debt, Addo et al., (2016) excluded non-borrowers, thus truncating the dependent variable at some value greater than zero. The result of truncation is that the mean of the dependent variable is higher (in case of truncation from below) or lower (for truncation from above) than the "true" mean, and the variance of the truncated variable is smaller than that of the untruncated. Ordinary least squares regression can yield biased coefficients in the presence of truncation (Long, 1997). In these cases, researchers can use truncated regression, which is easily estimated in most statistical software (in Stata, the *truncreg* command). Truncated regression yields coefficients that can be directly interpreted as partial

changes to y_i that is truncated at some value τ, just as in OLS regression, as seen in Eq. 7.40 (Long, 1997):

$$y_i = X_i'\beta + \varepsilon_i \text{ for all } i \text{ such that } y_i > \tau \qquad (7.40)$$

Truncation that results from sample selection can also be addressed by sample selection corrections, such as Heckman type sample selection correction, that use probit regression to model the likelihood of being in sample and incorporate the inverse Mills ratio into estimates of the observed data (Wooldridge, 2008). Instrumental variable techniques may also be brought to bear in such cases (see Bielby, House, Flaster, & DesJardins, 2013, for an overview of instrumental variable techniques applied to higher education).

7.6   Conclusion

Linear regression models have long been an essential part of an education researcher's statistical toolkit. Although the statistical foundations underlying the use of categorical dependent variable regression models have been around for many decades (see Cramer, 2003, for a history of the logit model, and Dey & Astin, 1993 for early work comparing and contrasting these models in higher education), they really became an important addition to the statistical tools used by higher education researchers in the middle to late 1980s. This is probably a result of many converging trends, such as the availability of these techniques in then available statistical software packages; the teaching of these methods in programs training education researchers; discussion of the use of the methods in higher education publications, including this Handbook (Austin, Yaffee, & Hinkle, 1992; Cabrera, 1994); and the increase of publications using these techniques in main higher education journals (Peng, So, Stage, & St. John, 2002). Given the ubiquity of these methods in higher education these days, having a solid understanding of their foundational statistical concepts and of their application is essential for conducting research into many important issues facing postsecondary education. More recently, limited dependent variable regression models, which have been employed successfully in other disciplines, are also increasingly being utilized in higher education research.

As demonstrated herein, these categorical and limited dependent variable models often remedy some of the statistical problems that arise when using traditional regression methods, such as linear regression, to study binary, multi-categorical, and limited outcome variables. But the application of these non-linear methods often come with a price, including complex estimation routines that are computer-memory intensive, and, importantly, additional complexities in the interpretation of results produced by such techniques. The former problem is of less concern with the advent of computers with multiple processors and high-capacity memory, lowering the time and memory resources needed to estimate such models. But interpreting the results of non-linear regression models remains a vexing problem for some, one that can be

resolved by employing a variety of measures and using the graphical displays now available in many statistical software packages.

Our intention in producing this chapter was to update the published resources already available, to provide details about recent advances in the models used to study categorical and limited dependent variables, and to provide our colleagues with examples of how to use alternative ways to present and discuss the results produced by these regression methods. Our intention was not to provide a comprehensive treatment of the literature about these methods; to that end, we provide references to additional articles and books that can assist researchers in learning more about the underlying concepts and application of these methods.

To facilitate the educative goal of the chapter, we provided a running example of an important higher education issue that many readers should be familiar with: research on student college choice. Although the results produced by the applications of the various modeling techniques may inform the literature on college student choice, this empirical application was really designed for expository purposes. We used college choice as the exemplar because many treatments explaining non-linear models use examples that are not familiar to those in our field, such as applying the methods to medical research (for example, the work of Hosmer and colleagues).

We hope our efforts provide researchers with additional information about the application of the categorical methods described herein. In addition, we hope that our (brief) discussion of limited dependent variable models will encourage others to learn more about these methods and construct novel ways to apply them. We believe that using categorical and limited dependent models has, can, and will improve our collective understanding of many of the important issues facing higher education.

Appendix

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/
*************************************************************-
*****************************
These are examples of commands used to estimates the models in the
chapter.
The full code is not contained here for space constraints.
*************************************************************-
*****************************/
**Set directories, open data, start log as needed.
*set macro vars
global $iv = " "

*enrl_college is the outcome variable we created.
```

```
**** Goodness of Fit ******
* unconditional model
logit enrl_college, or

*full model
logit enrl_college $iv
estimates store loges
predict loges, pr

*describing the pred probs
predict pprob5
set scheme s2mono
histogram  pprob5,  title("",  color(black)  margin(zero)  size
(small)) ///
   xti("Predicted   probabily",   size(small))  graphregion(color
(white)) /// plotregion(color(white)) yti("Density", size(small))

summarize pprob5

*examining LR
fitstat

*examining classification
estat classification
lsens, title("", color(black) margin(zero) size(small)) ///
    graphregion(color(white))  plotregion(color(white))  xti(,size
(small)) yti(,size(small))
lroc, title("", color(black) margin(zero) size(small)) ///
    graphregion(color(white))  plotregion(color(white))  xti(,size
(small)) yti(,size(small))

/******LOGIT*****/
estimates restore loges
margins, dydx(*) post
estimates store loges_me

*graphing
estimates restore loges
margins , dydx(gpa) asobserved at(gpa=(1 (.25) 4))
set scheme s2mono
marginsplot, recastci(rarea) recast(line) ciopts(color(*.7)) ///
   graphregion(color(white)) plotregion(color(white)) ti("") yti
("Change  in  Pr(Enroll)",  size(small))  xti("GPA,  10th  grade",
size(small))
```

```
*look at a few populations of interest
mtable,  rowname(1 Female  first-gen  low-inc )  ci  clear  at
(student_gender==2 parental_ed==1 family_income==(1 2) ) atmeans

/******PROBIT*****/
probit enrl_college $iv
estimates store probes
predict probes, pr
margins, dydx(*) post
estimates store probes_me

/******LPM *****/
regress enrl_college i.student_gender $dems $acad $expct $netwk
$sch
estimates store lpm
predict lpm, xb

*diagnostic of lpm
histogram lpm
set scheme s2mono
histogram lpm, title("", color(black) margin(zero) size(small))
///
xti("Predicted probabily", size(small)) graphregion(color(white))
plotregion(color(white)) yti("Density", size(small)) xline(0 1,
lstyle(foreground) lpattern("--"))

*plot residual v fitted
set scheme s2mono
rvfplot, yline(0, lstyle(foreground) lpattern("--")) graphregion
(color(white)) plotregion(color(white)) xline(0 1, lstyle(fore-
ground) lpattern("--")) xti(, size(small)) yti(, size(small))

*check for heteroskedasticity
estat imtest

**********************ORDINAL/MULTINO-
MIAL*********************
*pse_enroll_sel is the dependent var we created.

ologit pse_enroll_sel i.student_gender $iv, or
estimates store ord

*get some marginal effects
estimates restore ord
```

```
margins, dydx(gpa) post
estimates store ord_me

predict nocol_log lsel_log sel_log msel_log

*test if we need multinomial
oparallel, ic
brant, detail

***run it as multinomial
mlogit pse_enroll_sel $iv, rrr
estimates store multi

*get a marginal effect
margins , dydx(gpa) post
estimates store multi_me

*tests of IVs
estimates restore multi
mlogtest, lr
estimates restore multi
mlogtest, wald

*Test of categories - can we collapse them?
mlogtest, combine
estimates restore multi
mlogtest, lrcomb
estimates restore multi
mlogtest, hausman

*Interpretation
estimates restore multi
listcoef student_gender student_race_combo stugpa_10 stu_mathirt
apcred, gt adjacent

*Pred Probs for select subgroups
estimates restore multi
mtable if student_gender==2 & parental_ed==1 & family_income==1,
atmeans noci rowname(lowinc firstg) clear brief

************************COUNT************************
poisson apps $iv, irr
estimates store pois

estat ic
```

```
prcounts pois, max(20) plot
label var poispreq "Poisson"
labe var poisobeq "Observed"
label var poisval "# of apps"

nbreg apps $iv, irr
estimates store nb

estat ic

countfit apps $iv, nbreg prm
```

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Chapter 8
Revisiting Economies of Scale and Scope in Higher Education

Robert K. Toutkoushian and Jason C. Lee

8.1 Introduction

The cost of providing higher education services has always been an enduring topic of interest for several reasons. First and foremost, the notable rise over time in the prices charged to students and their families for going to college has fueled concerns that the high cost of services is the driving force behind this trend. If colleges are not educating students and producing research at their most efficient levels, the argument goes, then some of this inefficiency is passed along to consumers in the form of higher prices. Accordingly, one way to alleviate the pressure on students is to examine the spending patterns and levels of institutions and determine if there is room for improvement. Higher education costs are a perennial policy topic due to the large subsidies (such as state appropriations) given to public and even private institutions, and the other activities that state governments cannot fund (i.e., their opportunity costs) when they provide these subsidies. The higher education industry has also come under fire for perceptions of its inefficiency and inability to produce graduates in sufficient numbers and quality to fill jobs within specific sectors of the economy.

Within this context, researchers have conducted a number of studies over the years to examine the cost structure of colleges and universities (e.g., Bowen, 1980; Brinkman & Leslie, 1986; James, 1978; Paulsen & Smart, 2001). The focus of many of these studies is on the relationship between institutional size and spending. The concept of *economies of scale* (or increasing returns to scale) holds that as an organization produces more output, ceteris paribus, the cost per unit of output falls. This arises because costs that do not vary directly with output can be spread

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over more units of output. Furthermore, as the organization grows it can better utilize resources in ways that further lower costs per unit of output. It is also possible, however, that an organization could produce too much output along one of its dimensions, and as a result costs per unit of output rise as output continues to increase. This is known as *diseconomies of scale* or decreasing returns to scale. Applying this notion to colleges and universities can be challenging because some focus only on undergraduate education while others also provide graduate education and engage in research activities. Accordingly, there may be a variety of measures of output considered for higher education institutions, including the number of under-graduate and graduate students taught, the number of degrees awarded, and the quantity of research produced.

The textbook depiction of economies and diseconomies of scale is shown in Fig. 8.1. The average cost curve (*AC*) shows the relationship between the cost per unit of output and the amount of output produced. Likewise, the marginal cost curve (*MC*) shows how total costs change as an additional unit of output is produced. If there are economies of scale followed by diseconomies of scale in the organization, then the average cost and marginal cost curves could both be U-shaped, meaning that they each initially fall as output increases and then eventually rise as output continues to increase. The lowest point along the average cost curve is the output level where there are constant returns to scale, or the economies of scale are exhausted. Note that by definition average costs fall when the marginal cost is below average cost and vice-versa. This relationship between average and marginal cost is key to the methods we discuss in this chapter that are used to assess economies and diseconomies of scale.

Economists in particular have devoted significant attention to measuring econo-mies of scale in many different industries and markets within industries. The notion is important because it can provide information as to the most cost-efficient way of organizing firms within a market or industry and best utilize scarce resources to meet the needs of customers. To see the connection to higher education, suppose that a given state needs to educate 100,000 students each year at its four-year public institutions. If due to economies of scale two colleges could educate 50,000 each and do so at a lower total cost than, say, 20 colleges each enrolling 5000 students, then it would be more cost efficient to organize the university system into fewer but larger institutions. The resulting surplus of resources could be used to produce other things for the betterment of society. In fact, this type of justification is often behind the decisions of a number of multi-campus institutions, state and university systems, and nations to merge public institutions in the hope of taking advantage of econo-mies of scale and thus provide educational services at a lower cost per student (Tirivayi, van der Brink, & Groot, 2014). Economies of scale are likewise important for institutions that are experiencing falling enrollments due to demographic changes and/or increased competition in postsecondary markets. As these institutions become smaller, their costs per student will rise and the resulting diseconomies will add pressure to either redesign, merge or close these institutions.

Economies of scale are also important when considering how state and national governments should fund their public colleges and universities. Most states, for

example, use funding formulas to help make decisions about how much financial support to give to institutions. If there are economies of scale in the provision of higher education services, and a state believes that it is important to have one or more smaller institutions, then funding formulas should be adjusted to direct more funding per student to these smaller institutions to help them meet their expected costs.

Another important aspect of higher education is that colleges and universities often use their resources to produce multiple outputs such as undergraduate education, graduate education, and scholarly research. Researchers have therefore focused on whether there are any cost savings from the joint production of outputs. This is referred to as *economies of scope*. Economies of scope may arise if, for example, graduate students are used to help teach undergraduate students or conduct research. The issue is important for determining whether a large university that engages in all three activities is more cost efficient than a similarly-sized institution that specializes in only one of these areas.

The main question that we address in this chapter is: Does the notion of economies of scale and scope still hold for colleges and universities? To date, the results from empirical studies (discussed in detail in the literature review section) have been mixed with regard to whether economies of scale and scope exist, and if so, at what output levels do they occur. One obvious reason for the wide range of findings is related to data issues. Researchers have studied different groups of institutions, such as only research institutions or only two-year public institutions, and comparing the findings across sectors is problematic due to their possibly having different ways of using their resources to produce outputs. Likewise, researchers have used various measures of output for colleges and universities, and examined economies of scale in different time periods.

In addition to data issues, there are methodological differences across studies that may have contributed to the variety of findings on this topic. Some studies have used estimates of the total cost curve (i.e., how total costs are related to quantities of outputs and other factors) to examine average costs and changes in total cost (i.e., marginal costs) and assess economies of scale, whereas others have focused on estimating the average cost curve directly and using the parameter estimates to determine whether there are economies of scale. Another issue in economies of scale studies is the choice of functional form used by the researcher for the institution's total, average, and marginal cost curves. Empirical studies have modeled total costs as either a cubic, quadratic, or hybrid function of output. Although the cubic total cost curve has the advantage of giving rise to quadratic (and possibly U-shaped) average and marginal cost curves, it is more challenging to estimate and interpret.

There is also uncertainty within the field as to whether colleges should be treated as single-product or multi-product firms. The textbook discussion of economies of scale presumes that the organization makes one type of output. This may arguably hold for certain types of colleges such as community colleges and four-year institutions that focus almost exclusively on undergraduate instruction. However, for many other postsecondary institutions, the analogy to a firm producing a single type of output is a bit more problematic. Colleges that grant master's and doctor's degrees can spend considerable resources on undergraduate instruction, graduate instruction,

and research at the same time.[1] Accordingly, they should be characterized as multi-product firms. The challenge with multi-product firms when examining economies of scale is that it can be difficult to separate out the spending that is attributed to any one output. This is particularly true in the case of higher education where spending is reported in an aggregated form across outputs.

It is also important for researchers and policy makers to obtain more current evidence about economies of scale and scope. Almost all of the studies on economies of scale and scope in higher education were conducted using data from the 1970s to 1990s, and the few studies that have appeared in more recent years examined cost structures for institutions outside of the United States (e.g., Agasisti & Bianco, 2007; Fu, Huang, & Tien, 2008; Johnes & Velasco, 2007; Lenton, 2008; Stevens, 2005). The reexamination of economies of scale and scope is particularly important because there have been substantial changes since the 1990s in the state of the economy and the criticisms raised against higher education institutions for rising prices.

In this chapter, we revisit economies of scale and scope in US higher education. We begin by reviewing how researchers have tried to measure economies of scale and scope, and the issues that they must confront along the way. We start the discussion by treating higher education institutions as single-product firms, and then move to the more complex situation for higher education institutions that are multi-product firms. We then review the empirical evidence to date on economies of scale and scope. Using data from the Delta Cost Project and IPEDS for the 2012–2013 academic year, we examine whether there is still evidence of economies and/or diseconomies of scale for two-year (associate) institutions and four-year (teaching- and research-oriented) institutions. Finally, for the instances where institutions most resemble multi-product firms, we also examine economies of scope.

8.2 Methods for Assessing Economies of Scale and Scope

8.2.1 Background

The notion of economies and diseconomies of scale can be traced back to the 1800s and the work of Mangoldt (1863). Basically, economies of scale holds that as an organization increases its production of output, total costs rise at a decreasing rate. This pattern is thought to begin at relatively low levels of output because as output initially increases, the fixed costs used for production are distributed over more output, which in turn leads to lower average or per-unit costs. In higher education, for example, fixed costs may include the salaries of key administrative personnel such as the President and chief financial officer, and the minimum education and support functions that a college of any size needs to operate. In addition, economies

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[1]Public service is usually omitted from consideration due to the lack of data on service outputs. Nonetheless, it is arguably an important part of an institution's production function.

of scale may be enhanced if the organization can take advantage of the specialization of resources to produce output more efficiently as it increases in size. For example, in the case of higher education a small college may hire one professor trained as a labor economist to teach a wide range of courses such as macroeconomics and history of economic thought. As the institution becomes larger, other faculty with specialties in macroeconomics and economic history can be hired to teach these courses and the labor economist would be able to focus on teaching labor economics. However, if the organization produces too much output given its resources, then total costs may eventually begin to rise at an increasing rate due to inefficiencies in production. Perhaps the best example of this in higher education is that large institutions often group departments into colleges. These colleges within an institution have their own administrative costs, and the institution may incur additional costs to coordinate and plan activities across these colleges. As noted by Brinkman (1990), economists usually assume that when there are economies and diseconomies of scale, both the average cost and marginal cost curves will be quadratic (U-shaped) functions of output as depicted earlier in Fig. 8.1. However, as we show later in this chapter, this is not always the case.
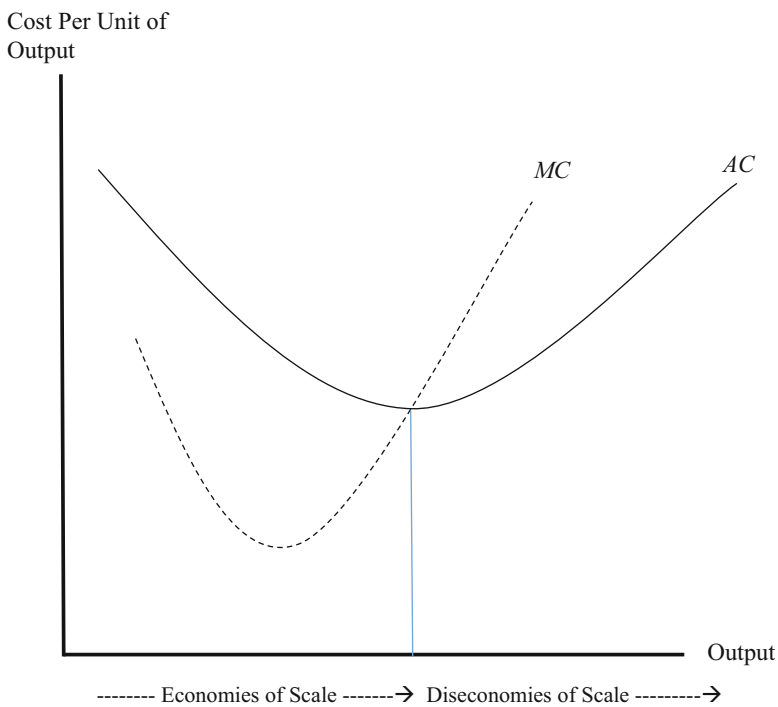
Fig. 8.1 Economies of scale – cubic total cost function

There have been a number of efforts to estimate cost functions for institutions of higher education, and determine whether there are economies and diseconomies of scale. Readers who are interested in the early literature on higher education costs are referred to Russell (1954), Maynard (1971) and Witmer (1972), as well as the forthcoming meta-analysis of economies of scale and scope by Zhang and Worthington (in press). The first studies in higher education documented relationships between credit hour production and average and marginal costs (Stevens & Elliott, 1925; Reeves & Russell, 1935; Middlebrook et al., 1955; Moore, 1959).

Beginning in the 1960s, economies-of-scale studies began to rely on multivariate statistical modeling to estimate cost functions. Thorough reviews of the literature on cost studies prior to the 1990s can be found in Brinkman and Leslie (1986) and Brinkman (1990). The late 1980s through the early 2000s saw a number of notable efforts to measure economies of scale for the US (Getz, Siegfried, & Zhang, 1991; Koshal & Koshal, 1995, 1999; Laband & Lentz, 2003, 2004; Paulsen, 1989; Toutkoushian, 1999). In addition, studies of economies of scale began to appear outside of the US context as well (Fu et al., 2008; Izadi, Johnes, Oskrochi, & Crouchley, 2002; Stevens, 2005).

8.2.2   Economies of Scale

The theory of cost functions follows from the general optimization problem of an organization (Bowen, 1980; Pfouts, 1961; Pindyck & Rubinfeld, 1989; Teece, 1982; Weldon, 1948). Suppose that an organization uses two kinds of inputs such as labor (L) and capital (K) to produce a single type of output (Q). The relationship between these inputs and output is referred to as a production function, and can be written in general form as $f(L,K) = Q$.

The total cost incurred by the organization is a linear function of the quantities of labor and capital used multiplied by their respective prices:

$$TC = wL + pK \tag{8.1}$$

where w = wage rate and p = price per unit of capital. This is sometimes referred to in the literature as an isocost curve. The organization's goal is to find the combination of labor and capital that it can use to produce a specific level of output at the lowest total cost. Economists often represent this decision-making process in mathematical terms with a Lagrangian function (Ø) that is written as:

$$\varnothing = wL + pK - \tau[f(L, K) - Q = 0] \tag{8.2}$$

where τ denotes the shadow price of output, which represents the impact of the level of the constraint on optimization. Optimization in this function is depicted by finding
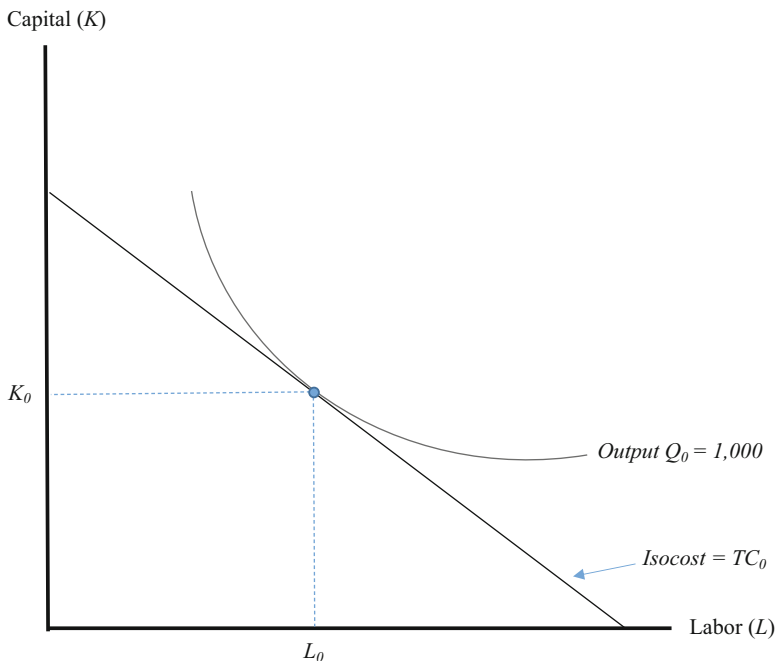
Fig. 8.2 Depiction of cost minimization from Lagrangian function

the values of K, L, τ that minimize Eq. (8.2).[2] This optimization problem for capital and labor is depicted graphically in Fig. 8.2. In this simple illustration, the organization has decided to produce 1000 units of output, and the lowest cost at which this can be achieved is TC_0.

The total cost function (TC) shows the relationship between the quantity of output produced (Q) and the lowest total cost needed to produce each level of output given the prices of production inputs (P) and other variables (X) aside from output that can affect total costs such as the institution's mission, selectivity, and geographic location:

$$TC = f(Q|P, \mathbf{X}) \tag{8.3}$$

The function f shows the mathematical relationship (e.g., linear, quadratic, cubic) between output, prices, other factors and total cost. When studying higher education institutions, particularly those that focus on instruction, researchers typically use enrollments as the relevant measure of output. The total cost function is derived by repeating the optimization exercise in Eq. (8.2) for a range of output levels. This is

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[2]It is common in these optimization problems to focus on the decision variables K and L and set aside the shadow price parameter τ. This value reflects the change in the production function on optimization.

Capital (K)
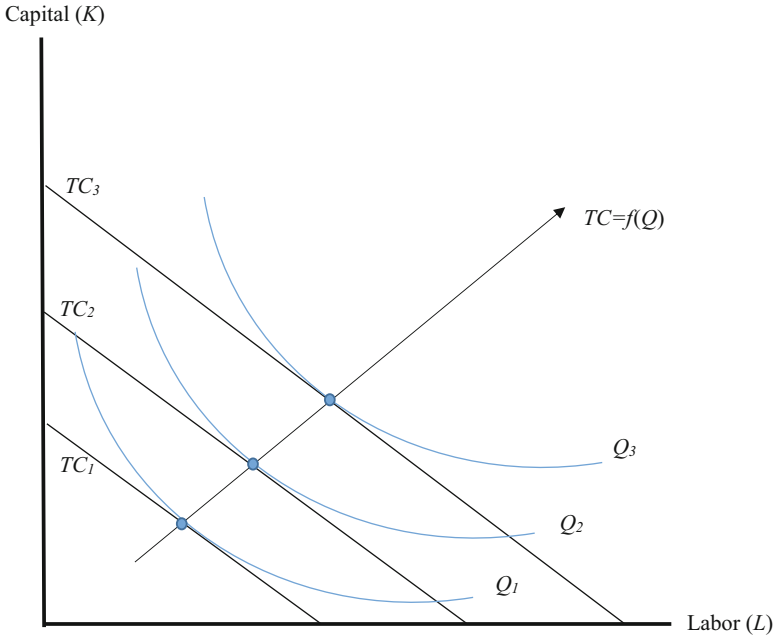
Fig. 8.3 Derivation of total cost function

represented graphically by the arrow path in Fig. 8.3. Each time a new output level is chosen, it gives rise to a new optimum and corresponding minimum total cost.

The average cost curve (*AC*) in the single-product case represents the relationship between output and the cost per unit of output, and is found by dividing total cost by the level of output:

$$AC = TC/Q \tag{8.4}$$

Finally, the marginal cost curve (*MC*) denotes the rate at which total costs change as an additional unit of output is produced. The marginal cost curve is obtained by taking the partial derivative of total costs with respect to output:

$$MC = \partial TC/\partial Q \tag{8.5}$$

In Table 8.1, we provide a numerical illustration of these alternative cost measures and how they are related to each other. Suppose that an institution would incur fixed costs of $2 million regardless of how many students they enroll. The institution also knows that their variable costs (i.e., those costs that vary in proportion to enrollments) are as shown in the third column of Table 8.1. Total costs are then obtained by summing the fixed and variable costs at each corresponding enrollment level. For example, the institution would have to spend $58 million to educated 7000

Table 8.1 Numerical illustration of average and marginal costs in higher education

Enrollments	Fixed cost	Variable cost	Total cost	Average cost	Marginal cost
0	$2,000,000	$0	$2000,000	n/a	n/a
1000	$2,000,000	$12,000,000	$14,000,000	$14,000	$12,000
2000	$2,000,000	$22,000,000	$24,000,000	$12,000	$10,000
3000	$2,000,000	$30,000,000	$32,000,000	$10,667	$8000
4000	$2,000,000	$36,000,000	$38,000,000	$9500	$6000
5000	$2,000,000	$40,000,000	$42,000,000	$8400	$4000
6000	$2,000,000	$46,000,000	$48,000,000	$8000	$6000
7000	$2,000,000	$56,000,000	$58,000,000	$8286	$10,000
8000	$2,000,000	$68,000,000	$70,000,000	$8750	$12,000
9000	$2,000,000	$82,000,000	$84,000,000	$9333	$14,000
10,000	$2,000,000	$100,000,000	$102,000,000	$10,200	$18,000

Notes: Illustration assumes that the institution incurs $2 million in fixed costs. Total costs are defined as fixed plus variable costs. Average costs are found by dividing total costs by enrollments. Marginal costs are obtained by dividing the change in total cost between two different enrollment levels by the change in enrollments

students ($2 million in fixed costs plus $56 million in variable costs). Average costs are found by dividing total costs by enrollments. The figures in the fourth column show that these costs per unit of output initially fall as enrollments increase to 6000 students, and then rise as enrollments continue to increase. This pattern is an example of economies and diseconomies of scale. Finally, marginal costs are approximated by dividing the change in total costs between two enrollment levels by the change in enrollments. For example, when the institution increased in size from 1000 to 2000 students, total costs increased by $10 million. Accordingly, total cost changed by an average of $10,000 per student over this range. This is the approximate marginal cost at this output level.[3] Finally, note that average costs are falling (i.e., there are economies of scale) as long as the marginal cost is less than the average cost, and vice-versa. This relationship between average and marginal cost is important for how researchers assess economies and diseconomies of scale.

As noted earlier, economies of scale refers to the relationship between the quantity of output produced and the minimum total cost needed to produce output. In Fig. 8.3, this is reflected in how total cost changes as output changes. If total costs increase at a slower rate than output, then the organization is experiencing economies of scale (or increasing returns to scale). Likewise, diseconomies of scale (or decreasing returns to scale) implies that total costs rise at a faster rate than output.

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[3]The marginal costs shown in this illustration are slightly different from what is obtained by taking the partial derivative of the total cost function. The partial derivative formula shows the change in total costs due to a one-unit increase in output, whereas the illustration in Table 8.1 shows the change in total costs due to a 1000-unit increase in output.

Two different approaches can be used to evaluate economies of scale in the single-product case. The choice between these options depends on the specific functional form used for the total cost equation. The first approach is to algebraically solve for the output level at which average costs are minimized. This can be done by taking the partial derivative of the average cost curve with respect to output, setting the derivative equal to zero, and then finding the output level that makes this true (Toutkoushian & Paulsen, 2016). For this to work, however, the average cost equation must have a quadratic functional form where a solution exists.

There are instances, however, where the average cost curve does not have a functional form that leads to a unique cost-minimizing output level. Accordingly, a second approach can be used in these situations to assess economies and diseconomies of scale. In this case, the researcher compares the estimated average and marginal costs for an institution at specific output levels. By definition, average costs are falling as long as $MC < AC$, and average costs are rising when $MC > AC$. Accordingly, the ratio of average to marginal cost at a designated output level (S^*) can be used to assess economies of scale:

$$S^* = AC^*/MC^* \tag{8.6}$$

If $S^* > 1$, then there are economies of scale at the output level Q^* because marginal costs are below average cost. Researchers can substitute a range of output levels into the ratio measure in Eq. (8.6) and estimate if and where economies of scale exist.

The aforementioned approaches only apply when the institution produces one type of output. This arguably holds for two-year (associate) institutions and many four-year (undergraduate) institutions that do not engage in graduate education or research. However, there are other higher education institutions that provide undergraduate instruction, graduate institution, research, and public service. When an organization produces multiple outputs, it may not be possible to combine the separate outputs into a single indicator that has meaning because the outputs are measured on different scales and have qualitatively different values. For example, how would one interpret the sum of an institution's undergraduate enrollment and number of publications in academic journals? Even combining graduate and undergraduate students together into an output measure may be problematic because of the different costs associated with educating each and their unique roles in producing research and teaching.

Accordingly, colleges and universities that are involved in producing some combination of undergraduate instruction, graduate instruction, and research should be viewed as a multi-product firm. For institutions that produce J different outputs, their total cost function can be rewritten in a more general form such as:

$$TC = f(Q_1, \ldots Q_J | P, X) \tag{8.7}$$

where Q_j = quantity of the j-th type of output produced. The function f now shows how the multiple outputs, prices, and other variables are combined to influence total costs. The marginal cost curve for each output (MC_j) can be determined in the same manner as before by taking the partial derivative of total cost with regard to the j-th output.

The multi-product nature of these institutions creates problems for defining average costs, however, because it is not clear what output should be used in the denominator for calculating cost per unit of output. For these colleges, total costs are a composite of the costs incurred from producing each of the J outputs, and the way in which financial data for colleges and universities are reported to the government and in financial statements do not allow researchers to parse expenditures and assign them solely to each output.

Economists have therefore identified two types of economies of scale for multi-product organizations. The first is known as *ray economies of scale*, which refers to how total costs change as all outputs are simultaneously increased by the same proportion. The second notion is referred to as *product-specific economies of scale*, which focuses on how total costs change as only one of the outputs is increased, holding the other outputs constant. This means that an institution may have ray economies of scale and/or product-specific economies of scale for each type of output produced.

To measure ray and product-specific economies of scale for multi-product institutions, only a modified version of the second approach discussed earlier will work. In the technique by Baumol, Panzar and Willig (Baumol, Panzar, & Willig, 1982), for example, product-specific economies of scale are estimated by first calculating the average cost of producing each output holding the other outputs constant (referred to as average incremental cost (AIC_j)). The general form of the average incremental cost calculation is written as:

$$AIC_j^* = \left(TC_j^* - TC_{-j} \right) / Q_j^* \qquad (8.8)$$

where TC_j^* = estimated total cost of producing Q_j^* units of the j-th output and the mean levels of all other outputs, and TC_{-j} = estimated total cost of producing all outputs at their mean levels except for the j-th output. The numerator thus represents the change in total costs that are due to only the j-th output, and dividing this total by Q_j^* converts it to a per-unit measure. Accordingly, it is an estimate of the average cost of producing the j-th output.

To see how this is done for an institution that produces three distinct outputs (such as undergraduate instruction, graduate instruction, and research), the estimated total cost of producing Q_1^* units of the first output and the mean levels of the other outputs is obtained by substituting these output values into the total cost function:

$$TC_1^* = f\left(Q_1^*, \bar{Q}_2, \bar{Q}_3, \bar{X} \right) \qquad (8.9)$$

where $\bar{Q}_j$ = average of the j-th output.[4] Likewise, the estimated total cost of producing all but the first output is found in a similar way, except that the first output level is set equal to zero:

$$TC_{-1} = f\left(0, \bar{Q}_2, \bar{Q}_3, \bar{X}\right) \tag{8.10}$$

The resulting average incremental cost of the first output is then calculated as follows:

$$AIC_1^* = \left(TC_1^* - TC_{-1}\right)/Q_1^* \tag{8.11}$$

At the average cost minimizing level of output it must be true that $AIC_j = MC_j$ because the marginal cost curve crosses the average cost curve at its lowest point. Therefore, the ratio of average incremental cost to marginal cost is used in a similar way as before to assess product-specific economies of scale:

$$S_j^* = AIC_j^*/MC_j^* \tag{8.12}$$

When $S_j^* > 1$, the average incremental cost exceeds marginal cost and the institution is operating in the product-specific economies of scale portion of its production function for this output. Likewise, when the ratio is less than one, it indicates that there are diseconomies of scale. These calculations are then made for the remaining two outputs as well.

Similarly, ray economies of scale (S^*) focus on the relationship between total cost and total output for all products combined. This is achieved in the Baumol/Panzar/Willig approach as follows:

$$S^* = TC^*/\sum_j Q_j MC_j \tag{8.13}$$

where TC^* = total cost of producing output vector Q^* (in the three-output example $Q^* = Q_1^*, Q_2^*, Q_3^*$) and $Q_{j*}MC_j$ = assumed quantity of each output multiplied by its marginal cost. When $S^* > 1$, ray economies of scale are said to exist, and vice-versa.

8.2.3 Economies of Scope

Another complication for multi-product firms arises because there may be added efficiencies or inefficiencies due to the joint production of outputs. In higher education, for example, graduate students are often employed to help faculty members conduct research and teach undergraduates. As a result, there may be some cost savings for an institution from engaging in both graduate education and either

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[4]Estimated total cost is affected by all of the linear, quadratic, and interaction terms involving Q_1.

Graduate Output (Q_1)
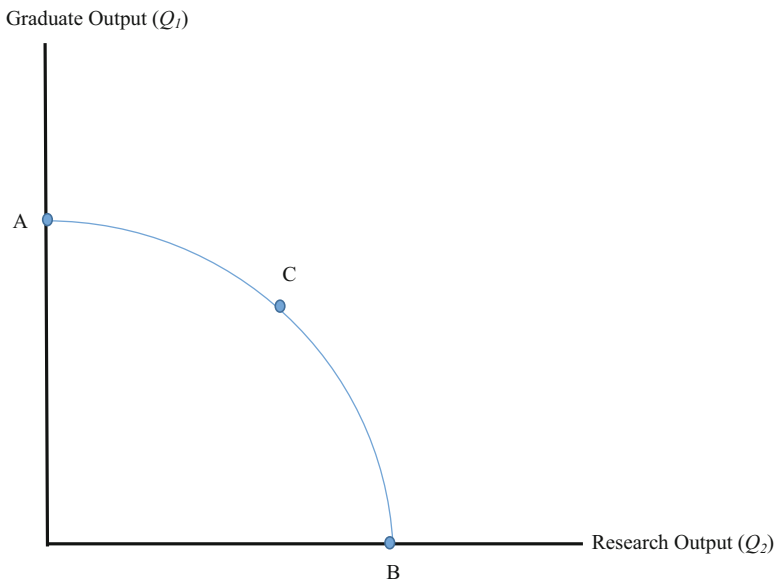
Fig. 8.4 Multi-product production possibilities

research or undergraduate education. Likewise, it is possible that research activities can be used to enhance graduate and undergraduate education, and vice-versa.

Figure 8.4 depicts a production possibilities frontier where there are complementarities between outputs for research and graduate education. The curve shows the quantities of the two outputs that could be produced from a given level of capital and labor inputs. When the curve is concave (or bowed outward), then more total output can be produced by the college when it engages in both graduate education and research, as opposed to specializing in one or the other. In this example, two colleges with the same inputs could produce more total graduate education and research by doing both at the same time (such as at point C) than would be true if one college specialized in graduate education (point A) and the other specialized in research (point B). This is an illustration of economies of scope. It is also possible that the joint production leads to no change in total cost, in which case the frontier would be a straight line and there are constant returns to scope. Finally, diseconomies of scope may arise if producing both outputs leads to cost increases (i.e., the frontier is convex or bowed inward).

To measure economies of scope, the total cost function can be generalized to allow the outputs to interact with each other, and thus become part of the functional form in Eq. (8.7). *Global economies of scope* refer to how total costs are affected by the joint production of all *J* outputs, whereas *product-specific economies of scope* look at how costs are affected by the production of each individual output after taking as given the production of all other outputs. The formula for global economies

of scope (Z^*) involves comparing estimates of the total costs if a college produced only one output to its total cost with all outputs. In the three-output case, this would be written as:

$$Z^* = \left[TC\left(Q_1^*, 0, 0\right) + TC\left(0, Q_2^*, 0\right) + TC\left(0, 0, Q_3^*\right) - TC^*\right]/TC^* \qquad (8.14)$$

where TC^* = total cost evaluated at (Q_1^*, Q_2^*, Q_3^*). The global economies of scope metric can be interpreted as the percentage change in total cost that would arise if each output was produced alone rather than in conjunction with other outputs. When $Z^* > 0$, then total costs are higher when the outputs are not jointly produced, meaning that there are global economies of scope.

Similarly, product-specific economies of scope (Z_j^*) denote the estimated change in total costs that are attributable to adding each specific output. For example, the product-specific economies of scope from adding the first output would be:

$$Z_1^* = \left[TC\left(Q_1^*, 0, 0\right) + TC\left(0, Q_2^*, Q_3^*\right) - TC^*\right]/TC^* \qquad (8.15)$$

When Z_j^* is positive, it suggests that there are economies of scope from adding the first output to the institution because total costs would be higher if only the j-th output were produced separately.

8.2.4   Functional Forms for Cost Equations

Our earlier discussion focused on the general concepts of economies of scale and scope, and how they differ when the institution is treated as a single- or multi-product organization. We now turn to the specification of cost functions and how this affects the calculations of economies of scale and scope.

Researchers who study economies of scale and scope have used several different functional forms to represent the total cost function. Let's begin with the case where a college is viewed as a single-product organization. A natural starting place would be to specify total costs as a cubic function of output because this gives rise to a quadratic marginal cost curve when the first derivative is taken, which will be U-shaped as in Fig. 8.1 provided the coefficient on the cubed output variable is positive. Likewise, the average cost curve will also be quadratic in this instance, although the average cost-minimizing output cannot be determined algebraically.

Other researchers have instead treated total costs as a quadratic function of output. The average cost curve that results from dividing total costs by output would be non-linear; however, and as in the case with a cubic total cost function, there is no unique solution to the average cost-minimizing output (see Pindyck & Rubinfeld, 1989). To see this, consider the case where total costs are a quadratic function of enrollments (Q) and a linear function of another regressor (X) that shifts the total cost curve:

$$TC = \alpha + \beta_1 Q + \beta_2 Q^2 + \gamma X + e \tag{8.16}$$

Average costs are then found by dividing through by enrollments:

$$AC = \alpha/Q + \beta_1 + 2\beta_2 Q + \gamma X/Q + e \tag{8.17}$$

Taking the derivative of AC with respect to Q yields:

$$\partial AC/\partial Q = -\frac{\alpha}{Q^2} + 2\beta_2 - \gamma X/Q^2 \tag{8.18}$$

which yields no unique solution for Q to minimize average costs. It should also be noted that the quadratic total cost curve gives rise to a linear marginal cost curve of the form $MC = \beta_1 + 2\beta_2 Q$. In both of these instances, economies of scale must be assessed by comparing average and marginal cost as shown in Eq. (8.6). This is depicted graphically in Fig. 8.5.

A third option would be to explicitly model average costs as a quadratic function of output. Doing so would give rise to a unique solution for the output level that minimizes average costs (Toutkoushian, 1999). It should be noted, however, that this average cost curve is not identical to the average cost curve that is derived from the total cost curve, and thus may lead to different conclusions regarding economies of scale.
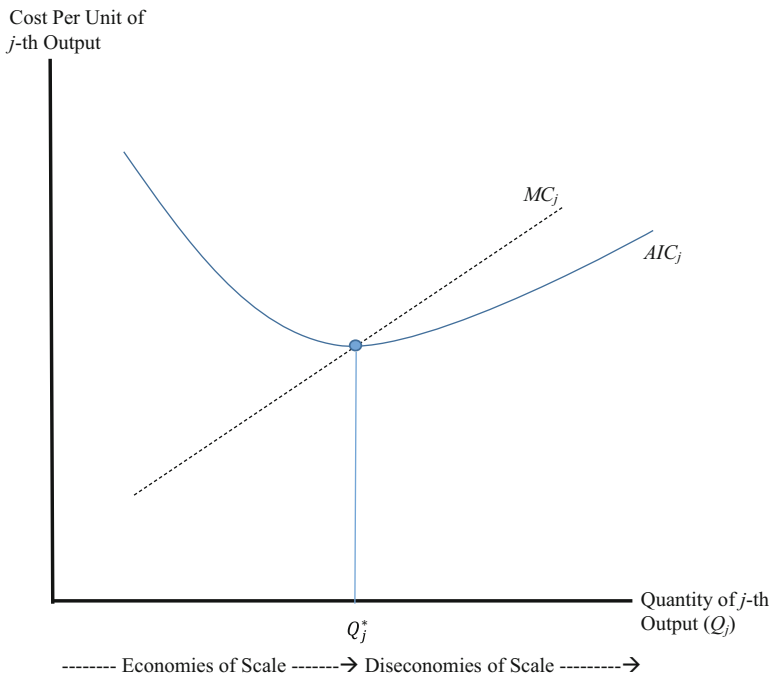
Fig. 8.5 Economies of scale – quadratic total cost function

For multi-product institutions, total costs can also be modeled as cubic or quadratic functions of each output. As noted earlier, it is not possible to define an average cost curve in this instance because of the presence of multiple outputs. Therefore, to assess ray and product-specific economies of scale, one must use the approach outlined in Eqs. (8.12) and (8.13). Furthermore, creating variables for the interactions of the outputs with each other allows for the examination of global and product-specific economies of scope.

Baumol et al. (Baumol et al., 1982) introduced what they call the flexible fixed cost quadratic (FFCQ) function to represent the cost structure of multi-product firms (also see Panzar & Willig, 1977). In the FFCQ function, each output and factor price is entered in linear and quadratic form in the cost function, and each output is interacted with all of the other outputs and factor prices. Furthermore, the FFCQ model includes dummy variables for whether each of the outputs is produced. In the case of an institution that produces three outputs (Q_1, Q_2, Q_3), the FFCQ function is written as:

$$TC = \alpha_0 + \sum_{j=1}^{3} \alpha_j D_j + \sum_{j=1}^{4} \beta_j Q_j + \left(\frac{1}{2}\right) \sum_{j=1}^{4} \sum_{k=1}^{4} \gamma_{jk} Q_j Q_k + X\boldsymbol{\theta} + u$$

(8.19)

where all variables are defined as before and D_j = dummy variable for whether the j-th output is produced by the institution. It is common for studies using the FFCQ function to treat factor prices (P) in the same manner as outputs (and thus $P = Q_4$ in Eq. (8.19)). The inclusion of the dummy variables for whether each of the outputs is produced is a strength of the FFCQ approach because not all institutions produce all outputs, and in theory the coefficients on these variables capture the fixed costs associated with each output. Note that it is also possible to enter outputs in cubic form to this equation, and thus generate U-shaped rather than linear marginal cost curves.

Despite its advantages, the FFCQ approach has two disadvantages. First, it is more difficult to assess economies and diseconomies of scale with the FFCQ function because the researcher must use the parameters of the model and the means of the variables to simulate costs at different output levels. Second, there is no guarantee that under this approach the institution will have economies of scale followed by diseconomies of scale. It is possible, for example, that there will only be economies or diseconomies of scale throughout the entire range of output. It is even possible that the results will show diseconomies of scale at low output levels followed by economies of scale at higher output levels.

Some researchers have used modifications of these approaches to study economies of scale and scope in higher education. Laband and Lentz (2004), for example, combined a cubic cost function with the flexible fixed cost approach and the Baumol et al. (1982) method to calculate economies and diseconomies of scale. Other studies have likewise used the flexible fixed cost function approach in a double-log (or translog) cost function so as to be consistent with a Cobb-Douglas production function (e.g., de Groot, McMahon & Volkwein, 1991). In addition, some

researchers have utilized frontier cost models to not only assess economies of scale and scope, but to also measure the production efficiency level of individual colleges and universities (see for example Johnes, 1998; Johnes & Johnes, 2009; Robst, 2000, 2001; Titus & Eagan, 2016).

8.3 Literature Review

As already alluded to in the methods section, researchers have been analyzing the cost structure of colleges and universities for almost a century (Stevens & Elliott, 1925). As theoretical and methodological advancements have been made within the larger field of economics, the higher education cost literature has progressed from studies that analyzed the cost per credit hour, to analyses of average and marginal costs, to single-product cost functions, and, finally, to the multi-product cost function popularized by Baumol et al. (1982) and Mayo (1984). This review considers all of these studies in defining the outputs and inputs relevant to cost structure of higher education, and then concludes by focusing on more recent studies when discussing economies of scale and scope.

8.3.1 Outputs

Higher education institutions are traditionally tasked with three central missions: teaching, research, and public service. Of course these missions vary by institution, but there is general agreement that these are the primary purposes of higher education in the United States. Researchers interested in the production and costs of colleges and universities have attempted to quantify the relationships between inputs such as faculty and staff and outputs such as enrollments in a number of ways, often relying upon data provided by federal and state governments or, in the case of interdepartmental analyses, postsecondary institutions. As such, the research on this topic is limited by the data available (Cohn & Cooper, 2004; Lewis & Dundar, 2001). A review of the three primary outputs of postsecondary institutions and how they have been defined in the cost function literature follows.

Teaching Outputs All postsecondary institutions, regardless of sector, are responsible for imparting knowledge and skills to their students. Thus, human capital accumulation would be the output of interest in the cost functions estimated, but measuring human capital is complicated by the lack of a standardized outcome (Nelson & Hevert, 1992; Verry & Davies, 1976). Moreover, as institutions have different missions or aims, agreeing on what that outcome should be is difficult. For example, is it the primary aim of a liberal arts institution to increase the earnings of its graduates? Should graduates from a science or engineering program be required to take a standardized exam on subject matter that lies outside of their degree

program? Given the decentralized nature of higher education in the U.S., who would determine the content of this exam? Instead of attempting to reach consensus on what the outcomes of instruction in higher education should be, researchers utilize a number of proxy variables that are more easily quantifiable and readily available.

The most commonly used proxy for teaching or instructional output is the number of students enrolled (Cohn, Rhine & Santos, 1989; Koshal & Koshal, 1999; Laband & Lentz, 2003; Maynard, 1971). This measure often includes full-time students with most researchers adjusting for the proportion of part-time students enrolled to create a full-time equivalent (FTE) output measure (Laband & Lentz, 2003). Others instead use the number of credit hours produced by a given department or institution as the output of interest (Dundar & Lewis, 1995; Sav, 2004, 2011). In their seminal study, Verry and Davies (1976) question whether these enrollment proxies should be treated as the instructional output of the university, citing their inability to account for student dropouts and their inherent valuing of longer-term coursework as deficiencies. In the end, however, they concluded that the use of enrollment measures as a proxy for human capital production does not introduce systematic bias into cost function estimates. The subsequent research in this area has predominantly followed their lead.

Because the costs of instruction vary by academic department and student level, most researchers have accounted for this by including independent measures of each in their models. Those researchers interested in the multi-product nature of higher education treat undergraduate and graduate instruction as potential complements by examining whether economies of scope exist between these two types of instruction, given the role that graduate students play in undergraduate teaching at research universities (Cohn et al., 1989). Others researchers, especially those examining European university systems (Johnes, 1997, 1998; Lenton, 2008), model the costs of science and non-science students independently, as science students are more expensive to educate (Agasisti & Bianco, 2007; Johnes & Velasco, 2007).

Even though undergraduate and graduate enrollments are the most frequently used proxy for instructional output, others such as Agasisti and Johnes (2015), de Groot et al. (1991), and Worthington and Higgs (2011) have argued that degree completion is a more appropriate measure of teaching output. The difficulty with this approach lies in identifying which graduating cohort represents the output for the year that costs are incurred for their production. For example, if a cost function is being estimated for the 2010–2011 academic year, which graduates are the products of the costs expended in that year? Moreover, as Cohn et al. (1989) pointed out, this approach ignores all of the instructional efforts and expenses made for educating non-graduates, which, given the perpetually low graduation rates in the United States, is not an insignificant sum.

Research Outputs The production of research has become increasingly important in the U.S. system of postsecondary education in the last 75 years (Lewis & Dundar, 2001). Institutions from across a number of sectors devote substantial resources to the research mission, while a more select group have the infrastructure and expertise to compete for the most coveted externally funded grants.

Accounting for and measuring research production within a cost function framework can be as perplexing and ambiguous as accounting for instructional output, but researchers have come up with a handful of generally agreed upon approaches (Cohn & Cooper, 2004).

Lewis and Dundar (2001) identified four ways in which studies examine research output within a cost function framework. The first of which is an input measure: research revenue. Authors using this proxy assume that revenue is correlated with the funds expended on research or at least indicative of a university or department's capacity for research production (Cohn et al., 1989; Nelson & Hevert, 1992). Some have instead relied upon research expenditures directly as a proxy for research output (Koshal & Koshal, 2000; Laband & Lentz, 2003; Toutkoushian, 1999).

Although they are more time consuming to collect, publication counts have also been used as a measure of research production (de Groot et al., 1991; Dundar & Lewis, 1995; Verry & Davies, 1976; Worthington & Higgs, 2011). There are those who have indexed publication types (e.g., books, refereed journal articles, conference papers & presentations, etc.), ascribing weights to each type (Worthington & Higgs, 2011), while others have created counts for specific types of publications (de Groot et al., 1991). These proxies seem more aligned with the true research output of a given institution or department, but they are not as readily available as the expenditures or revenues collected annually by federal governments. There is also the issue of timing, in that resources spent on research production today may not translate into research output until some time in the future given lags in the peer review process and publication.

Early work in this arena utilized self-reported measures from faculty surveys to approximate research output. These surveys included questions related to the number of hours devoted to research (Nelson & Heverth, 1992; Verry & Davies, 1976) and external ratings of departmental peers (de Groot et al., 1991). As Lewis and Dundar (2001) pointed out, however, research hours are yet another input masquerading as an output within the cost function literature.

Service Outputs Public service is one of the tripartite missions of the U.S. university system and, as such, is recognized as an important output of the higher education production process (Cohn & Cooper, 2004).To date, higher education researchers do not include public service outputs in their cost functions.. This likely has to do with the limitations of the data available as well as the varying definitions of what public service entails. There are clear service activities at public land and sea grant institutions, often in the form of extension services, yet some other activities traditionally defined as service within the professoriate may or may not be considered a public service output (e.g., academic journal referee, organizing community events, consulting for community or state agencies). As a result, economies of scale studies omit this aspect of higher education production.

8.3.2 Inputs

There are a number of inputs to consider within the higher education cost function, including students, faculty, and staff, as well as the buildings and equipment used to produce teaching, research, and service. Traditionally, researchers have either assumed that non-labor inputs (e.g., capital) do not differ substantially within the higher education sector being analyzed, or researchers lack the data necessary to account for variations in these inputs. Consequently, very few studies (de Groot et al., 1991; Worthington & Higgs, 2011) include capital costs in their estimates. On the other hand, almost every recent study investigating higher education cost functions includes some measure of the price of labor: often faculty wages and fringe benefits. These expenditures, known as factor prices within this literature, help account for the variation in labor costs across institutions (Baumol et al., 1982).

Lewis and Dundar (2001) questioned the lack of inputs or controls in this literature, but they were especially critical of the disregard for the differences in the production quality of teaching and research. Although the degree to which quality differs across institutions or what determines quality is debatable, prior research clearly creates lines of demarcation between various tiers of postsecondary institutions (Brewer, Gates, & Goldman, 2002; Winston, 1999). Because students self-select into institutions, it is difficult to disentangle the quality of the institution from the quality of the student enrolled. Researchers have, however, suggested a couple of ways to account for quality (Koshal & Koshal, 1995). The most notable method is to control for incoming student standardized test scores (e.g., SAT or ACT test scores), or include a measure of institutional reputation or prestige in the cost function (de Groot, et al., 1991; Koshal & Koshal, 1999, 2000; Koshal, Koshal & Gupta, 2001; Lenton, 2008).

Beyond controlling for quality, researchers have utilized a number of approaches to ensure that they are comparing institutions along homogeneous outputs. Those researchers who run models with public and private institutions aggregated often include a dummy variable to capture differences between the two institutional types (de Groot, et al., 1991). Moreover, a number of studies have controlled for average class size or student to faculty ratio, often finding that larger class sizes are associated with additional costs (Koshal & Koshal, 1999; Lenton, 2008; Verry & Davies, 1976). Realizing that geography plays a role in the costs associated with the higher education production function, a number of researchers have included dummies for urban institutions (Agasisti & Bianco, 2007; Johnes, Johnes, & Thanassoulis, 2008; Toutkoushian, 1999) or have run models disaggregated by geographic region (Sav, 2004). Finally, because the cost structure of institutions with a medical facility likely differ significantly from institutions without a hospital, some researchers have removed those institutions from analyses or included a dummy variable to account for the differences (Agasisti & Johnes, 2015; de Groot et al., 1991).

8.3.3 Economies of Scale Findings

Early work on the cost structure of higher education focused on average and marginal costs and the ratio of these two measures within a single output framework. Generally, these studies suggest that economies of scale exist at the average level of production for instruction, although these estimates vary by academic department (Brinkman, 1990; Brinkman & Leslie, 1986). Because the findings from these studies are likely biased by their inability to account for the multi-product nature of the higher education industry (Cohn, Rhine, & Santos, 1989), this review will focus almost exclusively on the more recent cost function studies that treat universities as multi-product institutions.

Cohn et al. (1989) authored what is often considered to be the seminal study on the economies of scale and scope in higher education. They were the first to apply Baumol et al.'s (1982) flexible fixed cost quadratic model to the college setting, arguing that the cost of outputs not only depend on the level of outputs but also on the mix of outputs produced. Examining the universe of public and private four-year institutions during the 1981–1982 academic year, they found that the average public university had already exhausted ray economies of scale, while the average private university could increase its output 600% and still enjoy decreasing costs per unit. Interestingly, their product-specific findings suggest that public universities could increase graduate enrollment and research production without incurring prohibitive costs, while private universities did not enjoy economies of scale in either of those domains. Beyond being the first researchers to employ a model that accounted for the multiple production processes occurring within higher education, Cohn and colleagues also provided evidence that public and private four-year institutions have different cost structures, and, as such, should be modeled independently.

Laband and Lentz (2003) attempted to replicate Cohn et al.'s (1989) work utilizing more recent data. They also found differences in the cost structure between public and private four-year universities, suggesting that researcher should model cost functions for private and public institutions independently. Moreover, Laband and Letnz's findings suggest that ray economies of scale exist through 600% of the mean levels of output for private institutions. However, their results diverged considerably from Cohn et al.'s (1989) within the private sector, as Laband and Lentz (2003) found that product-specific economies of scale exist for undergraduate education and research. They argued that the discrepancies in the private sector findings may stem from the inclusion of approximately 800 more institutions, many of which were smaller institutions engaged in less research than the average private institution in Cohn et al.'s (1989) sample.

Although the two prior studies are impressive in their scope, the rest of the cost function literature instead focuses on more homogeneous higher education institutions. For instance, de Groot et al. (1991) investigated the cost structure of 147 research universities using data from the early 1980s. Employing a translog rather than a quadratic functional form, the authors noted considerable economies of scale for the average institution in the production of both teaching and research.

Interestingly, in direct opposition to Cohn et al. (1989) and Laband and Lents (2003), they found that public and private four-year colleges had similar cost structures. Their findings were corroborated by Koshal and Koshal (1995) who studied a similar subset of research universities utilizing data from 1990–1991. Of note in both studies is the attempt to control for differences in quality between institutions. Both studies used a reputation measure as a proxy of institutional quality, while Koshal and Koshal (1995) also included the average SAT score of incoming students to mitigate concerns of varying levels of quality.

In more recent work, Sav (2004) examined the cost-output relationship across a number of higher education sectors.. Among research universities, he found evidence to suggest that public research universities do not enjoy ray economies scale at the mean levels of output. The opposite was true in the private non-profit sector, while both types of institutions enjoyed product-specific economies of scale in the production of professional students and research. In opposition to the other findings on research universities presented, Sav's (2004) results suggest the production of graduate education in the public sector was experiencing diseconomies of scale, while only public research universities were enjoying economies of scale in undergraduate instruction. In an update to his 2004 paper, Sav (2011) again employs a flexible fixed cost quadratic approach, but instead examined cost functions over time utilizing a fixed-effects panel data estimation strategy. His results differ markedly from all prior work on research institutions, as they suggest the existence of diseconomies of scale for every product-specific output and only ray economies of scale at the mean levels of output.

In an examination of over 325 comprehensive colleges and universities, Koshal and Koshal (1999) found that larger comprehensive master's institutions enjoy ray economies of scale, while the estimates for product-specific economies of scale were mixed. For example, their work suggests that there are economies of scale for research at private comprehensive universities, yet constant returns to scale for their public counterparts. Differences between public and private comprehensive institutions also exist in the production of graduate education, with publics enjoying economies of scale at all simulated output levels and privates only experiencing economies of scale at and beyond the 250% level of output. Notably, the authors found that class size has a statistically significant effect on total costs. In related work on comprehensive institutions by Sav (2004), Koshal and Koshal's (1999) ray economies of scale conclusions are generally corroborated. Sav (2004) also found that public comprehensives are by and large operating within the economies of scale region for all product-specific outputs. Finally, his results suggest that private comprehensive universities experience diseconomies of scale at the current mean output.

Researchers have also examined the cost structure of private liberal arts colleges (Getz et al., 1991; Koshal & Koshal, 2000) and religiously affiliated institutions (Koshal et al., 2001). In both settings, Koshal and colleagues found evidence to suggest that these smaller institutions can experience cost savings from scale economies\ across all outputs produced. Given the higher rates of closures in these

smaller private non-profit institutions, it would seem imperative that these colleges take advantage of scale economies whenever possible.

The literature on the economies of scale in the two-year sector is sparse. Within the U.S. context, Sav (2004, 2011) curiously treated associate colleges as multi-product institutions that are engaged in the dual missions of teaching and research. Even though the product-specific evidence is inconsistent across the two studies, he found that two-year institutions enjoy ray economies of scale at the mean levels of output. Lenton (2008) examined economies of scale within the two-year sector in the U.S. and the United Kingdom. Her results suggest that vocational coursework is the most efficient form of undergraduate instruction in both countries, while ray economies of scale exist in both settings, which she suggests should lead policymakers to invest more heavily in the two-year sector.

Although not the focus of our review, two portions of this literature remain relatively unexplored: the cost structure of academic departments and the recent proliferation of international cost function studies. The cost function literature focusing on academic departments has not been updated for over 20 years (Dundar & Lewis, 1995; Lewis & Dundar, 1995; Nelson & Hevert, 1992; Tierney, 1980; Verry & Davies, 1976). Generally, this body of research suggests that (1) marginal costs increase with the level of instruction; (2) marginal and average costs are higher for science and engineering students; and (3) class size needs to be included as a cost shifter in any cost function estimate. The comparative work on the cost structure of higher education institutions outside of the U.S. varies as much as one might expect, given the country-specific contexts. Broadly, however, it seems that many higher education systems are currently enjoying economies of scale and could benefit from increased teaching and research efforts (Hashimoto & Cohn, 1997; Johnes, 1996, 1997, 1998; Johnes & Schwarzenberger, 2011; Manum, 2012; Rufino, 2006).

8.3.4 Economies of Scope Findings

While the prior section focused on the scale of production in higher education, in this section we turn our attention to the economies that arise as a result of the joint production of outputs. In other words, the estimation of economies of scope determines whether there are cost advantages associated with producing two or more outputs (e.g., teaching and research) at the same time. As discussed earlier, these relationships are referred to as global and product-specific economies of scope.

Cohn et al. (1989) as well as Laband and Lentz (2003) found evidence to suggest that public and private four-year institutions enjoy economies of scope. In fact, Cohn et al. (1989) argued that "complex IHEs, involving undergraduate and graduate teaching, as well as research, may be more efficient than IHEs specializing in only one (or two) of these missions" (p. 289). The findings from Laband and Lentz (2003) broadly support this conclusion; however, their results suggest that private colleges and universities experience diseconomies of scope within undergraduate and graduate instruction at approximately 300% and 150% of their output means.

Those studies focusing exclusively on research universities generally report global economies of scope for the average institution as well (de Groot et al., 1991; Dundar & Lewis, 1995; Sav, 2004, 2011). In thinking about which higher education production processes are complementary, de Groot and associates (1991) found that economies of scope exist between graduate and undergraduate education. They argue that these cost savings arise from the role that graduate students play in undergraduate instruction. These results were corroborated by Dundar and Lewis's (1995) study of academic departments within research universities. Moreover, they find that economies of scope exist between all teaching and research outputs, across the social and physical sciences, as well as in schools of engineering. Sav (2004) reported results that contradict these findings. He concluded that scope diseconomies exist across all outputs in public research universities, while scope economies exist at the mean level of output for undergraduate and professional student instruction.

Koshal and Koshal's (1999) findings suggest that public and private comprehensive universities could enjoy increased cost savings from the global economies of scope found at almost all levels of production.. That said, it seems that public and private comprehensives experienced constant returns or diseconomies of scope in the production of undergraduate instruction. Sav (2004) also explored product-specific economies of scope within this sector and found that the results vary substantially by geographic region.

Koshal and colleagues (Koshal & Koshal, 2000; Koshal et al., 2001) found that private liberal arts and religiously affiliated colleges can save costs by jointly producing undergraduate instruction, graduate instruction, and research. These savings were large and remained throughout 300% of the mean outputs, suggesting that these smaller colleges could increase production significantly across the board and still enjoy the cost savings afforded through scope economies.

8.4 Data and Methodology

8.4.1 Data

The primary dataset that we used in this study was provided by the Delta Cost Project (DCP). The DCP dataset contains selected institution-level data assembled from the various surveys reported to the federal government through the Integrated Postsecondary Education Data System (IPEDS). One of the main advantages of the DCP data is that financial data have been reconciled between public and private institutions, making it easier to directly compare and contrast the two sectors. We omitted from the sample all institutions that aggregate their financial data across multiple campuses and report it for only one campus (Jaquette & Parra, 2014). We restricted the analysis to public and private not-for-profit institutions at the associate, bachelor, master and doctoral levels. Institutions were dropped from the analysis if they had fewer than 100 students, average faculty salaries below $20,000 or above $250,000, or had a medical school. After eliminating a few specialized institutions

and other institutions without financial data on the variables in question, our final samples consisted of 777 two-year (associate) institutions, 377 four-year teaching-oriented institutions, and 519 four-year research-oriented institutions. The institutional categories were derived from the 2000 Carnegie classification scheme.[5]

Output Variables For the purpose of treating colleges and universities as single-product organizations, we defined instructional output as the combined full-time equivalent enrollments at the undergraduate and graduate levels (Q_{FTE}). Subsequently for the models where institutions were viewed as multi-product firms we defined two separate output variables for graduate and undergraduate headcounts (Q_g and Q_u, respectively).

With regard to research, we used number of publications as a measure of an institution's research output (Q_R). The number of publications for each institution was found using the methodology outlined by Toutkoushian, Porter, Danielson, and Hollis (2003). As such, we count publications that were indexed in three primary sources: the *Science Citation Index*, the *Social Sciences Citation Index*, and the *Arts and Humanities Citation Index.* All of these were made available through the *Web of Science*, which is the largest online repository of publications. We limited our search to articles published in academic journals during the 2013 calendar year.

To obtain publication counts for each institution, we identified those articles where one or more authors were affiliated with a given institution at the time of publication. Because institutions sometimes go by the same name and satellite campuses may be mistakenly affiliated with their main campus, we also included city and zip code information retrieved from IPEDS to delimit the search. Thus, only those citations affiliated with a given institution name *and* its appropriate zip code *or* city name were included in each school's publication count. Moreover, while there may be concerns that author names or institutional affiliations might be missing from some citations, *Web of Science* guarantees the inclusion of all authors and their institutional affiliations through proactive validation with authors and institutions. That said, our approach is still limited in a few ways. For instance, those authors who collaborate within their institution will only have that publication counted once towards their school's total, as we did not weight each publication by the number of authors from a given institution. Moreover, while our three indices cover a substantial portion of all academic journals, there were some that are not included and, as such, are not reflected in our publication counts. Finally, other forms of publication like books, book reviews, and editorial materials were not included in our estimates, which might penalize institutions with a large focus on the arts or humanities.

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[5]The Carnegie classifications were based on number of degrees awarded by level and research dollars. Two-year associate institutions were defined as having a Carnegie classification code of 40 ("Associate's Colleges"). Four-year teaching-oriented institutions had a Carnegie classification code of either 31 ("Baccalaureate Colleges – Liberal Arts"), 32 ("Baccalaureate Colleges – General"), or 33 ("Baccalaureate/Associate's Colleges"). Four-year research-oriented institutions had a Carnegie classification code of either 15 ("Doctoral/Research Universities – Extensive"), 16 ("Doctoral/Research Universities – Intensive"), 21 ("Master's Colleges and Universities I"), or 22 ("Master's Colleges and Universities II").

Dependent Variables The dependent variable for most of the statistical models was the total cost or expenditures for the institution. Total cost included operating and non-operating expenditures and depreciation at the institution. For the single-product models, where we also estimated the average cost, the dependent variable for average cost was obtained by dividing total cost by the combined FTE enrollments. It should be noted that the annual costs for higher education institutions exclude some expenditures on fixed cost such as classrooms, laboratories, land, and other facilities. Accordingly, the values that we use understate the true total costs needed for colleges to provide higher education services, and in particular omit some fixed costs associated with postsecondary education.

Control Variables We created a number of control variables that theory suggests may lead to shifts in the total cost curves. First, we included a variable in the models for input prices based on the average salary of full-time faculty. Geographic measures for the region of the country and whether the institution was located in an urban or rural area were used to capture possible cost-of-living differences across institutions. We relied on two variables – the 75th percentile of SAT mathematics scores[6] of students and the percentage of applicants who were admitted – to represent the quality of student inputs at four-year institutions since the cost of educating students may vary with their academic quality. Finally, we considered a number of institutional variables that the literature suggests also affect institutional costs. These factors include the percentage of graduates in STEM fields (science, technology, engineering, mathematics) where instructional costs are typically higher, the percentage of students enrolled part-time, whether the institution is public or private, and the extent to which students take online courses. Table 8.2 provides more information on each of the variables used in our analysis.

Table 8.3 contains the means for these variables for two-year (associate) institutions. Because two-year institutions are not engaged in graduate education or research, these particular measures are not reported in the table. It can be seen that the average total expenditure for these institutions was $53.9 million, which roughly translates into $11,613 per student.

Table 8.4 provides similar descriptive statistics for four-year teaching-oriented institutions. The results show that when viewed as a single-product organization, their average total cost per student is much higher ($27,000) than for two-year institutions. Although some of these institutions enrolled graduate students, the vast majority of enrollments were at the undergraduate level. Similarly, the level of research productivity at these institutions was substantially lower than for research-oriented institutions. Nonetheless, two-thirds reported having some graduate students and nearly three-fourths had at least one publication in 2013, which might be an argument for treating them as multi-product organizations.

Finally, Table 8.5 shows the descriptive statistics for four-year research-oriented institutions. On average, expenditures per student ($25,000) were similar to

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[6]We only used mathematics scores due to its high correlation with reading scores.

Table 8.2 Variable descriptions

Variable	Description
Total cost	Total expenditures at the institution. Includes operating, nonoperating, and deductions
FTE students	Total full-time equivalent students. Includes undergraduate and graduate students
Undergrads	Headcount of undergraduate students in Fall 2012
Grads	Headcount of graduate students in Fall 2012
Publications	Number of publications in academic journals in 2013
Avg. salary	Average faculty salary in thousands of dollars. Includes full-time faculty at the full, associate, and assistant ranks.
FTE × S	Interaction of FTE students and average faculty salary
U × P	Interaction of undergraduate students and publications
G × P	Interaction of graduate students and publications
U × G	Interaction of undergraduate and graduate students
U × S	Interaction of undergraduate students and average faculty salary
G × S	Interaction of graduate students and average faculty salary
P × S	Interaction of publications and average faculty salary
New England	1 if OBE region = New England
Mideast	1 if OBE region = Mideast
Great Lakes	1 if OBE region = Great Lakes
Southeast	1 if OBE region = Southeast [reference]
Plains	1 if OBE region = Plains
Southwest	1 if OBE region = Southwest
Rocky Mountains	1 if OBE region = Rocky Mountains
Far West	1 if OBE region = Far West
Urban	1 if located in an urban area (codes 11, 12, 13)
Rural	1 if located in a rural area (codes 41, 42, 43)
Other region	1 if located in all other areas [reference]
Pct part-time students	Percentage of all students (undergraduate + graduate) who are enrolled part-time
Pct no distance Ed	Percent of undergraduate students who are not enrolled in any distance education classes at the institution
Public	1 if public institution, 0 if private not-for-profit institution
Pct STEM degrees	Percentage of total degrees in STEM fields
Acceptance rate	Percentage of undergraduate applicants who are admitted
SAT 75th percentile	75th percentile of SAT / ACT math scores for undergraduates
Any graduate students	1 if enroll any graduate students, 0 otherwise
Any undergrads	1 if enroll any undergraduate students, 0 otherwise [reference]
Any publications	1 if produce any publications, 0 otherwise

Notes: All data are for the 2012–2013 year unless otherwise noted. Concordance table was used to convert ACT scores to SAT equivalent scores when the majority of students reported taking the ACT

Table 8.3 Descriptive statistics – twoyear institutions

Variable	Mean	Standard deviation	Minimum	Maximum
Total cost	53,900,000	50,600,000	1,201,311	442,000,000
Student FTE	4641	4978	98	53,787
Avg. salary ($1000s)	55.09	12	21	106
FTE × S (students × Avg. salary)	277,874	329,996	4223	3,262,236
New England	0.05	0.23	0	1
Mideast	0.12	0.32	0	1
Great Lakes	0.14	0.35	0	1
Plains	0.10	0.30	0	1
Southwest	0.12	0.33	0	1
Rocky Mountains	0.04	0.20	0	1
Far West	0.14	0.35	0	1
Urban	0.32	0.47	0	1
Rural	0.24	0.42	0.00	1
Pct part-time students	54.62	15.86	0.34	92
Pct no distance Ed	69.90	17.01	2.00	100
Public	0.92	0.28	0	1
Pct STEM degrees	15.34	13.55	0	90

Notes: Sample size = 777. All data were retrieved from the Delta Cost Project except for the variable "Pct Students in No Distance Education Classes" (IPEDS). All data are for the 2013 academic year. Institutions were omitted from the sample if they (a) had a medical school, (b) were a for-profit institution, (c) had average faculty salaries below $25,000 or above $250,000, (d) had fewer than 100 students, or (e) reported data to IPEDS for multiple institutions ("Parent-child" problem)

teaching-oriented institutions. As can be seen in the data, almost all of these institutions were actively involved in undergraduate education, graduate education and research.

8.4.2   Methods

Using these data, we estimated a series of cost equations to determine whether there are economies of scale and scope in higher education. We organized the models according to type of institution, and thus report separate results for two-year institutions, four-year teaching-oriented institutions, and four-year research-oriented institutions. In all instances, we used ordinary least squares regression to obtain estimated coefficients. To help account for possible heteroscedasticity, robust standard errors were used in each model and reported in the subsequent tables.

Beginning with the two-year institutions, we considered them to be single-product organizations and used combined FTE enrollments as our measure of output. The models are summarized as follows:

Table 8.4 Descriptive statistics – four-year teaching-oriented institutions

Variable	Mean	Standard deviation	Minimum	Maximum
Total cost	51,500,000	39,600,000	2,590,442	245,000,000
Student FTE	1901	1442	187	17,179
Avg. salary ($1000s)	59.64	15	27	108
FTE × S (Students × Avg. salary)	119,302	97,905	6017	901,228
Undergrads	1900	1675	131	23,019
Grads	155	261	0	1786
Publications	13.25	24	0	165
U × P (Undergrads × Pubs)	34,276	80,385	0	805,665
G × P (Grads × Pubs)	2238	10,220	0	150,960
U × G (Undergrads × Grads)	396,917	918,011	0	PxS8,332,878
U × S (Undergrad × Avg. salary)	118,301	106,259	6371	1,207,600
G × S (Grads × Avg. salary)	9562	17,160	0	133,318
P × S (Pubs × Avg. salary)	1038	2188	0	16,039
New England	0.05	0.22	0	1
Mideast	0.16	0.36	0	1
Great Lakes	0.17	0.37	0	1
Plains	0.16	0.37	0	1
Southwest	0.05	0.21	0	1
Rocky Mountains	0.02	0.15	0	1
Far West	0.07	0.25	0	1
Urban	0.34	0.47	0	1
Rural	0.09	0.29	0	1
Acceptance rate	61.59	18.48	9	100
SAT 75th percentile	575	72	400	770
Pct. part-time students	14.46	14	0	70
Pct. no distance Ed	88.56	16	27	100
Public	0.12	0	0	1
Pct. STEM degrees	26.00	18	0	86
Any graduate students	0.66	0	0	1
Any publications	0.73	0	0	1

Notes: Sample size = 377. All data were retrieved from the Delta Cost Project except for the variable "Pct Students in No Distance Education Classes" (IPEDS). All data are for the 2013 academic year. Institutions were omitted from the sample if they (a) had a medical school, (b) were a for-profit institution, (c) had average faculty salaries below $25,000 or above $250,000, (d) had fewer than 100 students, or (e) reported data to IPEDS for multiple institutions ("Parent-child" problem)

Table 8.5 Descriptive statistics – four-year research-oriented institutions

Variable	Mean	Standard deviation	Minimum	Maximum
Total cost	167,000,000	200,000,000	4,711,481	2,400,000,000
Undergrads	6684	6559	179	51,010
Grads	1631	1733	0	14,954
Publications	116.49	405.34	0	6761
Avg. salary ($1000s)	66.82	13.79	36	128
Any graduate students	0.998	0.04	0	1
Any publications	0.940	0.24	0	1
U × P (Undergrads × Pubs)	2,122,818	10,300,000	0	1.74E + 08
G × P (Grads × Pubs)	564,903	3,450,351	0	6.84E + 07
U × G (Undergrads × Grads)	18,400,000	41,900,000	0	4.38E + 08
U × S (Undergrad × Avg. salary)	479,409	533,049	6626.042	3.83E + 06
G × S (Grads × Avg. salary)	120,133	152,004	0	1,297,853
P × S (Pubs × Avg. salary)	10,274	46,020	0	867,159
New England	0.08	0.26	0	1
Mideast	0.19	0.39	0	1
Great Lakes	0.16	0.37	0	1
Plains	0.09	0.28	0	1
Southwest	0.09	0.29	0	1
Rocky Mountains	0.03	0.16	0	1
Far West	0.12	0.32	0	1
Urban	0.50	0.50	0	1

Rural	0.03	0.16	0	1
Acceptance rate	65.67	15.70	16.70521	99.45999
SAT 75th percentile	570	53	430	780
Pct part-time students	25.76	13.59	1	81
Pct no distance Ed	80.51	16.53	21	100
Public	0.50	0.50	0	1
Pct STEM degrees	21.68	15.59	0	94

Notes: Sample size = All data were retrieved from the Delta Cost Project except for the variable "Pct Students in No Distance Education Classes" (IPEDS). All data are for the 2013 academic year. Institutions were omitted from the sample if they (a) had a medical school, (b) were a for-profit institution, (c) had average faculty salaries below $25,000 or above $250,000, (d) had fewer than 100 students, or (e) reported data to IPEDS for multiple institutions ("Parent-child" problem)

$$TC = \alpha_0 + \alpha_1 Q + \alpha_2 Q^2 + \beta_1 P + \beta_2 P^2 + \alpha_5 QxP + X\boldsymbol{\theta} + u \qquad (8.20)$$
$$TC = \alpha_0 + \alpha_1 Q + \alpha_2 Q^2 + \alpha_3 Q^3 + \beta_1 P + X\boldsymbol{\theta} + u \qquad (8.21)$$
$$AC = \alpha_0 + \alpha_1 Q + \alpha_2 Q^2 + \beta_1 P + X\boldsymbol{\theta} + u \qquad (8.22)$$

where X = additional cost curve shifters including geographic region, urbanicity, whether public or private, percent students who are part-time, percent students majoring in STEM fields, and percent classes not taught via distance education. The first model corresponds to the Baumol/Panzer/Willig specification where total costs are a quadratic function of output, and output is interacted with prices. The second equation is a modified version of the first, where total costs are modeled as a cubic function of output and the interaction term with price is dropped. Finally, the third model specifies average costs as a quadratic function of output.

For four-year teaching-oriented institutions, we estimated similar cost models under the assumption that they were also single-product institutions. In addition, we added a fourth equation based on the FFCQ formula where we treated these as multi-product institutions. The cost curve shifters for undergraduate institutions also included variables for the SAT 75th percentile of students and the percentage of applicants who were admitted to the institution. It should be noted that the FFCQ functional form includes dummy variables for the presence of graduate education and publications, respectively, as well as interactions among the three output measures and prices. Finally, we applied the same multi-product FFCQ model specification to four-year research-oriented institutions.

8.5   Results

8.5.1   Two-Year Institutions

In Table 8.6, we provide the results for two-year institutions from the three regression models described in the previous section. Models (1) and (2) use total cost (in thousands of dollars) as the dependent variable, and the last model uses cost per student as the dependent variable. Recall that Model (1) corresponds to the specification recommended by Baumol/Panzer/Willig, and the second model is a slight modification where total costs are a cubic function of output. In each model, institutions are considered to be single-product organizations where total FTE students is the output measure of interest.

Overall, there is some evidence of cost differences due to geographic location. Although public institutions were found to have higher total costs than similarly-situated private institutions, the vast majority of two-year institutions are public. Likewise, there is some evidence that total costs are positively related to the STEM focus of institutions and the percentage of full-time students.

Turning to output, we found that in the Baumol/Panzer/Willig model total, costs have a quadratic relationship with output. In the cubic total cost equation, however,

Table 8.6 OLS models for economies of scale – two-year institutions

	(1)	(2)	(3)
	Quadratic TC	Cubic TC	Quadratic AC
Student FTE	6.632***	9.718***	−0.709***
	(1.308)	(0.762)	(0.120)
Student FTE squared	−3.7e-05***	3.7e-07	1.4e-05***
	(1.1e-05)	(6.4e-05)	(4.2e-06)
Student FTE cubed	–	−5.6e-10	–
		(9.3e-10)	
Avg. salary	221.245	243.597**	56.875**
	(406.833)	(77.751)	(18.350)
Avg. salary squared	−2.516	–	–
	(3.978)		
FTE × S	0.059*	–	–
	(0.024)		
New England	4188.333**	3428.774*	501.212
	(1530.541)	(1560.650)	(688.569)
Mideast	7636.957***	7501.862***	791.051
	(1666.881)	(1724.661)	(564.561)
Great Lakes	10715.127***	10931.868***	1544.247**
	(2049.341)	(2144.612)	(511.471)
Plains	1815.898	1932.223	761.242
	(1327.676)	(1369.515)	(556.175)
Southwest	−602.282	−516.750	227.475
	(1762.506)	(1762.307)	(459.089)
Rocky Mountains	−336.760	−22.220	1978.673*
	(3614.966)	(3491.933)	(871.700)
Far West	8585.167***	8928.641***	2379.130*
	(2123.577)	(2145.312)	(1128.374)
Urban	3044.993*	2117.266	78.361
	(1477.772)	(1424.551)	(306.873)
Rural	−1509.035	−1500.745	457.383
	(1204.387)	(1235.562)	(580.207)
Pct part-time students	−51.291+	−71.568*	−21.306
	(30.635)	(32.822)	(22.510)
Pct no distance Ed	8.331	16.300	22.045*
	(40.384)	(37.538)	(10.328)
Public institution	6563.654*	5395.226*	−3303.311***
	(2611.076)	(2371.490)	(885.035)
Pct STEM degrees	68.864+	68.689+	−4.626
	(36.016)	(35.377)	(13.666)

Table 8.6 (continued)

	(1)	(2)	(3)
	Quadratic TC	Cubic TC	Quadratic AC
Constant	−5246.618	−11680.466**	14670.287***
	(9363.023)	(4211.818)	(1344.214)
R-squared	0.92	0.92	0.22

Notes: Sample size = 777. Robust standard errors are shown in parentheses. Dependent variable in models (1) and (2) is total cost ($1000s), and dependent variable in model (3) is cost per FTE student. Reference category for region is Southeast. Reference category for urbanicity is suburban and town. + p < .10, * p < .05, ** p < .01, *** p < .001

Table 8.7 Economies of scale calculations for two-year institutions

Pct of mean FTE enrollment	Average cost	Marginal cost	Ratio AC to MC
	Quadratic total cost function		
50%	$13,403	$9736	1.38
100%	$11,526	$9563	1.21
200%	$10,458	$9218	1.13
300%	$9987	$8873	1.13
400%	$9666	$8528	1.13
500%	$9404	$8183	1.15
600%	$9171	$7838	1.17
	Cubic Total cost function		
50%	$13,695	$9711	1.41
100%	$11,697	$9685	1.21
200%	$10,668	$9580	1.11
300%	$10,278	$9402	1.09
400%	$10,029	$9152	1.10
500%	$9822	$8829	1.11
600%	$9625	$8434	1.14
Mean FTE = 4641			

both the squared and cubic output variables became insignificant. The average cost curve in the last column shows that average costs at first fall with FTE enrollments and then rise. Solving for the average cost-minimizing output level in the last equation shows that the AC curve was minimized at approximately 25,000 students, which is considerably larger than the typical two-year institution.[7] Accordingly, the quadratic average cost model suggests that there are economies of scale over most of the output range for two-year institutions.

In Table 8.7, we evaluated economies of scale in the Baumol/Panzer/Willig model by calculating the average and marginal costs at selected output levels for

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[7]The average cost-minimizing output was found by taking the partial derivative of average cost in the third model with respect to enrollments, setting this derivative equal to zero, and solving for FTE enrollments.

two-year institutions using the parameters in the first and second models in Table 8.6. Column 2 contains the estimated average cost, column 3 the estimated marginal cost, and then the last column shows the ratio of average to marginal cost. Average costs were found by dividing the total cost equation by FTE enrollments and then substituting specific enrollment levels into the resulting equation. Likewise, marginal costs were estimated by taking the partial derivative of the total cost equation with respect to enrollments in models (1) and (2) and then substituting the same enrollment levels into this equation.[8] It can be shown from the results that for these institutions, the resulting statistics do not vary substantially when total costs are modeled as a quadratic or cubic function of output. In each instance, we found that for a wide range of output the average cost for two-year institutions exceeded their marginal cost, which is consistent with the notion of economies of scale.

8.5.2   Four-Year Teaching-Oriented Institutions

We now turn to the results for four-year teaching-oriented institutions. In Table 8.8 we present the coefficient estimates from four alternative regression models. In models (1), (2) and (4) total cost (in thousands of dollars) was used as the dependent variable, and the third model used average cost as the dependent variable. Models (1), (2) and (3) are identical to the three models we estimated for two-year institutions, except that the total cost shifters also included variables for the SAT score (75th percentile) for students and the percentage of applicants who were admitted. In each of these three models, we treated four-year undergraduate institutions as single-product organizations where total FTE students was the measure of output. In addition, the last model in the table assumes that four-year undergraduate institutions are multi-product organizations that produce undergraduate education, graduate education, and research publications. Thus we replaced the aggregate FTE output variable with separate variables for the undergraduate headcount, graduate headcount, and number of publications. We also added dummy variables for the presence of graduate education and publications, and interacted the three output measures with each other and with average faculty salary.

Interestingly, in Table 8.8 we found that the geographic differences in total cost for four-year teaching-oriented institutions were often opposite in sign from what we observed for two-year institutions, with cost being lower in the Rocky Mountain and Far West regions relative to the Southeast. Total costs were positive associated with the academic quality of students as represented by the 75th percentile of SAT scores and the acceptance rate at the institution. We found that total costs were higher for institutions that enrolled a greater share of full-time students, and unlike two-year institutions we found no difference in total costs for public and private four-year

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[8]The marginal cost equation for model (1), for example, is therefore written as: $\partial TC/\partial Q = 6.632 + (2)(-0.000037)Q + 0.059 * AvgSal$, where AvgSal = average faculty salary.

Table 8.8 OLS models for economies of scale – four-year teaching-oriented institutions

	(1)	(2)	(3)	(4)
	Quadratic TC	Cubic TC	Quadratic AC	Multi product
Student FTE	1.70	19.38***	−4.89***	–
	(5.56)	(2.40)	(0.77)	
Student FTE squared	−5.5e-04***	−2.2e-04	2.5e-04***	–
	(8.8e-05)	(5.1e-04)	(4.9e-05)	
Student FTE cubed	–	−1.8e-08	–	–
		(2.3e-08)		
Avg. salary	−1793.69***	997.52***	527.73***	227.38
	(356.43)	(125.50)	(46.98)	(472.75)
Avg. salary squared	17.14***	–	–	1.38
	(3.21)			(4.48)
FTE x S	0.33***	–	–	–
	(0.09)			
New England	4281.70	7339.93	2431.86	3173.07
	(4428.28)	(5664.43)	(2251.63)	(3479.65)
Mideast	−1649.01	318.71	−241.37	74.58
	(2799.74)	(3247.11)	(1183.20)	(2250.34)
Great Lakes	−919.39	−2337.47	−1672.06+	−1935.95
	(1989.06)	(2404.16)	(948.37)	(1770.57)
Plains	−3803.62*	−3752.57+	−2259.78*	−4285.15**
	(1659.58)	(2130.41)	(949.43)	(1537.20)
Southwest	−2008.97	561.28	95.89	−790.03
	(1824.13)	(3572.79)	(1975.71)	(1552.06)
Rocky Mountains	−6673.45*	−8729.36*	−3094.00	−7435.92*
	(3218.58)	(3887.88)	(2140.95)	(3066.66)
Far West	−8659.92**	−9511.39*	814.84	−9494.55**
	(3205.70)	(4182.18)	(2897.74)	(3269.13)
Urban	869.47	917.07	580.86	−203.04
	(1312.62)	(1605.99)	(889.00)	(1332.94)
Rural	−2206.44	−437.12	858.35	−1766.68
	(1998.69)	(2532.12)	(1066.75)	(2007.20)
Acceptance rate	−149.65***	−325.61***	−99.20**	−144.30***
	(40.80)	(49.92)	(33.04)	(38.85)
SAT 75th Pct	82.34***	101.91***	38.02***	43.22**
	(15.02)	(17.50)	(8.85)	(13.77)
Pct part-time students	−220.97***	−286.10***	−114.75***	−389.89***
	(59.54)	(66.01)	(30.15)	(74.34)
Pct no distance Ed	31.32	4.55	6.63	−11.83
	(47.62)	(62.11)	(26.77)	(48.55)

<div align="right">(continued)</div>

Table 8.8 (continued)

	(1)	(2)	(3)	(4)
	Quadratic TC	Cubic TC	Quadratic AC	Multi product
Public institution	−2141.96	−837.93	634.49	−3671.93
	(2757.70)	(3149.92)	(1198.16)	(2999.90)
Pct. STEM degrees	102.27*	58.80	87.20***	−17.36
	(51.59)	(65.43)	(25.72)	(47.39)
Any graduate students	−	−	−	−1641.20
				(1363.08)
Any publications	−	−	−	−2592.38
				(1814.63)
Undergrads	−	−	−	8.49+
				(4.55)
Undergrads squared	−	−	−	−0.00***
				(0.00)
Grads	−	−	−	32.54*
				(16.26)
Grads squared	−	−	−	−0.01
				(0.00)
Publications	−	−	−	−553.11
				(413.16)
Publications squared	−	−	−	−5.20***
				(1.53)
U × P	−	−	−	0.22**
				(0.08)
G × P	−	−	−	0.15
				(0.20)
U × G	−	−	−	−0.00*
				(0.00)
U × S	−	−	−	0.14+
				(0.08)
G × S	−	−	−	−0.05
				(0.27)
P × S	−	−	−	12.45*
				(5.52)
Constant	16331.79	−7.8e + 04***	−1.2e + 04*	−1.1e + 04
	(11965.21)	(10392.33)	(4800.48)	(12715.46)
R-squared	0.91	0.87	0.76	0.93

Notes: Sample size = 377. Robust standard errors are shown in parentheses. Dependent variable in models (1) through (3) is total cost, and dependent variable in model (4) is cost per FTE student. Reference category for region is Southeast. Reference category for urbanicity is suburban and town. + p < .10, * p < .05, ** p < .01, ***p < .001

Table 8.9 Economies of scale calculations for four-year teaching-oriented institutions

Pct of Mean FTE Enrollment	Average cost	Marginal cost	Ratio AC to MC
	Quadratic total cost function		
50%	$33,831	$20,051	1.69
100%	$26,681	$19,009	1.40
200%	$22,324	$16,926	1.32
300%	$20,178	$14,843	1.36
400%	$18,584	$12,760	1.46
500%	$17,210	$10,676	1.61
600%	$15,948	$8593	1.86
	Cubic total cost function		
50%	$36,524	$18,908	1.93
100%	$27,578	$18,338	1.50
200%	$22,615	$16,899	1.34
300%	$20,415	$15,064	1.36
400%	$18,806	$12,832	1.47
500%	$17,355	$10,204	1.70
600%	$15,917	$7178	2.22
Mean FTE = 1901			

teaching-oriented institutions. When we treated four-year teaching-oriented institutions as single-product firms, the results showed a quadratic relationship between output and average cost, with an average cost-minimizing output level of about 10,000 students. This output level is about five times as large as the average four-year teaching-oriented institution, and thus the results show that there are economies of scale for the vast majority of these institutions.

In Table 8.9, we provide estimates of economies of scale for four-year teaching-oriented institutions using the Baumol/Panzer/Willig approach under the assumption that they are single-product organizations. The table is organized in the same way as Table 8.7 for two-year institutions. Once again, we found that average costs were consistently higher than marginal costs regardless of whether we used a quadratic or cubic total cost function. Accordingly, the evidence suggests that there are economies of scale over a broad range of output for four-year teaching-oriented institutions when they were viewed as single-product organizations.

The results changed, however, when we treated four-year teaching-oriented institutions as multi-product firms. Table 8.10 shows our results for the economies of scale (ray and product-specific) and economies of scope (global and product-specific) calculations. Beginning with ray economies of scale in the first row, we found that there were initially economies of scale from increasing all outputs proportionately, but that they disappeared once outputs had doubled from their means. With regard to economies of scale for each output, the results show that average incremental costs fell as each single output increased, holding the other two constant. The only exceptions to this rule were at below-average output levels for

Table 8.10   Summary of economies of scale and scope – four-year teaching-oriented institutions

Metric	Percent of output				
	50%	100%	200%	300%	400%
Ray EOS	1.46	1.16	0.95	0.83	0.73
EOS – Undergrads (U)	1.03	1.04	1.09	1.10	1.13
AIC (U)	$18,203	$16,994	$15,180	$12,762	$10,343
MC (U)	$17,598	$16,389	$13,971	$11,552	$9134
EOS – Grads (G)	0.07	1.03	1.06	1.07	1.08
AIC (G)	$1622	$21,652	$20,014	$17,830	$15,647
MC (G)	$22,198	$21,106	$18,922	$16,739	$14,555
EOS – Publications (R)	0.37	1.07	1.19	1.31	1.84
AIC (R)	$208,786	$530,970	$427,498	$289,536	$151,574
MC (R)	$565,460	$496,479	$358,517	$220,555	$82,593
Economies of scope:	**50%**	**100%**	**200%**	**300%**	**400%**
Global	0.79	0.46	0.22	0.13	0.07
Undergrads	0.47	0.20	0.02	−0.04	−0.07
Grads	1.02	0.31	−0.15	−0.32	−0.39
Publications	0.76	0.12	−0.32	−0.50	−0.61

graduate education and research, which could possibly be attributable to the fixed costs associated with each.

Turning to economies of scope, the evidence suggests that there are cost savings from the joint production of undergraduate education, graduate education, and research. On an output-specific basis, however, we noted that each output initially had economies of scope followed by diseconomies of scope beginning around 200% of each mean output level.

8.5.3   Four-Year Research-Oriented Institutions

Lastly, we focused our attention on four-year research-oriented institutions in Tables 8.11 and 8.12. Table 8.11 provides the results from the total cost equation for these institutions. We only present findings from the multi-product model in this case because almost all of these institutions are involved in all three activities considered here. In this model, we found no evidence of geographic cost differences across institutions. Costs were still higher for institutions that were more selective in admissions, had fewer part-time students, or were less involved in distance education. Finally, we saw no difference in total costs for public and private institutions after controlling for the three output measures and other total cost shifters.

The last table presents the findings for economies of scale and scope for four-year research-oriented institutions. Overall, these institutions exhibited ray economies of

Table 8.11 OLS model for economies of scale – four-year research-oriented institutions

	(1)
	Quadratic TC
Any graduate students	13487.09*
	(6076.07)
Any publications	−7579.69+
	(4286.81)
Undergrads	6.38
	(3.93)
Undergrads squared	6.7e-05
	(1.0e-04)
Grads	20.20
	(14.14)
Grads squared	−1.5e-03***
	(2.9e-04)
Publications	424.23*
	(183.02)
Publications squared	−0.03
	(0.02)
Avg. salary	−1445.14
	(900.82)
Avg. salary squared	10.25
	(7.75)
U x P	−4.5e-03
	(3.5e-03)
G x P	0.04**
	(0.01)
U x G	−1.8e-03**
	(7.0e-04)
U x S	0.11*
	(0.05)
G x S	0.27
	(0.20)
P x S	−1.54
	(1.56)
New England	4289.79
	(5914.00)
Mideast	6369.88
	(5245.90)
Great Lakes	13151.26*
	(5912.11)
Plains	−3089.00
	(4705.15)
Southwest	2326.70

(continued)

Table 8.11 (continued)

	(1)
	Quadratic TC
	(5333.93)
Rocky Mountains	−7776.66
	(16337.41)
Far West	−1.1e + 04
	(7198.71)
Urban	−812.25
	(3232.42)
Rural	4685.14
	(7187.40)
Acceptance rate	−269.20**
	(91.23)
SAT 75th Pct	71.67
	(45.39)
Pct part-time students	−1246.28***
	(140.24)
Pct no distance Ed	224.79*
	(100.71)
Public institution	1094.65
	(7860.73)
Pct STEM degrees	−180.34
	(172.59)
Constant	36961.75
	(34284.37)
R-squared	0.97

Notes: Sample size = 519. Robust standard errors are shown in parentheses. Dependent variable is total cost. Reference category for region is Southeast. Reference category for urbanicity is suburban and town. + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

scale up to a four-fold proportional increase in all three outputs. Interestingly, undergraduate education was found to have slight diseconomies of scale as the number of undergraduate students increased holding the other two outputs constant. However, the average incremental costs and marginal costs were fairly close over this range. Graduate education showed stronger product-specific economies of scale, while research had slight economies of scale (though average incremental costs were again very close to marginal costs). For economies of scope, the evidence suggests that there were slight economies of scope from the joint production of undergraduate education, graduate education, and research, and yet for each output considered separately the economies of scope eventually gave way to diseconomies of scope as outputs were doubled.

Table 8.12 Summary of economies of scale and scope –four-year research-oriented institutions

Metric	Percent of output				
	50%	100%	200%	300%	400%
Ray EOS	1.13	1.12	1.10	1.09	1.08
EOS – Undergrads (U)	0.98	0.98	0.96	0.97	0.97
AIC (U)	$10,590	$11,039	$11,712	$12,610	$13,508
MC (U)	$10,814	$11,263	$12,161	$13,059	$13,957
EOS – Grads (G)	1.64	1.05	1.11	1.15	1.21
AIC (G)	$45,599	$26,673	$23,110	$18,360	$13,610
MC (G)	$27,860	$25,485	$20,735	$15,985	$11,235
EOS – Publications (R)	0.63	1.01	1.01	1.01	1.01
AIC (R)	$220,395	$346,646	$340,813	$333,035	$325,258
MC (R)	$348,590	$344,701	$336,924	$329,147	$321,369
Economies of scope:	**50%**	**100%**	**200%**	**300%**	**400%**
Global	−0.01	0.04	0.07	0.08	0.08
Undergrads	0.68	0.13	−0.14	−0.21	−0.24
Grads	0.65	0.00	−0.35	−0.48	−0.56
Publications	0.58	−0.10	−0.44	−0.55	−0.61

8.6 Summary and Discussion

In this study, we reviewed the different approaches used by higher education researchers and economists to assess economies of scale and scope in higher education. The distinction between treating colleges as single-product or multi-product organizations is important because this drives the methodological approach needed for this assessment. We showed that although the multi-product approach allows for more flexibility in how to evaluate economies of scale and scope, and is arguably a better reflection of how many colleges operate, this leads to much greater complexity in how to measure economies of scale and scope.

Our reexamination of economies of scale using more current data for the US showed that regardless of the approach used, the results suggest that there are cost savings from expanding higher education output to reasonable output levels. This finding is consistent with the idea that there are sizable fixed costs in higher education production that can be distributed over more units of output as an institution increases in size. Although the quadratic average cost curve specification leads to a cleaner identification of where economies of scale exist, the specification can only be used when colleges are assumed to be single-product organizations and thus only applies to a small subset of the postsecondary industry. The results are mixed with regard to economies of scope, with some evidence pointing to cost savings from the joint production of outputs and other evidence pointing towards inefficiencies. Interestingly, our findings were not substantially affected by whether we specified total costs as a quadratic or cubic function of output. This would suggest that the simpler (quadratic) specification is sufficient when the main focus

of the study is on assessing economies of scale and scope. Alternatively, if the researcher is more interested in having a cost function that is consistent with the textbook treatment of cost curves, then there is no disadvantage to adding cubic terms to the cost function.

The notion of economies of scale and scope are very important for governmental planning purposes for their higher education systems. States and nations have to make decisions about how to structure their public postsecondary education systems. How many institutions do they need, and how large should they be? Our findings of significant economies of scale suggest that there are efficiency gains from having fewer, but larger, institutions to serve the needs of society. This is in contrast, however, to how many state higher education systems are organized where smaller public institutions typically outnumber larger institutions. Of course there may be legitimate reasons why some states prefer a less cost-efficient structure, such as to meet the diverse needs of citizens within their borders. Governments must also decide whether overlap of academic programs across institutions is desirable. Some states tightly control the programmatic offerings of public institutions, while others have a more free market approach to institutional offerings. Another issue is which institutions in the state should focus on the production of research. Policy makers are often most concerned with undergraduate instruction and can view graduate instruction and research as activities that detract from this mission. Our findings of economies of scope would tend to support the notion that there are cost savings from having larger institutions that are simultaneously engaged in research and teaching.

Moving forward, the notion of economies of scope can potentially be expanded in a number of ways. Studies such as ours typically group all undergrads together as one product, and yet one can think about each major being a distinct output. Education and chemistry majors, for example, may draw on different resources and have different costs attached to them. This raises the obvious question of what is the right mix of academic majors for institutions to offer? There may in fact be efficiencies from having a college provide many different majors due to the general education requirements at institutions.

So if there are economies of scale and scope, does this necessarily mean that should we restructure higher education systems to take advantage of these? The results from our and similar studies would call for having relatively few, but larger, institutions that engage in a wide range of activities. But would this be good for all students and society? An argument can be made that the ultimate teaching output from postsecondary education is not simply the number of students taught, or the number of degrees awarded, but the knowledge gained through their studies. The field of higher education has thus far struggled to find good measures of the value-added to students from their college experiences. Accordingly, it could be the case that some students gain more from acquiring their education in settings that are smaller, more homogeneous, and possibly more expensive to operate. One of the hallmarks of higher education in the United States is that there is a wide variety of institutions from which to choose. Underlying this heterogeneity is the notion that some students may learn better in different environments.

Accordingly, forcing more students to attend large multi-output institutions may help achieve cost savings and yet reduce the true productivity of the system as a whole. In addition, merging institutions would increase the distance between students and institutions, which may reduce access to college for some students. More research is needed on these and related topics with regard to economies of scale and scope in higher education.

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Chapter 9
A Critical Exploration of Diversity Discourses in Higher Education: A Focus on Diversity in Student Affairs and Admissions

Leah Hakkola and Rebecca Ropers-Huilman

9.1 Introduction to the Problem

Former chancellor of the University of California at Berkeley, Chang-Lin Tien affirmed, "We can no longer afford to ask: Should we—or can we—diversify at the undergraduate, graduate, and faculty levels? Instead, the question for higher education is: How can we diversify? How can we make diversity work?" (as cited in Steele, 1994, p. 238). In the decades since Chancellor Tien noted the diversity imperative, leaders in higher education have responded to these questions through the development of diversity committees, action plans, recommendations and specific recruitment strategies to support and increase diverse student enrollment and participation on campus (Iverson, 2012; La Noue, 2003; Pope, Mueller, & Reynolds, 2009). Despite past and current efforts to increase diversity in equitable, economically feasible and culturally responsive ways, however, the intention to increase student diversity to a level reflective of our nation's demographics has not yet been accomplished (Western Interstate Commission for Higher Education, 2014).

Often the call to increase diversity in colleges and universities is articulated in enrollment management plans, affirmative action policies and research focused on the benefits of diversity (Chun & Evans, 2015; Gurin, 1999a; Iverson 2012; Mendoza, Taylor, & Weissbrodt, 2006). To better recognize how this call is being interpreted, a deeper understanding of how diversity is understood by higher

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education constituents is needed. Exploring how diversity discourses are conceptualized and communicated is particularly pertinent for those individuals who interact with and recruit a diverse student body to their campuses (Dixon, 2001; Evans, Forney, Guido, Patton, & Renn, 2010; Iverson, 2007; Patton, McEwen, Rendón, & Howard-Hamilton, 2007).

9.1.1 Purpose of the Chapter: A Focus on Diversity in Student Affairs and Admissions

This chapter is grounded in scholarship establishing that admissions units and college recruiters play an important role in increasing and institutionalizing diversity across college campuses (Freeman, Nuss, & Barr, 1993; Karkouti, 2015; Pope et al., 2009, Talbot, 2003). Despite work that admissions personnel and college recruiters have done to increase access, recruitment and support for a diverse student body, higher education institutions are not yet meeting the needs of all student populations (Hossler & Palmer, 2012; Kuh, 2015; Patton et al., 2007; Pope et al., 2009; Talbot, 2003; Western Interstate Commission for Higher Education, 2014). Ambiguity continues to exist about how diversity is being discussed and communicated in higher education (Harper & Quaye, 2015) and during the recruitment process (Aguirre & Martinez, 2006). Dungy (2003) insists that diversity recruitment efforts need to be supported by every unit and individual within the university structure. Scholars posit that student affairs professionals can play a central role in this task, but more knowledge is needed regarding how college recruiters understand and approach their work with different types of students (Pope et al., 2009).

This chapter situates recruiters' actions and beliefs within the larger discursive framework of diversity in higher education. Toward that end, this chapter: (1) investigates how institutional diversity discourses are represented, communicated and discussed in the literature as it relates to rationales supporting increases in diversity in higher education, and (2) explores how admissions units and recruiters enact and support particular diversity discourses in their work with diverse prospective students.

9.1.2 Understanding Diversity as Discourse

According to Gee (1999), "discourse" is mobilized, represented and coordinated by a variety of factors including language, values, beliefs, times, places, identities and societal structures. Within this framing, languages-in-use are considered "little d", which represent "how languages are used 'on site' to enact activities and identities" (p. 7). Gee states that combining "little d" discourse with "non-language 'stuff' to enact specific identities and activities," is referred to as "big D" discourse (p. 7). He

asserts that those who are "in the Discourse" are participants who either sustain or transform a particular discourse. It follows that:

> If you put language, action, interaction, values, beliefs, symbols, objects, tools, and places together in such a way that others recognize you as a particular type of who (identity) engaged in a particular type of what (activity) here and now, then you have pulled off a Discourse (and thereby continued it through history, if only for a while longer. (p. 18)

Informed by Gee's description and framing of discourse, we define "diversity discourses" in this research as policies, practices and language integrated into higher education that advocate for the recruitment and involvement of a diverse student body.

Grounded in Iverson's (2012) scholarship on diversity, this chapter asserts that "discourse" both constructs and is influenced by the beliefs, values and norms of society and its social institutions. Diversity as discourse, then, is constructed by active and reflexive exchanges of cultural, political, economic, legal and social messages that are reflective of distinctive individuals, institutions and groups within society. Iverson notes that discourses are invariably connected to power, privilege and authority, and normalize how we understand and structure educational policies and programs. Using this view of discourse provides a way to critically deconstruct language used in literature regarding rationales to increase diversity in higher education.

Because society is made up of groups who share different identities and whose identities have meanings in their lives and interactions, it is important to represent each group's understanding and conceptualization of diversity. Thus, in this paper, we draw from Talbot's (2003) definition, which states, "*diversity* is a structure that includes the tangible presence of individuals representing a variety of different attributes and characteristics, including culture, ethnicity, sexual orientation, and other physical and social variables" (p. 426). According to this description, diversity is best understood in a group context, as no individual in isolation is "diverse." Instead, individuals are diverse in some way when they are different from others in the group. Using these parameters allows us to be as inclusive as possible when exploring the literature regarding diversity in higher education. While we recognize that what it means to be "diverse" is dependent upon individual, cultural and societal contexts, for the purposes of this analysis, we explore in this chapter the ways in which the term "diverse" is used to characterize the different types of students that institutions and scholars believe would constitute a diverse student body at their institutions.

9.1.3 The Changing Characteristics of College Students Today

According to Haring-Smith (2012), American institutions of higher learning are more diverse than ever before, citing that "over the past forty years, our freshman

classes have changed from over 90 percent White to about 73 percent White" (p. 6). This rapid increase in nontraditional students is not reflective of the historical roots of higher education institutions in the United States. During the first half of the twentieth century, colleges and universities were largely composed of White, middle to upper class students (Cornwell & Stoddard, 2006; Western Interstate Commission for Higher Education, 2014). An embedded and assumed purpose of higher education during the early to mid-twentieth century was to educate privileged, White, heterosexual U.S. male citizens for the purposes of cultivating an educated citizenry and workforce to support the country (Cornwell & Stoddard, 2006). Scholars argue that this obsolete education model no longer addresses the needs of the diverse group of current prospective college students (Bowman, 2011; Western Interstate Commission for Higher Education, 2014).

Within the last several decades, administrators, educators and student affairs professionals have revisited their missions and policies, with the purpose of aligning their goals more closely with changing student demographics, and the socio-political, cultural and economic environment of the United States (Gutmann, 1987; Hu & Kuh, 2003; Western Interstate Commission for Higher Education. 2014). Smith and Ota (2013) state:

> As the American academy moves further into the mid-2010s, it is important to continue to expand our push towards educating global citizens who will inherit the leadership of the "free world". At the same time it is just as critical that populations historically underrepresented in higher education are not left behind; American higher education should continue to be the vehicle for social mobility and a "ladder of ascent" for first-generation students of all races. (p. 20)

As the prospective undergraduate student population continues to diversify, this ongoing process of reflection, revision and realignment of diversity goals will continue, particularly in the area of admissions (Kahlenberg, 2014; Karkouti; 2015; Talbot, 2003).

A key strategy in realigning the objectives of higher education is to reflect on the current and projected characteristics of K-12 students and the needs of incoming undergraduates (Haycock, 2006; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Western Interstate Commission for Higher Education, 2014). Present demographic rates indicate that the composition of prospective college students is experiencing significant flux. As the 2013 U.S. Census Bureau stated, "minority births exceeded White non-Hispanics for the first time ever in 2011, and Whites in the under five group are expected to fall below 50 percent within the year" (as cited in Western Commission for Higher Education, 2013, pp. 3–4). A 2007 report by the National Center on Education Statistics (NCES) showed that the percentage of bachelor degrees conferred to White students in the United States decreased by 16.2% between 1976 and 2007 and is continuing to wane. While the White birth rate decreases, higher education leaders have become more intentional about attracting and recruiting a diverse student body to respond to the changing demographics (Haycock, 2006; Kuh et al., 2006; Western Interstate Commission for Higher Education, 2014).

9.1.4 The Changing Definition of "Diverse" Student Groups

In addition to racial and ethnic diversity, college administrators are also paying more attention to increasing access to all traditionally underserved populations. For example, David Longanecker, president of the Western Interstate Commission for Higher Education, calls for "new responses" to "address the global economic challenges facing America" by paying attention to "communities that higher education has not traditionally served well" (Western Interstate Commission for Higher Education, 2014, p. 6).

Pope et al. (2009) argue that higher education practitioners, administrators and scholars have already begun to make attempts to reach out to diverse student groups on campus such as women, adult learners and veterans (p. 642). Given the changes in economic, cultural, political and social diversity, higher education leaders need to increase their efforts in creating supportive and accessible learning environments for all types of students.

Historically, the strategies used to recruit a diverse student body have focused on race, ethnicity, gender, and class, as evidenced by affirmative action policies and race-based admissions. These methods have largely sought to redress racial, gender and class inequalities and systemic discrimination (Chang, 2002; Kahlenberg, 2014; Moses & Chang, 2006). In addition to these historically underrepresented groups, international students, older adult learners, students with disabilities and new immigrant students are making increases in college participation and visibility as well (Kennedy & Ishler, 2008; Pope et al., 2009). Moreover, Pope et al. stress that while it is challenging to measure areas of diversity such as religion and sexual orientation, these minority groups are also becoming more prevalent on campus and often included within the umbrella of diversity, particularly within student affairs (p. 690).

Diversity is increasingly understood in its more complex forms. In describing current college students, Levine and Dean (2012) note:

> Though of the same ethnicity or race, students arrive on campus today more than in the past from different income strata, geographies, social classes, family experiences, educational backgrounds, and interests. They are first-generation college students and multigenerational attendees, rich and poor, taking remedial classes and having poles of Advanced Placement credits, from the inner cities and the most affluent suburbs, and needing full scholarships and paying full sticker price. The fact that they share a common skin color is often not sufficient to overcome their differences. (p. 113)

With these more sophisticated understandings of students, the field of student affairs is widening its diversity lens to include emerging nontraditional student groups within the discourses and strategies about diversity (Karkouti, 2015; Pope et al., 2009; Talbot, 2003). Practitioners and scholars argue that these additional groups of students ought to be considered as part of a diverse student body because they are different from the historically traditional college student profile, which means that they may have distinct values, needs and expectations (Pope et al., 2009; Tremblay, 2011). Moreover, research suggests that to exclude students outside the traditional

racial and ethnic diversity scope could deter them from enrolling and participating in college (Patton et al., 2007).

It is important to note that within the literature discussing diversity, some scholars only draw from data that includes racial and ethnic minorities and students who come from low-income families (Haring-Smith, 2012; Humphreys, 1999). However, other scholars affirm that individuals from a broad range of backgrounds also benefit from resources and support through diversity recruitment and retention efforts (American Speech-Language-Hearing Association, 2012; Denson & Bowman, 2013; Pope et al., 2009). The tension and ambiguity that exist regarding who may or may not be included in the definition of diversity is important to explore because it sheds light on how diversity is constructed and used in recruitment policies and practices (Iverson, 2012).

According to Bowman (2011), "diversity" in higher education traditionally referred to students of color. Specifically, he espouses that this term applied to Black and Latino students during the Civil Rights era. However, due to transformations in the political, economic and cultural context of the United States within the past several decades, diversity has become a more comprehensive and inclusive concept (Bowman, 2011; Patton et al. 2007; Pope et al., 2009; White, 2015). In part, some scholars have opted for a more inclusive diversity discourse in order to acknowledge the evolving social, cultural, biological, political, philosophical and religious identities that students bring with them to college (Haring-Smith, 2012; Humphreys, 2015; Moses & Chang, 2006).

A review of the literature indicates that more recent descriptions of diversity in higher education are now inclusive of different physical, cognitive, behavioral and social characteristics (Bowman, 2011; Pope et al., 2009; White, 2015). An illustration of the evolution of the diversity definition is exemplified in the definition given by the Association of American Colleges and Universities (AAC&U) (2012). The AAC&U states that diversity is inclusive of "Individual differences (e.g., personality, learning styles, and life experiences) and group/social differences (e.g., race/ethnicity, class, gender, sexual orientation, country of origin, and ability as well as cultural, political, religious, or other affiliations)" (para. 6).

Although broad diversity definitions are supported by prominent professional higher education associations (Haring-Smith, 2012; Humphreys, 1999), some scholars contend that certain characteristics of difference should not be included within the parameters of diversity efforts (Hurtado, 2007; Michaels, 2006). Hurtado argues that an overly inclusive notion of diversity may diminish the original intent of diversity efforts, which was to provide equitable access and opportunities for people of color to participate in higher education. Powell (2008) asserts that a watered-down and more generalized definition of diversity may not adequately address the positionality, situated conditions and discrimination experienced by certain minority groups. He adds that color-blind language used in diversity discourse makes it difficult to challenge the issues of racism that are embedded in diversity work because there is no recognition of systemic power, privilege and historic oppression of minority groups.

In addition to Powell's (2008) concerns, Smith and Ota (2013) state that as higher education has become more internationalized, some leaders have focused primarily on the benefits and recruitment of international diversity, negating recruitment of domestically diverse and historically underserved populations. These scholars are critical of the broader version of diversity because it discounts equity and access issues that still exist for many minoritized and underrepresented student populations. For these reasons, some scholars and social justice advocates advocate a narrower scope of diversity that focuses on redressing historical inequalities to access and participation in higher education (Hurtado, 2007; Michaels, 2006; Powell, 2008; Smith & Ota, 2013).

Due to differences in cultural, social, philosophical and political beliefs, administrators, scholars and practitioners have not yet reached consensus about how diversity should be defined, represented or used in higher education (Haring-Smith; 2012; Moses & Chang, 2006). This disagreement has led to the understanding and framing of diversity in distinct and varied ways and has contributed to the development of multiple discourses about this term (Aguirre & Martinez, 2006). The ambiguity regarding this word signals a need to further explore the ways that diversity discourses are known, accepted and put into practice in higher education. Exploring diversity rationales and definitions as discourses allows a focus on the language as it is influenced and situated within the American economic, socio-political, legal and political systems (Iverson, 2012; Marichal, 2009). Thus, we now move into a discussion of the development of dominant diversity discourses used to support increases in diversity in higher education.

9.1.5   Dominant Discourses of Diversity

In her dissertation, *Shifting the Lens: A Critical Examination of Diversity Discourses in College Recruiting*, Hakkola (2015) conducted an extensive literature analysis focused on diversity in higher education. Based on this review, we have organized the dominant diversity discourses into the following categories:

1. Demographics
2. Neoliberalism
3. Internationalization
4. Equity
5. Academic Excellence
6. Pluralistic Democratic Education

In Fig. 9.1: Dominant Diversity Discourses in U.S. Higher Education, we present a visual representation of our understandings of the relationships within the discourses of diversity in U.S. higher education. In this figure, a different lens represents each discourse. These lenses symbolize fluid and coordinated systems of language, images, messages and values that exist within the larger socio-political context of higher education. These lenses overlap in various ways and shape how "diversity" is

Pluralistic
Democratic Education

Equity   Internationalization

Academic
Excellence   Neoliberalism

Demographics
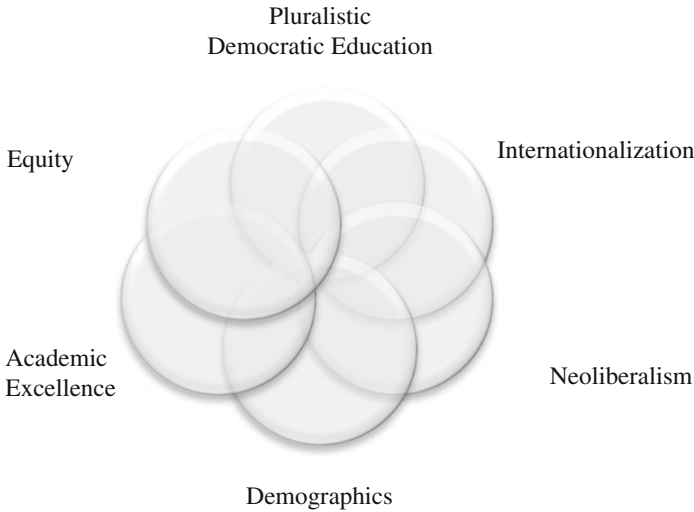
Fig. 9.1 Dominant diversity discourses in U.S. higher education (Hakkola, 2015)

seen, understood and enacted by higher education scholars, administrators and practitioners (Marichal, 2009; Mendoza et al., 2006).

Kuh (2015) argues that increasing diversity is an important aspiration for higher education officials. Iverson (2012) notes that institutional language and conceptions of diversity are framed and informed by overall discourses in American society and are based on the discursive practices of politics, popular culture and media. Motivated and influenced by these societal institutions, higher education leaders have crafted a variety of discourses to justify the need to diversify higher education (Chang, 2013; Gutierrez, 2011; Harper & Quaye, 2015; Iverson, 2012; Marichal, 2009; Mendoza et al., 2006).

Diversity discourses are programs, practices, language and policies used to develop and support the recruitment and participation of a diverse student body in higher education (Iverson, 2010; Iverson, 2012; Moses & Chang, 2006). Influenced by societal values, beliefs and activities, discourses develop and shift over time through language, knowledge and social institutions (Foucault, 1984; Gee, 2011a; Iverson, 2012). While several common discourses have emerged in the literature, contention exists as to which are the most effective in supporting and enhancing diversity (Chun & Evans, 2015).

Different ideologies regarding the purposes of higher education have impacted which discourses have become more legitimate, recognized and widespread (Haring-Smith, 2012; Humphreys, 1999). Based on a review of the literature, six discourses emerged as the most common ways to frame diversity in higher education. The main diversity discourses discussed in this research argue that having a diverse student body is imperative to address changing student demographics (AAC&U, 2012; Hossler & Palmer, 2012), to meet the demands of future workforce needs (Smith & Ota, 2013; Western Interstate Commission for Higher Education, 2014), to

internalize campus and assist in the development of students' intercultural skills (Chickering & Braskamp, 2009; Denson & Bowman, 2013; Paige & Mestenhauser, 1999; Salisbury, Umbach, Paulsen, & Pascarella, 2008), to address educational inequities (Chang, 2002; Chun & Evans, 2015; Haycock, 2006; Hurtado, 2007), to enhance academic excellence (Chang, 2013; Gurin, 1999a; Moses & Chang, 2006; Smith, 1991), and to achieve the ideals for a pluralistic democratic society in the twenty-first century (Bowman, 2011; Curris, 2006; Guarasci & Cornwell, 1997; Gutierrez, 2011; Gutmann, 1987).

Grounded largely within the values, norms and language of current socio-political context, each diversity discourse shapes the boundaries, meaning and significance of diversity in distinctive ways (Iverson, 2012). It follows that the discourses used at specific colleges will inevitably influence how administrators, scholars and student affairs professionals of those colleges frame and prioritize diversity, especially in their diversity recruitment efforts. Thus, we now turn to a discussion of the field of student affairs, with a focus on admissions units and college recruiters, as they play an important part in the goal to increase diversity in higher education. We also discuss several current diversity recruitment strategies that have been highlighted in the literature, noting why scholars believe that more support for a diverse student body is needed. Finally, we expound on the influence of identity on student affairs professionals and articulate why these individuals serve such a critical role in recruiting a diversity of students.

9.1.6   Student Affairs Professionals in Higher Education and Recruiting

Similar to the evolution of diversity in higher education, the field of student affairs also has evolved within the context of the American political climate, economic environment, student demographics and cultural norms (Harper & Quaye, 2015; Nuss, 2003). In "The Development of Student Affairs," Nuss (2003) provides a succinct overview of the progression of the student affairs profession in higher education, noting that this field has also been referred to as college student personnel, student affairs and student support services, among other labels. Units within student affairs, such as admissions and recruiting, have a history of purposefully tending to the needs and specific backgrounds of nontraditional students through financial aid, affirmative action policies and college preparation programs (Karkouti, 2015; Talbot, 2003). Scholars who research and work in student affairs assert that admissions professionals and recruiters have the potential to function as critical players in preparing and developing a campus culture that is ready to meet the needs and expectations of a diverse student body (Dungy, 2003; Harper & Quaye, 2015; Karkouti, 2015; Talbot, 2003).

In an overview of admissions staff roles and responsibilities in U.S. higher education, Dungy (2003) states, "the basic job of admissions personnel is to tell

prospective students about the institution and its programs, as well as to recruit, screen, and accept applicants" (p. 343). Historically, admissions units have been included under the umbrella of student affairs. In more recent years, some institutions have created a separate division referred to as enrollment management, which can serve to increase particular groups of students' participation and mitigate attrition rates (Dungy, 2003). Similar to the admissions office, a major objective of this newer unit is to increase minority student persistence and graduation rates. While new student affairs units focusing on diversity continue to emerge, the next section of this discussion will specifically explore the role of admissions units in recruiting a diverse student population.

Current Diversity Recruitment Strategies Used in Higher Education Admissions and recruiting in higher education are significant tools for institutional management and change (Dungy, 2003). Accordingly, many institutions have developed approaches to transition students into higher education institutions through support services geared toward addressing a variety of student characteristics (Milem, Chang, & Antonio, 2005; Smith & Ota, 2013). Some of the strategies to increase diversity have begun with the recruiting phase, wherein new and prospective students gain knowledge about college campuses by interacting with admissions personnel and college recruiters (Daun-Barnett & Das, 2013; EDge Interactive Youthography, 2004; Kennedy & Ishler, 2008; Pippert et al., 2013). In recognition of the broadest range of diversity, recent diversity admissions efforts have included the development of materials and literature for nontraditional students, increased attention to alternative admissions policies and enhanced college readiness services (Milem et al., 2005; Talbot, 2003). In regard to recruiting efforts for ethnic, racial, gender and low-income students, Pitre and Pitre (2009) argue that the strategies to increase diversity do not have sufficient resources or financial support to increase participation rates to a level that is proportionate to the ethnic and racial demographics of the United States.

Pope et al. (2009) note that it can be challenging and sometimes problematic to collect accurate measures of participation rates for certain types of students, such as LGBTQ students, students with physical disabilities and students with minority religious backgrounds. Even though it may be difficult to measure rates for all types of diversity, many scholars maintain that the broad description of what it means to be "diverse" needs to be considered in diversity recruitment strategies (Haring-Smith, 2012; Patton et al., 2007; Pope et al., 2009).

Research on the broad range of students suggests that many recruitment strategies are not tailored to all students' needs. In order to attract and retain students from a variety of backgrounds and experiences, it is critical for recruiters to recognize and understand how to position and market their institutions in meaningful ways to students who come from different environments and who identify as nontraditional students (Diversity Pipeline Alliance, 2002; Pippert et al., 2013; Talbot, 2003). Rather than using only one type of recruitment strategy, as the pool of prospective students changes, college recruiters need to be able to identify and tailor their efforts to the needs, desires and expectations of different types of students (Chang, 2013;

Karkouti, 2015; Pippert et al., 2013; Pope et al., 2009; Thomas & Thurber, 1999). Thus, in this next section, we investigate the role that college recruiters play in addressing and implementing recruiting strategies for a diverse student body.

The Role of Admissions and College Recruiters in Recruiting for Diversity Even though many American higher education institutions have supplemented their mission statements and strategic plans with goals targeted toward increasing diversity (Curris, 2006; Confer & Mamiseishvili, 2012; Iverson, 2012; Moses & Chang, 2006), leaders within student affairs argue that support also needs to be reinforced by the admissions division because of its central role in attracting a diverse student body to campus (Dungy, 2003; Karkouti, 2015; Pope et al., 2009). For example, in a seminal study examining factors that impact student success in college, Crosson (1988) found that admissions personnel and college recruiters are positioned as influential figures in the retention and success of racial and ethnic minority students. Extending Crosson's research, in *What Matters in Student Success: A Review of the Literature*, Kuh et al. (2006) note Crosson's (1988) findings as pivotal to supporting the development of customized and culturally specific admissions policies. Scholars add that all types of diversity ought to be considered when crafting admissions policies and practices for nontraditional students in order to be as inclusive and equitable as possible (Haring-Smith, 2012; Kuh et al., 2006). Kuh (2015) maintains:

> A dependency on sameness is no longer appropriate, as contemporary cohorts of students at colleges and universities are different; the ways they experience and respond to their campuses vary. Thus, faculty and student affairs educators must be strategic and intentional about fostering conditions that compel students to make the most of college both inside and outside the classroom. (p. x)

Talbot (2003) concurs, affirming that it is crucial for student affairs professionals, including college recruiters, to learn how to interact with all types of students to work effectively in the university. Yet, Pope et al. (2009), Gutierrez (2011), and Karkouti (2015) have found that many student affairs professionals are inadequately trained to address the challenges faced by a diverse prospective student body and the complex issues they confront during the college choice process. This discrepancy in training and preparation is particularly relevant for the admissions division because recruiters need to be able to identify specific student needs and use culturally sensitive dialogue in order to authentically increase diversity and support a diverse student body on their campuses (Castellanos, Gloria, Mayorga, & Salas, 2008; Patton et al., 2007; Talbot; 2003).

To help prepare student affairs professionals in working with diverse student populations, a variety of multicultural competence frameworks have emerged in the last several decades (Castellanos et al., 2008). Talbot (2003) cites several prominent examples that support the development of cultural competence such as Bennett's developmental model of intercultural sensitivity (1986), Pedersen's multicultural development model (1988) and the concept of multicultural organizational development (Pope, Reynolds, & Mueller, 2014). While these frameworks are useful,

researchers and administrators argue that the models alone are not enough to increase and support diversity at the level that has been put forth by many diversity strategic plans and policies (Gutierrez, 2011; Kuh, 2015; Patton et al., 2007; Pope et al., 2009; Talbot, 2003). Rather than using models that address only certain aspects of diversity issues, a more consistent and comprehensive level of preparation is needed for student affairs professionals to effectively interact with students who identify as diverse (Castellanos et al., 2008; Dungy, 2003; Talbot, 2003). Accordingly, training on how to respectfully recognize the role of identity, and respond to difference are important factors that influence recruiting a diverse student body (Patton et al., 2007; Pippert et al., 2013; Thomas & Thurber, 1999).

9.1.7   Theoretical Framework: Critical Race Theory

Our analysis is driven by the theoretical framework of critical race theory (CRT) because it aims to explore how diversity discourses are understood and put into practice by admissions units and college recruiters during the recruitment process. Using CRT as an analytical tool helps to shed light on some of the limitations of the diversity discourses that emerged in our review. According to Milner (2007), CRT is structured around the following three tenets:

1. Race is a social construction and racism is a normal facet of American society that needs to be challenged and problematized.
2. Most educational, legal and political policies are structured based on the interest convergence principle, which espouses that White people will support policies and initiatives intended to benefit non-White individuals only if they also benefit White people.
3. CRT promotes the use of counter-stories as a method of validating the lived experience of non-White individuals.

In addition to the three tenets mentioned above, CRT scholars expound on the principles of CRT, which include the necessity to challenge "value-neutral" policies, recognize that all individuals embody multiple identities, and view racism as interconnected with other types of domination and subordination, such as hetero-sexism and classism (Kumasi, 2011). Given these principles, CRT scholars assert that marginalized people have valuable knowledge and lived experiences that ought to be acknowledged, shared and validated through self-reflective and transformative methods and theories (Lopez, 2003).

According to CRT, diversity discourses inadequately address racism and other educational inequities engrained in American culture and its societal institutions (Taylor, Gillborn, & Ladson-Billings, 2009). Advocates of CRT posit that these problems will only begin to be resolved when White privilege is acknowledged and addressed in the education system. CRT researchers insist that this recognition will need to be accompanied by a restructuring of the Eurocentric epistemological system of knowledge, which is responsible for perpetuating racist, sexist, heteronormative

and Eurocentric values and beliefs (Solorzano & Yosso, 2009). By applying a CRT methodology to understanding diversity discourses and recruitment efforts in higher education, administrators, scholars and student affairs professionals can critically examine how their discourses shape policy creation, implementation and practice. This critical inquiry can lead to the development of more culturally responsive programming for a diverse student body (Patton et al., 2007).

Lastly, a focus on CRT can help college recruiters understand the intricacies and intersectionality that are correlated with the many identities that students bring with them to campus (Delgado & Stefancic, 2001, p. 51). These identities include one's sexual orientation, race, ethnicity, class, religion, ability, faith and any other identity that a student values (Patton et al., 2007). Patton and colleagues maintain, "the critical race theoretical perspective is an important step in creating spaces for safe dialogue, reducing microaggressions on campus, and moving one step further toward understanding the intricacies of multiple identities, including race" (Patton et al., 2007, p. 47). Hence, applying a CRT lens to admissions policies and recruitment practices illustrates how recruiters' attitudes about diversity affect their interactions and behaviors with diverse students. This perspective is critical because existing scholarship suggests that how institutions represent diversity impacts students' college choice process and sense of belonging (Klassen, 2000; Pippert et al., 2013).

CRT as an Independent Discourse In our use of CRT as an analytical tool and lens in which to view diversity discourses, we draw on Gee's understanding of "discourse". According to Gee (2008):

> Discourses are inherently "ideological." They crucially involve a set of values and viewpoints about the social and political (power) relationships between people and the distribution of social goods (at the very least about who is an insider and who isn't, but often many others as well). One must speak and act and at least appear to think and feel in terms of these values and viewpoints while being in the Discourse; otherwise one doesn't count as being in it. (p. 111)

Based on Gee's framework, it is clear that CRT acts as an independent discourse because it forms the way that people consider, structure and analyze how diversity is framed in literature, policies and programs in higher education. It follows that our inquiry and subsequent assertions in this review are openly value-mediated, potentially transformative, and shaped by the time, place and socio-political context in which we are situated in higher education.

9.1.8 Methodological Framework: Critical Discourse Analysis

Iverson (2012) notes that institutional language and conceptions of diversity are framed and informed by broader discourses in American society and are based on the discursive practices of politics, popular culture and media. Motivated and influenced

by the larger society, higher education leaders have crafted a variety of discourses to justify the need to diversify higher education (Chang, 2013; Gutierrez, 2011; Harper & Quaye, 2015; Iverson, 2012; Marichal, 2009). Grounded largely within the values, norms and language of current socio-political contexts, each diversity discourse shapes the boundaries, meanings and significance of diversity in distinctive ways (Iverson, 2012). Accordingly, analysis in this chapter will be driven by the exploration of big "D" discourses, as we aim to explore how scholars and administrators take up, represent and communicate rationales to increase diversity in higher education.

In order to present and analyze the six dominant diversity discourses, we use critical discourse analysis (CDA) to deconstruct how texts connect, communicate, and express specific identities and messages about lived experiences, contexts, connections, relationships, societal norms, and identity characteristics. Using CDA as an analytical tool emphasizes which words and texts are made significant simply by their presence, prominence, tone, and frequency. Discourse analysis also makes note of what words are not being used, in an attempt to show what or who may be silenced or marginalized. In addition, Gee (2011a) stresses that discourse analysis is useful because it depicts particular "big C Conversations", which "allude or relate to themes, debates, or motifs that have been the focus of much talk and writing in some social group with which we are familiar or in our society as a whole" (p. 29). Examples of "big C Conversations" include legalized abortion and universal healthcare, in which individuals would most likely espouse a particular opinion about the topic under debate.

Another benefit of using the CDA method is that it encourages a deep investigation of the ways in which conceptions of language are represented and taken up by both individuals and institutions, as well as how language is drawn from fields of law, economics and politics (Gee, 2011b; Iverson, 2007; Ladson-Billings, 2009; Patton et al., 2007). CDA creates a systematic way to problematize how diversity is articulated as an institutional discourse while exploring how distinct discourses may impact what diversity means at specific colleges and to particular individuals (Allan, 2010; Iverson, 2007; Patton et al., 2007).

Patton et al. (2007) argue that certain perceptions of diversity and the strategies that scholars and practitioners engage in when talking with different types of students could have significant impact on the level of success of diversity efforts. Hence, the focus on how language is negotiated and communicated by practitioners in the context of larger socio-political contexts helps to illuminate how diversity discourses compete, converge and shape understandings and representations of diversity during recruitment. In sum, CDA provides a systematic approach to understand how diversity is articulated as institutional discourse and how distinct discourses may impact what diversity means in particular spaces and contexts (Allan, 2010; Iverson, 2007; Patton et al., 2007).

9.1.9   Exploring Diversity Discourses in Higher Education: An Overview

We now turn to a discussion of the salient discourses, policies, practices and rationales related to increasing diversity in higher education. Through the lens of CRT and CDA we describe how each diversity discourse shapes higher education policies and practices and has the potential to alienate, stigmatize, stereotype and deter certain prospective students from attending or participating in higher education. We also expound on how these dominant discourses have the opportunity to transform the way that diversity is conceived and represented to support a diverse student body in higher education. We provide an in-depth analysis of literature discussing the six dominant diversity discourses: *demographics, neoliberalism, internationalization, equity, academic excellence* and *pluralistic democratic education*. In Table 9.1: Dominant Discourses of Diversity: Key Features and Critiques, we provide a description of each discourse, highlighting key features and critiques.

The Demographic Discourse of Diversity A major argument that supports enhancement of diversity in higher education is the belief that colleges and universities need to reflect the growing diversity of the United States and/or their local communities (Banerji, 2006; Gerald & Haycock, 2006; Haycock, 2006; Western Interstate Commission for Higher Education, 2014). This argument is based on the projection that the K – 12 student-of-color population will continue to grow in upcoming decades (Western Interstate Commission for Higher Education, 2013). For example, the American Council on Education (2006) reported that from 1993 to 2003 K-12 enrollments for Whites increased by only 3%, whereas enrollment rates for minorities increased by 52%. According to Debra Humphreys (2015), Editor of Diversity Digest, and Director of Programs, Office of Diversity, Equity, and Global Initiatives within the AAC&U, "The number of undergraduates qualified to attend colleges and universities in the United States will grow by 19 percent--2.6 million students--between 1995 and 2015, with minority students making up 80 percent of the increase" (p. 1). These statistics clearly demonstrate the changing demographics in prospective college students.

Humphreys (2015) asserts that as more minority students attend college, the need to enhance "diversity" in higher education will continue to expand. Proponents of the demographic discourse affirm that universities need to increase their diversity simply due to the increases in non-White people in the population (American Speech-Language-Hearing Association, 2012; Chickering & Braskamp, 2009; Humphreys, 2015; Mather & Adams, 2012). It is important to mention that not all scholars support the idea that higher education should serve everyone; however, given the growth in racial and ethnic demographic student diversity and decline in White birth rates, advocates of the demographic discourse support increases in demographic diversity in higher education (Moses & Chang, 2006; Humphreys, 2015; Western Interstate Commission for Higher Education, 2014).

Table 9.1 Dominant discourses of diversity: key features and critiques

Discourse	Key rationale	Key features and phrases	CRT critique
Student demographics	We should diversify our student body because it is the right thing to do given the demographics of our country.	Student of color demographics need to be proportionate to U.S. higher education population Focus on racial and ethnic diversity, students of color Multicultural diversity	Exclusive of certain types of diversity Interest convergence principle applies Creation of a binary of diversity or academic excellence (Impossible to have both)
Neoliberalism	We should diversify our student body to advance our institutional vitality, national economy, and global competitiveness.	Economic rationale Business vitality University sustainability International competition Free market capitalism Focus on racial, ethnic and international diversity	Privatization => Selectivity, no room for equity Diversity as commodity Interest convergence principle applies Ahistorical perspective of diversity (Does not acknowledge historical racism) Promotion of economic competition perpetuating inequity
Internationalization	We should diversify our student body because it will help them become global citizens.	Internationalization agenda Global perspective Studying abroad Cross-cultural events Augmenting curriculum with international topics Global citizenship Intercultural development Focus on international student diversity	Exclusive of certain types of diversity Places White student experience as priority Interest convergence principle applies Ahistorical perspective of diversity (Does not acknowledge historical racism) Elements of neocolonialism
Equity	We should diversify our student body to correct past injustices that denied access to college for certain groups of people.	Focus on affirmative action and redressing of historical inequities toward domestic people of color Focus on racial and ethnic diversity, students of color Multicultural diversity	Exclusive of certain types of diversity Interest convergence principle applies Creation of a binary of diversity or academic excellence Does not acknowledge the transformative benefits of adding diversity to campus

Table 9.1 (continued)

Discourse	Key rationale	Key features and phrases	CRT critique
Academic excellence	We should create a diverse student body because it will allow us to facilitate better educational experiences for all students.	Focus on educational benefits of adding domestic racial and ethnic diversity on campus Diversity enhances quality of education and academic achievement of White students Focus on racial and ethnic diversity, students of color Multicultural diversity	Exclusive of certain types of diversity White students at the center of the benefits of diversity Interest convergence principle applies Ahistorical perspective of diversity (Does not acknowledge historical racism)
Pluralistic democratic education	We should create a diverse student body because a functioning democracy requires it.	Includes equal value, respect, and opportunity to freely participate in all aspects of society Focus on race and ethnic diversity and more inclusive of gender, class, immigrant diversity	Diversity is fluid concept, understandings may change Watered-down understanding of diversity U.S. centric focus on individualistic understanding of diversity

A Critical Analysis of the Demographic Discourse Scholars using the demographic rationale for supporting diversity efforts often cite research that discusses the increase in racial and ethnic minority students in K-12 public schooling and the concurring decline of the White student population (Chickering & Braskamp, 2009; Western Interstate Commission for Higher Education, 2013). A significant critique of this framing of diversity is that the research is solely based on population and enrollment rates of race and ethnicity, which fails to recognize the vast components of identity that characterize diverse students today (Brah & Phoenix, 2009; Kuh, 2015; Solorzano & Yosso, 2009). The demographic discourse relies largely on quantifying racially and ethnically diverse students and categorizing them into diversity indexes related to national and international college rankings (Dill, 2009). Within this discourse, then, the diversity definition is limited to specific racial, ethnic, gender and class characteristics. As a result, it indirectly relegates students with other diverse social, cognitive and physical identities to the periphery (Haring-Smith, 2012; Talbot, 2003).

In critique of exclusively relying upon the demographic rationale to understand and discuss diversity in higher education, then-President of the AAC&U Carol Geary Schneider notes:

> The problem is that *U.S. News and World Report* defines campus diversity solely in demographic terms. They assign a "diversity index" based on the total proportion of minority students (not including international students) and the mix of racial/ethnic groups. This measure does not begin to capture the complexity of campus diversity. (1999, para. 4)

While Schneider's criticism is nearly two decades old, this critique still applies, in that a limited framing of diversity does not acknowledge the multiple characteristics that are included in the broader umbrella of diversity in today's world (Haring-Smith, 2012). Research indicates that the demographic rationale of diversity does not adequately recognize the many academic, social, political and communal ways that diversity of all types can enrich students' lives and the university community (Chun & Evans, 2015). In fact, scholars contend that by quantifying diversity using only the boundaries of race, ethnicity and gender, the demographic discourse separates the goals of increasing diversity from the goals of achieving academic excellence. In other words, this discourse can be seen as perpetuating the idea that institutions must choose between promoting diversity or promoting academic excellence. Contrary to this assertion, Lou and Jamieson-Drake's (2009) research indicates that universities need to increase demographic diversity in order to truly achieve academic excellence (p. 81).

An additional limitation of the demographic discourse is that it is based on a Eurocentric framing of how to evaluate and measure diversity (Gutierrez, 2011). This discourse largely relies upon demographic statistics to assess diversity, which means that it compares racial and ethnic participation and demographic rates with White students. Within this perspective, it is assumed that when a certain level of racial and ethnic diversity is attained, the goal to increase diversity has been achieved. Placing White student rates as the norm and the center of analysis reveals a Eurocentric framing of diversity. The demographic discourse does not allow nontraditional students to name their own reality as particular types of diverse individuals, which may alienate some students (Kumasi, 2011). It follows that the demographic discourse fails to value all identity characteristics as being equal to each other, potentially marginalizing some students, while inadvertently endorsing White students as the norm (Gutierrez, 2011; Patton et al., 2007). Ultimately, this limited understanding of diversity does not allow for the wide range of possible benefits and understandings of diversity and difference, nor does it acknowledge the civic, academic or social benefits of increased diversity on college campuses (Chun & Evans, 2015; Hurtado, 2007; Kennedy, 2013).

The Neoliberal Discourse of Diversity Some higher education scholars, policymakers and practitioners have moved away from a demographic discourse toward a discourse that frames increasing diversity as a positive goal within a neoliberal paradigm (Hartley & Morphew, 2008; Phillips, 2014; Western Interstate Commission for Higher Education, 2014). Proponents of the neoliberal discourse use an economic rationale that is grounded in neoliberal tenets as grounds to support efforts to enhance diversity (Mather & Adams, 2012). As a political and economic system, neoliberalism has played a major role in the progression of the world economy for the past 25 years (Apple, 2002; Fish, 2009). Its basic tenets include individualism, rational choice, free market capitalism, deregulation, economic competition and privatization (Fish, 2009). Within this economic model, social justice is based on the supply and demand of the marketplace (Apple, 2002). According to Treanor (2005):

> Neoliberalism is a philosophy in which the existence and operation of a market are valued in themselves, separately from any previous relationship with the production of goods and

services . . . and where the operation of a market or market-like structure is seen as an ethic in itself, capable of acting as a guide for all human action, and substituting for all previously existing ethical beliefs. (para. 3)

The principles of neoliberalism have significantly influenced the development of higher education within the last few decades (Hartley & Morphew, 2008). In particular, Clawson and Leiblum (2008) maintain that this economic system has led to the privatization of many colleges and universities in the United States, meaning that instead of being funded through federal and state allocations, universities are now seeking financial support from corporations and private businesses. The decrease in government support has contributed to an increase in corporate and private donor funding and subsequent pressure to increase national and world-class rankings in order to attract more money to fund colleges and universities (Clawson & Leiblum, 2008). The literature notes that privatized colleges are now competing with not only national institutions, but also international and "world-class" universities to draw donors and to recruit the most promising students, which are often considered diverse in some way (Freidman, 2005; Hartley & Morphew, 2008).

Neoliberalists argue that basing the American higher education system on market-driven values will compel universities to develop superior education programs so that they can successfully recruit and educate an elite global workforce (Freidman, 2005). The literature indicates that neoliberal principles undergird many facets of the American higher education system (Apple, 2002). Hence, in the next section, we examine several neoliberal rationales used by the government, businesses and universities to support the goals to increase diversity, with a critical focus on the discursive elements of these categories. While these rationales are linked together through use of similar rhetoric and logic, each section has distinctive elements that focus on particular neoliberal motivations for increasing diversity in higher education.

The Economic Framing Scholars supportive of the economic framing within the neoliberal discourse affirm that if higher education institutions do not increase diversity and create sufficient retention efforts for diverse students, they will not be profitable or competitive due to the extreme changes in student demographics (Astone & Nunez-Wormack, 1991; Chickering & Braskamp, 2009; Clawson & Leiblum, 2008; Western Interstate Commission for Higher Education, 2014). Research based within this perspective focuses on projected non-White and nontraditional student population and college participation rates, economic and workforce trends and market-oriented notions of the purposes of higher education (Apple, 2002; Marichal, 2009; Smith & Ota, 2013). Supporters of the economic rationale within the neoliberal discourse believe that the rising number of non-White and nontraditional students at the K-12 level logically signals a need to increase these students' participation rates in higher education (Clawson & Leiblum, 2008). In support of this assertion, scholars provide evidence of the major increases in minority students in the K-12 public school system and the concurring decline of the White student population (American Speech-Hearing-Language Association, 2012;

Tremblay, 2011). This is not a new concern, as Astone and Nunez-Wormack argued in (1991):

> By 2000, minorities will account for roughly 30 percent of the population (U.S. Bureau of the Census 1990c). Even now, 27 percent of all public school students in the 24 largest city school systems are minorities (Hodgkinson 1983). Yet for nearly all minority groups, high school graduation rates are significantly lower than for the majority, and entry rates of college-age minorities into higher education are actually shrinking. (para. 7)

Despite efforts to increase minority enrollment and persistence for several decades, recruitment and retention of minority students remain low in most four-year public and private higher education institutions (Clawson & Leiblum, 2008; Gerald & Haycock, 2006; Sweeny, 2013).

Research within the neoliberal paradigm espouses that students of diverse experiences, backgrounds, needs and characteristics ought to be included in higher education because they have the potential to play a significant role in maintaining and increasing educational, social and economic capital in the United States (Carnevale & Fry, 2000; Chun & Evans, 2015; Haycock, 2006). In particular, scholars note that the increasingly diverse student population will need to enter and graduate from higher education so that they can contribute to the demands of the national workforce and compete in the growing knowledge economy (Banerji, 2006; Clawson, & Leiblum, 2008; Freidman, 2005; Gerald & Haycock, 2006). Within this discourse, scholars argue that failure to provide sufficient access to and support for diverse students in higher education will have long-term impacts on the economic strength of the United States compared with other nations (Gutierrez, 2011; Pitre & Pitre, 2009). Ultimately, business leaders, higher education scholars and practitioners using the economic rationale to support increases in diversity argue that the shifts in student demographics require leaders in higher education, admissions and college recruiting to become more strategic and deliberate in recruitment processes and enrollment management in order to attract and support a sufficiently diverse student body (Hossler & Palmer, 2012; Pope et al., 2009; Stage & Hossler, 2000).

The Business Vitality Framing   The neoliberal rationale to promote diverse student participation in higher education also relies on an argument about business vitality. This argument is distinctive because the focus shifts from the economic wellbeing of the United States to the welfare of corporate America. Elements of this category include competition, increasing profit and gaining a competitive edge in the global economy (Apple, 2002; Friedman, 2005). For the past few decades, American businesses have invested in efforts to increase diversity in higher education because they believe that this investment will lead to a stronger workforce and more profit for businesses (Astone & Nunez-Wormack, 1991; Carnevale, 1999; Dill, 2009; Gutierrez, 2011; Humphreys, 2015). According to the American Speech-Hearing-Language Association (2012), "The traditional White male workforce will shrink by an estimated 11% (U.S. Census Bureau) while the minority workforce will expand rapidly. By 2028, it is expected that there will be a shortage of 19 million skilled workers to fill jobs in the U.S." (para. 6). In response to the potential shortage,

corporate America and the U.S. government have called to action a number of higher education leaders to support efforts to increase diversity (American Speech-Hearing-Language Association, 2012; Western Interstate Commission for Higher Education; 2014).

Much of corporate America's support for increasing diversity is driven by their fear of the convergence of declining White birth rates in line with a scarcity of students of color in higher education (Smith & Ota, 2013). Lack of students, and in particular nontraditional students, enrolled in higher education institutions will lead to a scarcity in skilled workers, which could culminate in the breakdown of corporate America (Freidman, 2005; Western Interstate Commission for Higher Education, 2013). This logic is based on the neoliberal principle of deregulated competition. According to Treanor (2005), "The free market generates a form of Darwinian selection: the survival of the competitive. Non-competition, or incomplete competition, is failure. The market produces a hierarchy of failure, with the most competitive firms and individuals at the top" (para. 23). According to neoliberal rules of competition, for government and businesses to remain competitive, they must have the most qualified graduates working to support them. Corporate America needs a sufficient number of non-White students to be able to fill all positions available in order to continue to compete in the global economy (Smith & Ota, 2013). The major risk in this scenario is that if the supply of qualified diverse students does not fill the demand for qualified and educated workers in American businesses, corporations within the United States could fall lower in the ranks of the global economic hierarchy (Carnevale, 1999; Diversity Pipeline, 2002; Friedman, 2005; Gildersleeve, Kuntz, & Pasque, 2010).

Largely grounded in neoliberal rhetoric, Anthony Carnevale, former Vice President for Public Leadership at the Education and Testing Service, illustrates the business vitality rationale for increasing diversity in "Diversity in Higher Education: Why Corporate America Cares". He asserts:

> The emergence of a global economy and the increasing diversity of the U.S. population are changing the face of the U.S. workforce. To meet the needs of customers across the planet's 30-odd time zones, American companies are working faster, cheaper, and smarter than ever before. And whether in Beijing or Baltimore, global competition has empowered diverse consumers with more choices. Consumers want products that reflect their lifestyles and values. They want to see faces like theirs in product advertisements, and in the showrooms and boardrooms of the companies whose products they buy. (1999, para. 4)

Many business professionals supporting neoliberalism recognize the necessity to increase diversity in American higher education institutions. Thus, they argue for a more educated and diverse workforce because they claim that it will contribute to greater national and international economic competition, increased government revenue and corporate profit (Hossler & Palmer, 2012).

University Sustainability Framing   In addition to diversity enhancing the economic and business vitality of the United States, some scholars have shifted their focus from the economy or corporate American to university sustainability as a rationale for increasing diversity (Apple, 2002; Berdahl, 1998; Smith & Ota, 2013).

According to the university sustainability rationale within the neoliberal discourse, failing to increase access to and participation in college by opening the gates to non-White and nontraditional students could pose a significant threat to the financial sustainability of colleges in the United States (Banjeri, 2006; Friedman, 2005). Institutions of higher learning are expected to be key agents in developing and generating future economic, political and business leaders for their country (Banjeri, 2006; Haycock, 2006; Western Interstate Commission for Higher Education, 2014). If these institutions are unable to attract enough qualified students to produce an educated workforce, support from state, federal and business corporations may decline. Similar to the economic rationale, scholars argue that expanding the pool of potential student candidates through diversity efforts will help higher education institutions remain globally competitive by enhancing the quality of their institutional research and increasing their scholarly strength (Haycock, 2006; Humphreys, 1999).

Situating university sustainability within the neoliberal discourse frames universities as dominant discursive sites within society that connect to the state, national and global economy in the production of knowledge and the development of an educated workforce (Friedman, 2005; Gildersleeve et al., 2010). Smith and Ota (2013) concur, adding that the principles of neoliberalism have strongly influenced current American economic, political and educational policies and practices. Along with other scholars, they believe that using neoliberalism as the dominant rationale to increase diversity in higher education has become increasingly popular (Marichal, 2009; Smith & Ota, 2013). Yet, scholars argue that neoliberalism may mask social inequalities and often commodifies education and diversity (Iverson, 2012; Dill, 2009). Accordingly, in the next section, we explore the neoliberal discourse of diversity with a focus on how it may impact the recruitment process and affect diverse students' perspectives on college and college choice.

A Critical Analysis of the Neoliberal Discourse Eurocentric privilege is embedded throughout the neoliberal discourse that is used to support increases in diversity in higher education. Gildersleeve et al. (2010) argues that this privilege is framed as meritocratic because it is based on a value-free capitalist system. Apple (2002) coined the term "conservative modernization" to describe the "hegemonic bloc" of neoliberal discourse, which includes tenets from neoliberalism, neoconservatism, authoritarian populist religious conservatism and managerialism. He maintains that this "hegemonic bloc" serves to legitimize social inequities and discrimination through the myth of meritocracy, which argues that individuals can go as far as their own merits can take them. Apple also stresses that this "bloc" has commandeered the purposes of American higher education, which has complicated the social contract that these institutions have made to serve the public good and masked social inequalities under the façade of capitalist rhetoric.

In an article exploring recruiting methods to attract a diverse college student body, Pippert et al. (2013) acknowledge that the neoliberal consumer model now dominates many practices in American higher education. An illustration of using

neoliberal discourse that these authors discuss is when institutions represent their profitability or attractiveness with racially or internationally diverse students in their recruitment materials. In their findings, Pippert and colleagues note, "it is clear that racial diversity is being used as a commodity in the marketing of higher education and presenting an image of diversity is more important than accurately portraying the student body" (p. 275). Scholars argue that inaccurately advertising diversity, or only advertising certain "diverse" students could hinder the goal to authentically increase diversity (Pippert et al.), and also impede the social contract and public agenda that higher education institutions have made with the American government and its citizens (Gildersleeve et al., 2010), which is particularly pertinent to institutions that have a historic responsibility to serve the public interest (Apple, 2002; Haring-Smith, 2012; Kuh et al., 2006).

Blackmore (2006) adds that the neoliberal discourse of diversity in higher education skirts around issues of social justice, affirmative action and redressing historical inequities. She states that higher education policies are now based on "the deregulatory aspects of the increasingly managerial and market orientation of schooling, decentering earlier discourses of more transformatory notions premised upon reducing inequality and discrimination" (p. 181). Haring-Smith (2012) affirms that higher education administrators and policymakers have moved away from using affirmative action legislation or social justice rationales to support increasing diversity. Instead, many researchers, administrators and practitioners have begun to frame diversity as a commodity that benefits the economy, businesses and universities (Blackmore, 2006; Haring-Smith; 2012).

Drawing from work that problematizes neoliberal polices in higher education, Iverson (2007) examines the effects of non-White students being represented as commodities. She critiques the legitimized meanings and representations of diversity in "marketplace" higher education policies because she argues that framing these individuals as commodities may make college less appealing to them. She adds that commodifying diversity may dissuade or even prevent students from attending certain institutions. In her work, Iverson also notes that diversity discourses are drawn upon from the larger discourses in society and shape the perceptions that administrators, scholars and practitioners hold of diverse groups. It follows that when non-White students are perceived as commodities in institutional discourses, the college recruiters at those institutions may use neoliberal language when recruiting those students, which could drive them away or negatively impact their college search experience. In addition, recruitment materials that are designed to market diversity as a commodity may exaggerate the number of non-White students on campus, which may deter certain students from those schools due to their misrepresentation (Hartley & Morphew, 2008; Pippert et al., 2013).

Some scholars argue that in order to remain sustainable, social structures, such as higher education, must follow the broader rules of capitalism, which is organized by competition (Apple, 2002; Smith & Ota, 2013; Treanor, 2005). According to this rule, individuals with the greatest financial resources will attain the finest K-12 education, all the while gaining social, cultural and educational capital that will ultimately help them gain access to the highest quality universities. This shift to a

model based on consumer-driven demands reveals how neoliberalism innately supports unequal access to college and disregards current and historical discrimination with regard to race, class, gender, sexual identity and ability (Gildersleeve et al., 2010; Kuh et al., 2006).

Within neoliberalism, colleges operate as businesses driven by competition and serve students as the ultimate consumers of their product (education) (Gildersleeve et al., 2010; Kuh et al., 2006). Apple (2002) affirms that within this economic system, morality and justice are placed in the hands of individual consumers. Scholars note that allowing consumers to determine what is fair in society is dangerous because it places all notions of accountability for justice and equity on a system that is inherently unjust and inequitable (Apple, 2002; Gildersleeve et al., 2010). As a result, a major problem with the neoliberal discourse is that it legitimizes the myth of meritocracy and normalizes the discourse as value-free and unbiased. The neoliberal discourse also ignores the moral consequences of limiting access to certain segments of our population. Specifically, it fails to present an inclusive strategy for providing access to non-White and nontraditional students who may lack the necessary financial resources and social capital necessary to enter a system which assumes every student has experienced a quality K-12 education and a stable family with sufficient financial resources (Kuh et al., 2006).

Since a higher education system based on neoliberal principles does not acknowledge racism, an additional critique of the neoliberal discourse is that it supports the belief that the United States has moved beyond racist and inequitable social policies (Apple, 2002). Accordingly, neoliberals maintain that racism is no longer an issue that needs to be addressed through diversity efforts (Blackmore, 2006). In *The Trouble with Diversity: How We Learned to Love Identity and Ignore Inequality,* Walter Benn Michaels (2006) examines diversity in the neoliberal context of higher education. He argues that the market and, more broadly, American capitalism is an inherently discriminatory system. Michaels (2006) affirms, "High prices aren't a clever way of keeping out the poor. The purpose of charging high prices is to find an indirect way of excluding those whom the law no longer allows you to exclude" (p. 64). He cites the American poll tax as evidence proving that prejudice and racist attitudes in American history have often been hidden under the guise of capitalism and meritocracy.

Using a critical perspective similar to Michaels' (2006) reveals that the neoliberal discourse in higher education overshadows the systemic racism that exists in the American economic and political systems (Apple, 2002). The neoliberal model condones decisions, values and actions that have been made through the ostensibly value-free hand of the market (Apple, 2002; Fish, 2009). Free-market capitalism, then, is based on the belief that all individuals are consumers who have both *free* and *equal* choice, access and opportunity to attend any college they desire (Gildersleeve et al., 2010). Analyzing the discourse from a critical perspective problematizes these types of purportedly value-neutral policies and models in order to uncover assumptions and biases that mask discrimination and racism (Kumasi, 2011). Supported by the myth of meritocracy, color-blind and allegedly race-neutral neoliberal policies have become increasingly popular in higher education, because they are seen as less

contentious than race-conscious policies (Chun & Evans, 2015; Patton et al., 2007). A critical perspective of the neoliberal discourse reveals that unequal participation rates in proportion to demographic rates, along with lower quality K-12 education for many non-White and nontraditional students, result in unfair and value-biased policies supported and maintained by neoliberalism (Kumasi, 2011).

Troubling the logic of the neoliberal discourse shows how educational inequities are couched within economic principles that mainly benefit White individuals and others with non-dominant identities (Forman, 2004; Kumasi, 2011). Gildersleeve et al. (2010) argue that the meaningless rhetoric of freedom, equality and opportunity within neoliberalism conceals the historical and systemic issues of educational inequality and inequity. It follows that any diversity efforts or recruitment policies grounded in neoliberal discourse may perpetuate the inequitable practices that they are attempting to redress (Gildersleeve et al., 2010; Iverson, 2007). Scholars displeased with the constraints of neoliberalism have turned to a rationale that highlights the benefits of adding a diverse student body to higher education without having to frame diversity as a commodity (Chang, 2013; Chickering & Braskamp, 2009; Hayward & Siaya, 2001; Hu & Kuh, 2003). Recognizing the limits of the neoliberal discourse they have turned to a different diversity rationale, which we categorize as the internationalization discourse. The internationalization discourse is still structured within the context of increasing global diversity and globalization; however, this discourse focuses less on the economy, corporate American or university sustainability and more on how international experiences can benefit college students.

The Internationalization Discourse of Diversity The internationalization discourse frames diversity and diverse experiences as core strategies for the development of students in higher education, particularly through an international lens (Milem et al., 2005; Smith & Ota, 2013). The two common narratives within this discourse are the need to enhance students' global awareness through international experiences and interactions, and the necessity for students to develop intercultural skills to be successful in a globalized world (Knight, 2004; Smith & Ota, 2013). Scholars supporting this discourse see it as a way to increase diversity in higher education and affirm that universities ought to be more accountable for creating leaders and citizens who can succeed in and contribute to diverse environments around the world (Chickering & Braskamp, 2009; Denson & Bowman, 2013).

Advocates of the internationalization discourse at times use a similar justification compared with the neoliberal rationale for increasing diversity (Moses & Chang, 2006; Smith & Ota, 2013). One major distinction is that in the internationalization discourse shifts from focusing on how diversity benefits the national economy, corporate America and the university system, to benefiting students and contributing to the achievement of a global citizenship perspective (Chickering & Braskamp, 2009). The second key difference in the internationalization discourse is that the focus moves from domestic diversity to international student diversity and international and intercultural education (Bernardo, 2003; Denson & Bowman, 2013). Accordingly, proponents of this discourse maintain that students must learn the

intercultural knowledge and skills necessary to effectively engage with diverse cultures from across the globe (Bernardo, 2003; Chickering & Braskamp, 2009; Hu & Kuh, 2003; Humphreys, 1999; Moses & Chang, 2006; Pope et al., 2009).

Rooted in a macrosociological and structural perspective, the internationalization discourse maintains that institutions, including higher education, are controlled and directed by international political and economic interests and needs (Smith & Ota, 2013). Within this framework, the global undercurrents of political and economic forces significantly influence every facet of higher education, including diversity rationales (Ramirez & Meyers, 2000). Smith and Ota (2013) argue that because the recruitment of international diversity and the incorporation of international experiences are viewed as economically profitable, these types of diversity efforts are strongly promoted within the internationalization discourse.

Diversity, as defined by the internationalization discourse, highlights international cultural identity, values and norms (Blackmore, 2006). Frequently, internationalization efforts, interaction with international students, and having international experiences are emphasized within this discourse (Crichton, Paige, Papademetre, & Scarino, 2004). Other approaches to increasing intercultural skills (and diversity) within the intercultural field include increased study abroad opportunities and the augmentation of curricula with international topics in order to suffice diversity goals (Smith & Ota, 2013). While there is a movement to look at the benefits of internationalization at home (IaH), which explores experiences with domestic diversity and immigrant populations, this movement is less common within the internationalization discourse (Crichton et al., 2004; Knight, 2004).

Despite recent efforts to combine international, intercultural and domestic multicultural fields into one discourse, in 2012 the AAC&U released a publication discussing the enduring divide between these elements in higher education. They argue that this division is largely based on the divergent starting points, motivations, interests and rationales undergirding internationalization, intercultural development and efforts regarding domestic diversity (AAC&U, 2012; Knight, 2004; Smith & Ota, 2013). Hence, in this next section, we explain the various historical contexts of intercultural education and internationalization and their implications in increasing diversity within higher education and recruiting.

The Historical Context of Intercultural Education   Initially, the call for increased intercultural skills emerged due to America's need to prepare its citizens to work effectively for and with individuals different from themselves while living or working abroad (Pusch, 2004). Pusch asserts that beginning in the 1950s, the American government and military supported efforts that promoted intercultural sensitivity training, couched within the context of international travel and cross-cultural interactions. Born out of the lack of cross-cultural skills observed within American diplomats and military officials overseas, practitioners in the field of international education and intercultural communication studies developed trainings regarding culture shock and re-entry, micro and macro cultural differences, and recognition of cultural knowledge and value orientations (Pusch, 2004). While the origins of intercultural development and training were focused on cross-cultural

exchange and international cultural communication, over the past few decades, its principles have become relevant to the higher education sector as well through the movement known as internationalization. Internationalization is a process where college campuses incorporate more international components such as study abroad, recruitment of foreign students and augmenting curriculum to be more internationally-focused (Begalla, 2013; Chickering & Braskamp, 2009)

Many leaders in higher education recognize the need for students to learn how to interact with cultural difference (Chickering & Braskamp, 2009; Knight, 2004). One way to teach students about intercultural skills is through intercultural education, training and development (Begalla, 2013; Bennett, 2004). In the context of higher education, intercultural development is often grounded in Bennett's developmental model of intercultural sensitivity (Talbot, 2003). According to intercultural educator, Milton Bennett (1998), "intercultural competence" describes individuals' abilities to maintain "the skills of operating in their own cultures while adding the ability to operate effectively in one or more other cultures" (p. 29). Bennett also notes that this concept includes one's ability to recognize the interplay of power, privilege and cultural values. Higher education administrators, scholars and practitioners have begun to develop strategies to advance intercultural skills among students to help them understand the function of culture in people's lives, identify the relationship between cultural characteristics and personality, and successfully adapt to different cultural situations (Begalla, 2013; Bowman, 2011; Hayward & Siaya, 2001).

The Development of a Global Citizenship Perspective A complementary way of framing diversity that is linked to the internationalization discourse is the need for students to develop a global citizenship perspective (Chickering & Braskamp, 2009). Development of this perspective is often referred to when viewing intercultural development as a means to creating socially aware and globally conscious citizens. This argument has been used to justify recruiting a more diverse student body, as Chickering and Braskamp assert that higher education institutions ought to play a central role in helping students develop an educated and culturally responsive worldview, which they coin as a "global citizenship perspective". These authors affirm, "The traditional-aged college student needs to develop and internalize a global perspective into her thinking, sense of identity and relationships with others" (p. 27). Grounded in classic student development theory, Chickering and Braskamp opine that attainment of intercultural skills and a global worldview are crucial components of a quality higher education experience in the twenty-first century.

By adopting a global citizenship perspective, students are expected to be more tolerant of ambiguity, adaptable to change and culturally flexible (Trueba, 2002). Championed by scholars and practitioners from the AAC&U, scholars and practitioners in higher education aspire for this worldview to lead to the following outcomes:

> Having students develop a global perspective means helping them develop the capacity to think with complexity, taking into account multiple cultural perspectives. They need to form a unique sense of self that is authentic and consistent with their own cultural background,

and to relate to others who differ with respect and openness. Developing a global perspective stresses personal and social responsibility that is based on interdependence, identity, purpose, and emotional intelligence. (Chickering & Braskamp, 2009, p. 28)

Many higher education leaders and practitioners have taken on the responsibility to develop international curricula, diversify their campuses, and integrate diverse learning and knowledge into their classrooms. These internationalization efforts provide clear evidence that higher education constituents support the internationalization discourse as a way to increase diversity on their campuses (Begalla, 2013; Curris, 2006; Knight, 2004).

Logic Framing the Internationalization Discourse The logic within the internationalization narrative is that if undergraduate students of the twenty-first century are not trained to communicate and work effectively across difference, they will not successfully function in the global economy. They will also struggle to contribute positively to the diverse social, civic and professional communities in which they are situated (Denson & Bowman, 2013; Hu & Kuh, 2003; Knight, 2004). Scholars posit that as the student population continues to diversify the need for inter-racial and cross-cultural understanding and awareness will become even greater. Recognizing the major social, cultural and demographic shifts in K-16 student characteristics in the United States, Chickering and Braskamp (2009) re-conceptualized four of Chickering's (1964) seven vectors of student development to include a more global view. In their newly conceptualized model, Chickering and Braskamp (2009) assert that it is necessary for students to develop skills that will help them become fluent in the new language of globalization. This language includes understanding how to move through different social, professional and community environments successfully, while also understanding the effects of one's actions within the larger global community. Movement through the following four vectors- from autonomy to interdependence, establishing identity, developing purpose, and managing emotions- will provide the foundation for students to effectively interact in multicultural environments (Chickering & Braskamp).

Given the historic, social, and political context of the United States, focusing on Chickering and Braskamp's (2009) recently revised vectors will increase students' skills in becoming engaged global citizens. While these authors do not explicitly refer to intercultural competence, they affirm that becoming globally responsive and socially responsible individuals "requires us to become as competent as we can in understanding persons who differ widely in their political, religious, and spiritual orientations; in privilege and social class, and in ethnicity and national origin" (p. 28). They maintain that student development in higher education focused on their four vectors will accomplish the goal of becoming globally minded citizens.

Proponents of the internationalization discourse assert that participating in higher education is one of the first times that many students have the chance to consistently interact and learn from diverse students and experiences (Denson & Bowman, 2013; Reason, 2015). Thus, scholars stress that it is critical for higher education institutions to provide students with diverse cultural experiences in order to enhance

intercultural skills and knowledge, and develop a national and global citizenship perspective so that they can ultimately function in an increasingly globalized world (Hu & Kuh, 2003). Clearly, supporting the need for students to develop intercultural skills and global awareness is a growing rationale used to promote efforts to increase diversity in higher education (Chickering & Braskamp, 2009; Hu & Kuh, 2003; Salisbury et al., 2008; Trueba, 2002). Although this rationale is becoming increasingly common, critics are concerned with several limitations within this discourse that may negate certain diverse identities and hinder the goal to increase all types of diversity in higher education (Crichton et al., 2004; Otten, 2003; Paige & Mestenhauser, 1999).

A Critical Analysis of the Internationalization Discourse Some scholars and practitioners point to several limitations of the internationalization discourse when it is used to support increases in diversity. For example, critics contend that the internationalization discourse focuses too heavily on international experiences to build intercultural skills, without fully acknowledging the benefits of diverse experiences in one's own country (Otten, 2003). Others suggest that this discourse negates issues of social justice and historical inequity (Crichton et al., 2004) and only highlights the positive elements of diversity (Hartley & Morphew, 2008). The internationalization discourse is also criticized for using the interest convergence principle by placing white students at the center of intercultural development research (Kumasi, 2011), and pushing other types of diverse students to the margins (Otten, 2003). Finally, the internationalization discourse "exoticizes" diverse identities and experiences, which showcases elements of neocolonialism (Osei-Kofi, Torres, & Lui, 2012, p. 397).

Because the intercultural field developed its view of diversity based largely on international differences related to national and ethnic culture, this discourse originally used a limited scope of what it considered "diversity". Since much of the focus of diversity remains on international experiences, issues of historical inequities in access, inclusion and racism within the realms of domestic diversity are often glossed over or seen as a separate issue (Crichton et al., 2004; Smith & Ota, 2013). Paige and Mestenhauser (1999) stress that in order for social justice issues to be addressed in internationalization, educators must delve into concepts such as identity, power, language and privilege on a more consistent basis and include analyses of how power and privilege take shape in communities and relationships both domestically and internationally.

A focus on only international campus diversity can lead to the exclusion of other types of diversity, as well as an inadequate representation of what it means to be diverse. An example of this focus is clearly illustrated in a content analysis of college viewbooks, where Hartley and Morphew (2008) found:

> Diversity is frequently "celebrated," but ill defined. For example, a number of institutions referenced the diversity of their student body and then went on to describe their geographic distribution—"our students hail from 46 states and 23 countries." (p. 686)

This analysis can easily be applied to the college recruitment process. For example, showcasing only an international description diversity to prospective students who are not international students, but identify as diverse in some way, could have negative consequences on their college choice process, as it may negate their lived experience as being diverse (Iverson, 2007). Moreover, if recruiters and college recruitment materials only emphasize international diversity when discussing campus diversity, prospective students with other identities may feel estranged or excluded from that institution's diversity discourse, and may feel that they would not fit in (Pippert et al., 2013).

Scholars critical of the internationalization discourse argue that discussions of intercultural development and global citizenship have minimized and disregarded the broad range of diversity outside of cultural and national identity (Crichton et al., 2004; Smith & Ota, 2013). This oversight overlooks a growing population of new immigrant students and students who are diverse socially, religiously, psychologically and physically on college campuses (Chickering & Braskamp, 2009; Haring-Smith, 2012). These scholars contend that the internationalization discourse needs to go beyond supplementation of international components of diversity and explore the value of all types of diversity and intersections of identity in order to satisfy the needs and demands of multiethnic, multicultural and nontraditional students (Haring-Smith, 2012; Otten, 2003).

The rationale that shapes the internationalization discourse highlights the fact that increasing diversity in higher education will better prepare students for an intercultural world (Chickering & Braskamp, 2009; Denson & Bowman, 2013). This view is principally based on the assertion that "monocultural" students will be working with American immigrants, sojourners or living outside of the United States (Crichton et al., 2004; Paige & Mestenhauser, 1999). This assumption is exemplified by the fact that most intercultural scholars and practitioners assert that White American students need to have study abroad experiences in order to fully develop intercultural knowledge, tools and awareness (Crichton et al., 2004; Salisbury et al., 2008). Because of this emphasis, scholars supportive of intercultural development regularly cite the benefits of intercultural skill building for White students who have studied abroad. Research within this field is often linked to the attainment of student learning outcomes for White students (Reason, 2015; Salisbury et al., 2008).

Scrutinizing the language in the internationalization discourse uncovers who is being represented and who is absent through this lens (Salisbury et al., 2008). Historically, nontraditional students, including students of color, low socio-economic students and students with disabilities have not participated in study abroad opportunities at a rate that is proportionate to White students who study abroad in college. According to the Institute of International Education (2016), in 2013/2014, of the 304,467 U.S. college students that studied abroad, 74.3% of them were White students. With a disproportionate number of non-White students taking advantage of the opportunity to study abroad (Sweeny, 2013), scholars have less knowledge about how intercultural and international experiences benefit them, which has also contributed to more of a focus on the benefits of intercultural development on White students (Denson & Bowman, 2013; Salisbury et al., 2008).

Haring-Smith (2012) criticizes the internationalization discourse because it lacks recognition of race and historical racial inequities in its diversity language, which leads to a color-blind ideology about how to support a diverse college student body. Patton et al. (2007) assert, "color-blind ideologies ignore the systemic nature of race, excuse accountability for racial injustices, and promote apathetic, covert acts of racism, which ultimately place power and privilege with the dominant group" (p. 43). Applying Patton and colleagues' assertion to the internationalization discourse exposes the potentially harmful effects of this privileged discourse of diversity on students with non-dominant racial identities. These authors note that administrators and practitioners must critically consider how their allegedly value-free and color-blind policies, language and practices shape their interactions with diverse students when talking about diversity, enhancing intercultural skills and study abroad opportunities.

The internationalization discourse typically emphasizes international diversity, driving other types of diversity to the periphery (Haring-Smith, 2012). Failing to name or acknowledge these other kinds of diverse identities may inadvertently marginalize them (Patton et al., 2007). Questioning how race is (or is not) discursively framed and discussed within internationalization literature can help to expose how racist and inequitable recruitment efforts and programs may be perpetuating discriminatory practices by only attracting or promoting certain types of diversity (Iverson, 2012; Patton et al., 2007). Otten (2003) asserts that intercultural learning by way of addressing racial inequities and discrimination is currently a tertiary goal in internationalization, when it ought to be a top priority. Scholars and practitioners, to include admissions personnel, would benefit from intentionally combining social justice issues, including racial inequity, with internationalization goals in order to effectively promote multiple ways of knowing, interpreting and interacting in a multicultural world (Smith & Ota, 2013), thereby developing more holistic and inclusive practices to support a diverse student body.

Applying the interest convergence principle to this discourse exemplifies how the research, values and assumptions of the internationalization discourse focus largely on White students, more than any other group of students, as the beneficiaries of intercultural development and international experiences. This point is especially pertinent when taking into account how scholars structure the intercultural benefits for White student development when they are exposed to diversity and diverse experiences (Chickering & Braskamp, 2009; Denson & Bowman, 2013; Hu & Kuh, 2003; Humphreys, 1999; Moses & Chang, 2006; Sweeny, 2013). An example found in intercultural literature is when scholars only focus on the international and multicultural experiences that compel White students to become more reflective of their values, beliefs and cultural orientation (Chickering & Braskamp, 2009; Denson & Bowman, 2013; Reason, 2015; Ropers-Huilman, Winters, & Enke, 2013). Not only does this rhetoric leave out non-White students as beneficiaries, but it also presupposes that only White students need intercultural and multicultural exposure, assuming that multicultural and international students already have intercultural skills, which research suggests is not always accurate (Crichton et al., 2004; Denson & Bowman, 2013).

A final limitation of the internationalization discourse is that it uses neocolonialism as a way to describe positive experiences with diversity in U.S. higher education. For example, in a study on racialization in college admissions viewbooks, Osei-Kofi et al. (2012) argue, "The representations of study abroad as White/'Other' perpetuate the exoticization of other cultures and logics of discovery, where literally and metaphorically, White affluent students from the West 'discover' the 'native' in the global South" (p. 397). This discourse places Whites as superior to the diverse "other". It also affirms that "diverse" international experiences aid diverse "others" in becoming healthier, more prosperous and economically advanced, which perpetuates Western notions of what is right, good and healthy. These authors suggest that this neocolonial narrative is translated into a discourse that frames students of color as inferior "others".

Universities have often used the internationalization discourse within their institutions as support for interventions combining White students within a diverse student body to enhance learning, broaden perspectives and develop intercultural awareness in an international context (Cornwell & Stoddard, 2006; Guarasci & Cornwell, 1997). While these developments indicate positive outcomes for White students, scholars critical of this line of thinking argue that it continues to marginalize nontraditional and domestically diverse students by placing the development of White students at the center (Denson & Bowman, 2013; Kumasi, 2011). As an alternative, some scholars advocate for a discourse that focuses distinctly on social justice, historical inequalities and educational disparities with regard to race, gender and class (Gerald & Haycock, 2006; Haycock, 2006; Hurtado, 2007; Moses & Chang, 2006). Grounded in Chang's (2002) "preservation discourse" of diversity, we turn now to what we call the equity discourse of diversity.

The Equity Discourse of Diversity According to Chang (2002), one of the main rationales used to support increases in higher education grounds itself in the desirability of educational equity and social justice through affirmative action legislation. He labels this discourse the preservation discourse and argues that it is based on a diversity agenda that seeks to increase diversity specifically through race-based recruiting and admissions policies and practices. With the goal of preserving affirmative action policies, scholars and practitioners who promote this type of discourse advocate for efforts that work toward countering historical inequities, educational inequalities and continued underrepresentation of historically underrepresented students of color (AAC&U, 2012; Beckham, 2008; Chang, 2002; Haring-Smith, 2012; Haycock, 2006; Hurtado, 2007; Kahlenberg, 2014; Moses & Chang, 2006; Orfield, 2016; Pike, Kuh, & Gonyea, 2007).

The equity discourse uses logic that cites the need for race-based admissions policies due to disproportionately low college participation rates of students of color compared with their rising demographic rates (Kahlenberg, 2014; Moses & Chang, 2006). In sum, an equity discourse of diversity frames higher education institutions as the vehicle for redressing historical injustices and equalizing racial inequities through targeted admissions policies and procedures (Chang, 2002; Chun & Evans, 2015).

The Logic of Affirmative Action Within the Equity Discourse Administrators, scholars and practitioners using the equity discourse assert that disparities in college participation rates exist largely due to discrimination against racially diverse students (Banerji, 2006; Chun & Evans, 2015; Haycock, 2006). Affirmative action policies were implemented in the 1960s to address this discrimination; however, backlash aimed at the race-based mandates as well as continued legal challenges to affirmative action policies have stunted increases in participation and access for students of color (Wise, 2010). According to Astin and Oseguera (2004), criticism against affirmative action contributes to high attrition rates because it leads to minority students feeling unwelcome on college campuses. Advocates of affirmative action stress the need for more deliberate recruitment efforts to attract students of color in order to increase their rates to an equitable level (Gerald & Haycock, 2006; Gurin, 1999a; Haycock, 2006). According to Chang (2002), within the equity discourse of diversity, admissions divisions are usually charged with the responsibility of increasing diversity. In an effort to effectively manage enrollment, these units structure their diversity polices based on serving a certain number of students of color, which would indicate that students of color are being served on a more equitable level (Humphreys, 1999).

The equity discourse grounds itself in the political milieu of racially charged legal debates that focus on remedying historical inequities to minoritized groups (Chang, 2002; Chun & Evans, 2015; La Noue, 2003; Moses & Chang, 2006). Beginning with the decision in 1978 in the court case *Regents of the University of California v. Bakke* (438 U.S. 265), affirmative action policies have evolved to address more racial injustices for people of color in the United States. Chun and Evans provide an outline of the classical and contemporary purposes of affirmative action stating:

> 1) [Classical affirmative action] seeks to remedy social bias rather than individual violations; (2) it mandates race-, ethnic-, and gender-conscious remedies for adverse effects or the disparate impact of social discrimination; and (3) it seeks to integrate institutions in terms of race, ethnicity, and gender. In successive phases, affirmative action has evolved from (1) a mechanism for prohibiting discrimination to (2) compensatory or remedial justice designed to address prior discrimination to (3) practices designed to address contemporary realities, such as the pursuit of educational diversity in higher education or as a mechanism for addressing structural imbalances in the workplace. (pp. 11–12)

Based on the contemporary purposes of affirmative action policies, current logic and framing of diversity within the equity discourse is "heavily driven on court rulings" and relies on language of equity as defined by racially diverse participation rates in proportion to their demographic rates (Chang, 2002, p. 135). Albertine and McNair (2011) state that "equity" in educational and legal scholarship is defined as "The creation of opportunities for historically underrepresented populations to have equal access to and participation in educational programs that are capable of closing the achievement gaps in student success and completion" (p. 4). Scholars supportive of the preservation of affirmative action draw on this reasoning to support the claim that racism continues to play a role in American education and needs to be addressed through legislation such as affirmative action policies (Chun & Evans, 2015; Ladson-Billings, 2009; Lopez, 2003).

Advocates of the equity discourse argue that higher education institutions ought to be obligated to promote affirmative action policies as a core part of their mission to help recruit and educate racial minority students in a fair and socially just way (Chun & Evans, 2015; Patton et al., 2007; Pike et al., 2007). Supported by the belief that affirmative action should be "preserved", an emerging role of higher education leaders and recruiters has been to increase diversity through specially tailored recruiting and admissions strategies in order to counter a historical narrative of racism and discrimination directed particularly toward people of color (Chang, 2002; Chun & Evans, 2015; Hurtado, 2007). While the equity discourse has been valuable in opening the doors to some students of color, in the past several decades, higher education and legal scholars have become critical of its use in maximizing the benefits of diversity due to public and legal backlash.

One of most recent court case under scrutiny for its affirmative action admissions policy was *Fisher v. University of Texas*, heard by the Supreme Court of the United States in 2013. In this case, a White female who was denied admission to the University of Texas, Austin, accused the University of illegally practicing a race-conscious admissions policy. This case was based on a previous court ruling in 2003's *Grutter v. Bollinger*, where the court ruled that race could be considered as a "narrowly tailored" factor in the admissions review process. The Supreme Court remanded the *Fisher v. University of Texas* case, annulling the appellate court's ruling in favor of the University in 2009 (Chun & Evans, 2015). The appellate court once again ruled in favor of the University of Texas, and the Supreme Court decided to hear the case once more in 2016 (Jacobs, 2015). In a historic moment, the Supreme Court ruled in favor of using race as one factor among others in the college admissions process in June 2016 (Fisher v. University of Texas at Austin et al., 2016). Drawing from equity and academic excellence discourses, the latest ruling by the Supreme Court supports the opportunity for institutions of higher learning to intentionally target racial and ethnic minorities in their admissions strategies to counter historical disparities and discrimination aimed at these students (Ancheta, 2016). Despite the Supreme Court's ruling, pushback continues from prospective students, parents and conservatives in regards to race-conscious affirmative action policies.

A Critical Analysis of the Equity Discourse Several authors highlight key limitations of the equity discourse as it relates to institutionalizing a diversity agenda on campus (Chang, 2002; Chun & Evans, 2015; Haring-Smith, 2012; Kennedy, 2013). The first critique is that the equity discourse centers too much on redressing historical racial inequalities (Chang, 2002; Kahlenberg, 2012). The second critique is that the equity lens only focuses on one identity characteristic (race), which does not take into account students' intersectionality and the variety of benefits a diverse student body brings to campus (Kahlenberg, 2014; Kumasi, 2011). The final critique is that this discourse concentrates on admissions instead of foregrounding how diversity ought to be infused into and supported by all units on campus (Chang, 2002).

Chang (2002) states that discussing diversity from an equity perspective is limited because it ignores "transformative aims" that could help challenge the current legal and educational system on which affirmative action relies (p. 132). A central drawback within the equity discourse, then, is that it circumvents rather than challenges discriminatory policies and perceptions about diversity because this discourse is based on a restricted view of how to add diversity through admissions policies. Because this discourse mainly focuses on redressing past inequalities for historically underserved populations it disregards how increasing diversity in college can enhance intercultural competence (Pope et al., 2009) and increase educational quality (Denson & Bowman, 2013).

Another major critique of the equity discourse is that its language, research and scholarship typically center on race, negating other types of identity and characteristics of diversity (Haring-Smith, 2012). Chang (2002) asserts:

> While the general public discourse aimed at preserving the consideration of race in admissions may well prove to be a sound legal defense and perhaps even a persuasive public one, it often fails to acknowledge more fully the breadth and depth of diversity as practiced on college campuses. (p. 128)

According to Chang, the limited view of diversity is evidenced by the fact that most preservation rhetoric is supported by affirmative action legislation that espouses that increasing representation of students of color to a proportionate level will ultimately lead to educational equity. In more recent legal debates regarding diversity in higher education, the necessity to break away from the traditional constructs of racial and ethnic diversity has emerged as an important move towards developing a more equitable and inclusive campus that can transform institutionally inequitable policies and create inclusive systems that include a broader range of minoritized students (Chun & Evans, 2015; Gutierrez, 2011; Haring-Smith, 2012; Kahlenberg, 2014). Kahlenberg (2012) asserts that only focusing on race in admissions actually hinders the creation of a diverse student body. He maintains that new admissions policies ought to be more cognizant of economic disadvantages as well as racial inequities.

Limiting the view of diversity to certain minority races reinforces assumptions about what it means to be diverse and who should have access to higher education through affirmative action policies. This narrow diversity definition impacts students who may not be classified as diverse within affirmative action parameters, but who would add to the diversity of the student body in different ways (Chun & Evans, 2015; Ladson-Billings, 2009; Ladson-Billings 1995; La Noue, 2003; Litowitz, 2009). For example, Chun and Evans (2015) cite that affirmative action admissions policies have historically excluded Asian Americans, limiting the benefits of this discourse in terms of inclusiveness for all types of student diversity. Moreover, because the equity discourse is based on legislation that protects only certain racial identities, college recruiters may categorize non-White students inaccurately due to the language used by the courts (Kahlenberg, 2014; Patton et al. 2007; Steele, 1997). These scholars argue that the recognition of all types of diversity, and their intersections, would lead to a discourse that could both challenge discriminatory

practices and also highlight the benefits of a diverse student body (Brah & Phoenix, 2009; Haring-Smith, 2012).

A final critique of the equity discourse is that the affirmative action policies from which it draws are typically limited to the admissions stage (Chang, 2002). Chang states that equity discourse "overlooks the importance of accounting for the evolution of diversity, thinking beyond admissions, recognizing transformative aims, and viewing learning more broadly" (pp. 135–136). He also notes that in order for a university-wide diversity agenda to increase diverse student representation in equitable and sustainable ways, it needs to include the historical, structural, psychological and behavioral aspects of the college experience (Chang, 2002). Regardless of how affirmative action policies are implemented, the emphasis on targeting diversity in admissions inadvertently disregards the fact that other academic and student affairs units on campus ought to be involved in supporting and promoting diversity (Chang, 2002; Chun & Evans, 2015; Iverson, 2012).

Ultimately, the key limitations of the equity discourse are that it focuses solely on redressing historical racial inequalities (Chang, 2002; Denson & Bowman, 2013; Kahlenberg, 2012), it only provides support for certain racially diverse students (Kennedy; 2013), and it places the onus of increasing diversity solely on admissions units (Chang, 2002; Chun & Evans, 2015). Consequently, this discourse misses out on ways in which the wide range of diversity and diversity efforts beyond admissions could be useful in making universities equitable, inclusive and academically excellent (Brah & Phoenix, 2009; Chang, 2002; Denson & Bowman, 2013; Kumasi, 2011). Given the limitations of the equity discourse, some scholars have worked to advocate for the benefits of diversity through the academic excellence discourse of diversity (Chun & Evans, 2015). The academic excellence discourse is sometimes used to supplement or replace the equity discourse because it is seen as a more transformative way to create a diverse student body in higher education (Blimling, 2001; Chang, 2002; Denson & Bowman, 2013; Milem et al., 2005). As such, in the next section, we describe the tenets and the discursive elements that structure the academic excellence discourse.

The Academic Excellence Discourse Often described as the original "diversity rationale", the academic excellence discourse "requires the university to prove that White students and all other students gain educational benefits from policies that were intended to address the long history and tradition of White preference" (Chun & Evans, 2015, p. 26). Within this discourse Milem et al. (2005) maintain that by framing "diversity as a process" that can lead to academic excellence for all students, it can be institutionalized as a central element of learning in higher education (p. iv). Advocates of the academic excellence rationale argue that diversity should no longer be viewed as a supplemental add-on, but rather as an integral component of an invaluable educational experience for every student (Chang, 2013; Gurin, 1999a, 1999b; Humphreys, 1999; Milem et al., 2005). Research supporting this discourse developed in part due to backlash against affirmative action legislation (Chang, 2007; Chun & Evans, 2015). Scholars and practitioners were seeking a way to prove the value and importance of diversity that did not offend or challenge the

status quo as harshly as affirmative action policies seemed to (Chang, 2002). Consequently, advocates of affirmative action conducted a variety of studies to provide evidence of the educational benefits of diversity on campus (Ancheta, 2016; Beckhan, 2008; Chun & Evans, 2015; Gurin, 1999a).

One important grounding example of scholarship within the academic excellence discourse is Patricia Gurin's (1999a) research, which focuses on the value of added diversity in postsecondary education. Drawing from student development, psychological and sociological theories, Gurin examined how diversity enhances the quality of education for colleges and universities in the United States. For example, in *Selections from the Compelling Need for Diversity in Higher Education: Expert Report of Patricia Gurin*, Gurin (1999a) states:

> The empirical analyses presented later in this Report directly test the theoretical arguments I am advancing for the impact of racial diversity on student learning. All of these analyses confirm that racial and ethnic diversity is especially likely to increase effortful, active, engaged thinking when universities set up the conditions that capitalize on these positive environmental features, namely when they offer courses that deal explicitly with racial and ethnic diversity and when they provide a climate in which students from diverse backgrounds frequently interact with each other. (p. 36)

In further research to support the legal case for the academic excellence discourse, scholars have extended Gurin's research, showing how diversity can be a value-added opportunity that cultivates active and critical thinking and contributes to the recognition and appreciation of cultural values, beliefs and ideologies (Ancheta, 2016; Chun & Evans, 2015; Denson & Bowman; 2013; Denson & Chang, 2009; Wells, Duran & White, 2008). Also within this discourse is an emphasis on how domestic diversity in the classroom and on campus can broaden attitudes, awareness, knowledge and skills of White students (Ancheta, 2016; Bowman, 2011; Pope et al., 2009).

Scholars and administrators backing the academic excellence discourse critique the neoliberal and social justice arguments that support increases in diversity because those rationales claim that the mere presence of diversity is enough to add to educational quality (Denson & Bowman, 2013; Gurin, 1999a, 1999b). Proponents of the academic excellence discourse argue that intentional efforts to build cultural competence and learn about difference are necessary to glean benefits from the presence of a diverse student body (Bowman, 2011; Chang, 2013; Gurin, 1999a; Hu & Kuh, 2003; Pettigrew, 1998). In addition, advocates of academic excellence opine that framing the diversity rationale as simply a way to redress historical inequities fails to highlight how adding diversity to campus can enhance intercultural skills and educational learning. Similar to the internationalization discourse, the academic excellence rationale places a focus on intercultural skill development largely for White students so that they can succeed in an increasingly multicultural world (Chickering & Braskamp, 2009; Humphreys, 1999; Kennedy, 2013; Milem et al., 2005).

Supporters of the academic excellence rationale for increases in diversity assert that structured interventions are necessary in order for students to truly benefit from

diversity (Ancheta, 2016; Bowman, 2011; Gurin, 1999a, 1999b). For example, Hu and Kuh (2003) affirm that White students must have diverse experiences and interact with diverse others in order to fully benefit from the presence of cultural difference. In their study of diverse student experiences and personal development, Hu and Kuh (2003) establish three levels of diverse experiences. Structural diversity represents the demographic compositions of the student population on campus; classroom diversity represents the quantity of individual and cultural diversity in the curriculum; and interactional diversity embodies the purposeful contact and interaction of diverse students. It is largely through these structured experiences that students benefit from increases in diversity (Denson & Bowman, 2013).

In his chapter "Engaging White students on Multicultural Campuses", Reason (2015) argues that even though colleges are more diverse than ever before, White students still require more intercultural development and training regarding how to interact with diversity and identities that are different from their own. He cites a breadth of research indicating that working with racially and ethnically diverse students enhances intercultural maturity and assists with identity development for White students (King & Baxter Magolda, 2005; Reason, 2015). Scholars focusing on the interactions of students of color and White students in educational environments have found that structured diversity interventions, such as cross-cultural intergroup dialogue and racial identity development activities in multicultural education classes, are beneficial in cultivating engaged thinking and understanding of difference for White students (King & Baxter-Magolda, 2005). More recently, research has been conducted to demonstrate that interactions across many different social, cultural, racial and ideological boundaries benefits all students, not just Whites (Bowman, 2011; Chun & Evans, 2015; Denson & Bowman, 2013). Many higher education scholars assert that the academic excellence discourse has moved the diversity rationale in a positive direction within the field of higher education (Bowman, 2011; Chang, 2013; Chun & Evans, 2015; Gurin, 1999a; Gurin, Nagda, & Lopez, 2004; Hu & Kuh, 2003; Orfield, 2016). However, some scholars feel this discourse focuses too much on students of color and places White students as the main beneficiaries of increased diversity (Chang, 2002; Haring-Smith, 2012). We now turn to a critical analysis of this discourse to further investigate these limitations.

A Critical Analysis of the Academic Excellence Discourse While the academic excellence discourse addresses several shortcomings of the demographic, neoliberal, internationalization and equity discourses supporting increases in student diversity in higher education, a critical lens sheds light on some its limitations. Similar to the other discourses, a substantial weakness in this rationale is that the majority of academic excellence research is limited to a focus on the benefits of adding domestic diversity (students of color) to predominantly White campuses (Chun & Evans, 2015; Humphreys, 1999; Milem et al., 2005). Given the fact that "diversity" has come to include a broader range of identities (sexual orientation, socio-economic status, religious background, ability), and the intersections of these identities, this discourse clearly excludes a significant portion of nontraditional students who are

attempting to gain equal access to and participation in higher education (Haring-Smith, 2012; Milem et al., 2005).

While "diversity" originated with race and ethnicity as a grounding focus (Michaels, 2006), one of the ways it has become more inclusive is by recognizing the intersections of identities and how they overlap with each other within the spectrum of diversity (Haring-Smith, 2012). Kumasi (2011) maintains that scholars who challenge the traditional definition of diversity "recognize the intersectionality of race and racism with other forms of subordination and recognize that people belong to more than one demographic or cultural group and are consequently affected by disenfranchisement or inequality in more than one way" (p. 210). Thus, without including all types of individuals within the umbrella of diversity, the academic excellence discourse cannot fully acknowledge the identities and lived experiences of a diverse student body. It follows that if recruiters use the academic excellence discourse during recruitment, the intermittent inclusion and implicit exclusion of certain types of diversity could actually alienate some students or stereotype those who do not fall within the traditional confines of racial, ethnic or cultural diversity (Haring-Smith, 2012; Ladson-Billings, 2009; Litowitz, 2009). Rather than following exclusive and traditional definitions of diversity, Haring-Smith stresses that this term should not be restricted to certain diverse identities because diversity benefits everyone who lives and works in a globalized world.

Similar to the internationalization discourse, a major critique of this argument is that it centers on Whites as the main beneficiaries of interaction with diversity on campus (Kennedy, 2013). Placing whites at the center is reflective of the interest convergence principle, which posits that White people will only support and promote policies and practices that benefit them (Kumasi, 2011). Scholars argue that identifying Whites as the focus of diversity efforts can invalidate and marginalize the experiences and identities of non-White students and can be damaging to efforts to increase diversity in sustainable ways (Chun & Evans, 2015; Hooks, 2000).

A major critique of this kind of research is that it assumes that White students are from homogenous environments and need experiences with non-White students to raise their cultural awareness and academic achievement, which is not always accurate. An additional critique is that a suitable rationale for increasing diversity on campus must lead to benefiting White students (Chun & Evans, 2015; Kennedy, 2013). Ultimately, the academic excellence discourse predicates the interests and development of White students at the forefront of the dialogue about the benefits of diversity in higher education. Critical of marginalizing diverse students within diversity discourse, some scholars stress that in order to truly validate and appreciate the perspectives and experiences of all those in a diverse student body, diversity efforts must be centered around those individuals who hold non-dominant identities, not on the White student population (Denson & Bowman, 2013; Hooks, 2000).

A final criticism of the academic excellence discourse is that its framing and scholarship are based on an ahistorical view of American higher education, which indirectly minimizes historical inequities in regard to racial access and inclusion (Kennedy, 2013; Kumasi, 2011). Hackman (2005) asserts, "Ahistorical

information... leaves students with a limited understanding of the political, social, and economic forces and patterns that create and sustain the oppressive social dynamics students are contesting and transforming" (p. 105). Many scholars and practitioners moved away from the equity discourse because it did not take into account the benefits of diversity on college campuses (Bowman, 2011; Chang, 2002). In the process of developing a more inclusive and constructive discourse to support student diversity, scholars strategically shifted their focus from solely redressing racial inequities to researching how diversity fosters academic excellence (Chun & Evans, 2015). Rather than combining social justice with academic excellence, the shift from supporting the equity discourse to supporting the academic excellence argument bifurcated them from each other. By creating two discourses, the research separated issues of social justice, which supported the equity discourse, from institutional transformation, which supported the academic excellence discourse (Humphreys, 1999; Kennedy, 2013). Thus, the move to the academic excellence discourse refocused the diversity rationale toward a less transformative and more ahistorical lens as it let go of its focus on social justice (Chun & Evans, 2015).

An overview of the literature on diversity in higher education demonstrates the value and necessity of having a diverse student body in higher education. This discussion also reveals the benefits, challenges and tensions that frame each major diversity discourse (Chun & Evans, 2015; Moses & Chang, 2006). Scholars argue that there is potential to ameliorate some of the conflict related to increasing diversity by aligning diversity rationales and their discourses with the common values of equity and inclusion and the educational outcomes of academic excellence (Cornwell & Stoddard, 2006; Hurtado, 2007; Milem, et al., 2005). Given the constraints of the previous discourses described in this chapter, in the 1990s many administrators, scholars and practitioners pushed for the development of a democratic, multicultural and inclusive educational model of higher education that aligned with the changing demographics of the United States (AAC&U, 1995; Chun & Evans, 2015). In the next section, we shift to a discussion of a final diversity discourse used by higher education scholars, administrators and practitioners, which we categorize as the pluralistic democratic education discourse.

The Pluralistic Democratic Education Discourse of Diversity The pluralistic democratic education discourse developed in large part due to critiques of the monocultural democratic education model of the twentieth century, which supported the needs and aspirations of a highly homogeneous college student population (Cornwell & Stoddard, 2006; Gutmann, 1987; Haring-Smith, 2012; Moses & Chang, 2006). This discourse has also developed in response to some of the limitations of the other diversity rationales mentioned in this chapter (Chun & Evans, 2015; Moses & Chang, 2006), and aligns with the evolution of what diversity means in reference to current U.S. political, cultural, societal and legal contexts (Haring-Smith, 2012). A main objective of the pluralistic democratic education framework is to utilize the constructive elements of some of the major diversity discourses as building blocks in the development of a new type of diversity discourse that is more inclusive and equitable (Haring-Smith, 2012; Hurtado, 2007).

The pluralistic democratic education discourse focuses on the achievement of equity in the broadest range of "visible and invisible diversity on campus" as well as the attainment of equal participation and inclusion (Haring-Smith, 2012, p. 13). Haring-Smith argues:

> We need to celebrate both the visible and invisible diversity of our campuses so that we can prepare future citizens to engage in productive, respectful civic discourse with those who disagree with them. Without this kind of commitment to multiple aspects of diversity, our colleges will not be able to produce the kinds of citizens who will keep our democracy vibrant. (p. 13)

The pluralistic democratic discourse evolved from a more monocultural democratic discourse of diversity (Bowman, 2011; Cornwell & Stoddard, 2006; Guarasci & Cornwell, 1997; Shugart, 2013). Here, we investigate the logic and discursive elements that scholars use to describe a more inclusive and critical discourse of diversity, which the literature often refers to as pluralistic democratic education.

The Logic and Evolution of the Pluralistic Democratic Discourse Traditional democratic education discourse was an established way of framing the purposes, policies and practices of American higher education. This discourse promoted meritocracy and the education of White, middle-class, male students for the purposes of creating a citizenry and workforce to support the United States (Guarasci & Cornwell, 1997; Gutmann, 1987). Guarasci and Cornwell assert, "Insofar as liberal education was designed to prepare students to assume citizenship in the United States, it perpetuated a monocultural and androcentric model of democracy and an ethnocentric form of patriotism" (p. 159). While supportive of intellectual diversity, traditional democratic education discourse also perpetuated social hierarchies by limiting access for gender, class, racial and ethnic minorities (AAC&U, 1995; Gutmann, 1987).

Critical of traditional democratic education discourse, Steele (1994) challenges the belief that diversity is a value-added concept within the canopy of traditional tenets of American democracy. Steele opines that diversity represents a façade of educational equality within democratic education, covering up disparities, instead of addressing them in ways that would or could ever lead to educational equity. Guarasci and Cornwell (1997) concur with Steele's critique of traditional democratic education discourse as it applies to higher education. They affirm that the new discourse of diversity ought to challenge systems of privilege and power in critical and transparent ways. Scholars supportive of pluralistic democratic education argue that a strong element of this discourse emphasizes the re-visioning of the traditional education model in higher education with a specific focus on integration of domestic and international diversity (Haring-Smith, 2012).

In her influential book *Democratic Education*, Gutmann (1987) also applies a critical lens to the traditional democratic education discourse in higher education. Critiquing the traditional college admissions paradigm, she states, "A meritocratic system cannot be based on grades and test scores, because grades and test scores

cannot measure many of the qualities relevant to the academic life of a university"
(p. 200). Gutmann goes on to argue that the broad range of student diversity
enhances university social, cultural, political and academic life, but these enhance-
ments are virtually impossible to calculate with current admissions measures. She
maintains that higher education institutions have the ability to restructure their
language about success and academic achievement by changing their allegedly
meritocratic admissions policies to examine both quantifiable indicators and also
qualitative evidence of success through student experiences, backgrounds and char-
acter. This process can take place in the context of a revised version of democratic
education that addresses the broad range of diversity in the United States. Ultimately,
Gutmann stresses that in a truly multicultural democracy, diversity is essential, and
universities will only flourish by including diversity of many kinds.

In addition to admissions policies, critics of the traditional democratic education
discourse argue that universities must question all established policies and norms in
order to transform the discourses regarding the benefits of diversity to a more value-
added and inclusive paradigm (AAC&U, 1995; Cornwell & Stoddard, 2006;
Guarasci & Cornwell, 1997; Gutmann, 1987; Haring-Smith, 2012). Advocates for
a version of democratic education that is more inclusive and pluralistic maintain that
for individuals to thrive in an intercultural world, administrators, faculty, student
affairs professionals and students need to dismantle the curriculum, pedagogies and
university structures that enact and promote the traditional monocultural view of
democracy (AAC&U, 1995; Guarasci & Cornwell; 1997; Gutierrez, 2011; Lee &
Dallman, 2008). Colleges and universities can accomplish this goal by stepping
beyond the outdated homogenous and traditional Eurocentric research paradigms
and teaching and learning methods, which originally relied upon White scholars'
perspectives (Gutmann, 1987; Kumasi, 2011). By valuing non-Western paradigms,
counter-stories, qualitative ways that diversity bolsters academic excellence,
intercultural development and global awareness, colleges and universities can
more authentically frame diversity discourse in the context of a pluralistic democ-
racy (Bowman, 2011; Guaracsi & Cornwell, 1997; Gutmann, 1987; Kumasi, 2011).

One way to enact a pluralistic democratic education discourse is to de-center the
focus of diversity on a particular group or type of identity. This strategy would
include an intersectional approach, which would shift the emphasis of diversity from
individual hierarchies of identities to an inclusion discussion of the interplay and
relevance of all identities in a connected web of oppression, privilege and power
(Hooks, 2000). Scholars affirm that the entire higher education system must be
transformed to support multiple views of identity and embrace inclusion of different
viewpoints, including critical inquiry, student voice, political engagement, experi-
ential learning and equal participation (Chang, 2013; Chun & Evans, 2015; Haring-
Smith, 2012). Proponents of the pluralistic democratic education narrative maintain
that this new framing supports pluralistic democratic principles in a globalized and
diverse world by incorporating domestically and internationally diverse viewpoints
and addressing historical inequities (Guarasci & Cornwell; 1997; Gutierrez, 2011;
Phillips, 2014).

For decades, scholars in higher education have recognized the integral role that colleges and universities play in developing and educating the future leaders of the nation and the world (AAC&U, 1995; Chun & Evans, 2015; Kahlenberg, 2014). Focusing on public land-grant universities, in 2006, president of the Education Trust, Katie Haycock, asserted that given their historic and democratic mandate, public institutions ought to be the forerunners in promoting and providing accessible and quality educational opportunities to all American students. From a pluralistic democratic education perspective, this argument can be extended to both public and private institutions, as Gutmann (1987) argues:

> Universities are more likely to serve society well not by adopting the quantified values of the market but by preserving a realm where the nonquantifiable values of intellectual excellence and integrity, and the supporting moral principles of nonrepression and nondiscrimination, flourish. (p. 183)

Democracy, then, as it is defined within the context of the pluralistic democratic education discourse, includes equal value of people, respect and opportunity to freely participate in all aspects of society, including education (AAC&U, 1995; Bowman, 2011; Cornwell & Stoddard, 2006).

In the traditional democratic education paradigm a focus on intellectual diversity and on developing citizens who had similar backgrounds, beliefs and values was predominant. Accordingly, well into the 1960s, higher education institutions restricted access for many racial and ethnic groups, not to mention other types of minority groups (AAC&U, 1995). In contrast, the pluralistic democratic education discourse emphasizes naming the strength, value and benefit of bringing together a diversity of opinions, ideologies and identities within a common democratic language of equality and justice in higher education (Gutierrez, 2011). A primary example of this type of pluralistic democratic language is represented in the second edition of *The Drama of Diversity and Democracy: Higher Education and American Commitments* report, where the Association for American Colleges and Universities asked its members to openly commit themselves to diversity as a response "to a vision of democracy that is deliberative, inclusive and fair, and that seeks to address the problems of our day—poverty, racism, hyper-segregation, gender inequalities, homophobia, and religious hatreds" (Gutierrez, 2011, p. XX). In the report, the AAC&U put forth a notion of diversity that was not only a social or economic imperative, but also the ultimate strategy for putting into practice the principles of a pluralistic democratic education.

Advocates of the pluralistic democratic education discourse recognize that dealing with difference, redressing historical inequities and moving towards a value-added paradigm of diversity will be a difficult but necessary shift in order to live in a truly just "multicultural democracy" (Schneider, 1999, para. 4). Scholars within this discourse often cite research describing the value and necessity of difference and the need for diverse perspectives in higher education (Chang, 2013; Gutierrz, 2011). They maintain that linking the dominant diversity rationales with a basic desire and need to understand our common humanity could prove to be an effective way to

enhance diversity in higher education (Gutierrez, 2011; Gutmann, 1987; Hurtado, Dey, & Gurin, 2003).

Recognizing the limits of traditional democratic discourse and considering the growing diversity of the American student body, scholars have developed a more inclusive discourse that is still grounded in democracy, but focused more on equal access and participation in higher education (Gutierrez, 2011). For example, in support of diversity efforts in the seminal University of Michigan Law School case, *Gratz et al., v. Bollinger*, Gurin (1999a) states, "Education plays a foundational role in a democracy by equipping students for meaningful participation. Students educated in diverse settings are better able to participate in a pluralistic democracy" (p. 37). Basing this statement on sociological, psychological and student development theories and research, scholars note the necessity of diverse perspectives, beliefs and experiences in college in order to develop critical and engaged thinking skills that students will need to function in a diverse world (Chun & Evans, 2015).

A Critical Analysis of the Pluralistic Democratic Discourse Milem et al. (2005) emphasize that the pluralistic democratic education discourse includes the principles of participation, engagement and support by everyone on campus. These authors note that understanding diversity as a collective ought to be the goal rather than focusing on individualistic notions of what it means to be one diverse person. They also argue that diversity built upon these tenets would benefit all students, faculty, administrators, student affairs professionals and the broader community (Milem et al., 2005). While the pluralistic democratic discourse has optimistic aspirations, similar to other discourses, it remains a lofty ideal that has not yet been fully accomplished.

Milem et al. (2005) stress that in the pluralistic democratic education discourse of diversity no single minority or majority group would be responsible for supporting or promoting diversity; rather, support for diversity would be reinforced by all constituents of higher education. However, not all people construct diversity discourses or rationales to increase diversity in the same ways, especially considering that this discourse is focused on dimensions of diversity from a U.S. centric perspective. Thus, even with this discourse, there are potential conflicts and tensions regarding how to talk about diversity, who ought to be responsible for it and who should be included in this term. Consequently, while the pluralistic democratic education discourse addresses many of the limitations of other discourses discussed in this paper, it may not be the panacea that scholars are hoping will create a fair and inclusively diverse college student body.

9.1.10 Conclusion

Discourses of diversity are informing how colleges and universities recruit and support a diverse student body, and how they structure their efforts to redress social inequalities, fulfill their democratic mission, remain economically viable and successfully prepare students for a globalized world. In this chapter we discussed the

complexity present in how these discourses are constructed and mobilized in higher education as well as their perceived importance as a strategic goal (Hurtado et al., 2003; Milem et al., 2005; Pope et al., 2009; White, 2015).

One of the main findings from our analysis of diversity as discourse is that scholars, administrators and student affairs professionals use distinctive narratives to support (or potentially reject) the objective to recruit a diverse student body. Hence, it is important to consider how these individuals interpret and express their understandings of diversity when discussing prospective student recruitment, participation and persistence (Patton et al., 2007; Smith & Ota, 2013; Thomas & Thurber, 1999).

Using a CRT lens demonstrates that these discourses may exclude people with certain identities and stereotype particular types of students, which may negatively affect their college choice process and also lead to a stigmatization of diverse students. CRT scholars stress that in order for inclusive diversity programming and practices to be successful, language that describes diversity must accurately embody and represent the identities of those being discussed. Despite the limitations of diversity discourses highlighted through our application of CRT, the latest Supreme Court ruling allowing for race to be considered in the admissions process is a promising step on the journey toward inclusive excellence in U.S. higher education (Orfield, 2016). As scholars and practitioners, we must continue to scrutinize the value-laden and limited language we place on diversity and instead create space for discourses that focus on students with a wide range of needs, expectations and backgrounds in order to support the growing diversity of college students today (Patton et al., 2007 Zemsky & Sanlo, 2005).

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Chapter 10
Developmental Education: The Evolution of Research and Reform

Shanna Smith Jaggars and Susan Bickerstaff

10.1 Developmental Education: The Evolution of Research and Reform

Almost two-thirds of entering community college students and over one-third of students entering less-selective four year colleges are judged as lacking in the math and language skills necessary for success in college-level courses (Complete College America, 2016; Chen & Simone, 2016). Traditionally, these students have been referred to "remedial" or "developmental education" programs, which are designed to bring students' math, reading, and writing skills up to the college's expectations of entry-level students, at an estimated cost of $6.7 billion per year in the community college sector alone (Scott-Clayton, Crosta, & Belfied, 2014). In this chapter, we review the traditional system's structure and effectiveness, provide a history of first- and second-wave reforms and research on those reforms, delineate the teaching and learning issues that must be addressed in order to further advance the reform movement, and discuss an incipient third wave of reform.

10.2 The Traditional Developmental Education System

Until a decade ago, most open-access and less-selective colleges followed an approach to developmental education that is now framed as the "traditional" approach (many colleges still follow this approach today). Under the traditional

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approach, students take short, standardized placement exams designed to measure skill levels in reading, writing, and mathematics (Fields & Parsad, 2012; Hodara, Jaggars, & Karp, 2012). Few colleges supplement the exams with additional information (such as the student's performance in the given subject in high school) – 21% use such criteria in math, and only 13% use them in reading (Fields & Parsad, 2012).

Taking math as an example, students who score above a college-determined cutoff on the placement exam are viewed as ready to take college-level math and science courses, while students who score below the cutoff are referred to developmental math. Many colleges also use secondary cutoffs to sort developmental students into different levels of need; for example, while a student scoring barely below the math cutoff may need to take only a developmental algebra course, a student scoring far below the cutoff may need to take a sequence of three courses (such as arithmetic, pre-algebra, and algebra) before being allowed to proceed to a college-level math course. Each developmental course is typically one semester in length, meets for 3–5 h per week, and costs the same tuition as a regular college course. Despite their full-tuition cost, most traditional developmental courses carry only "institutional credits" – they count as regular courses for financial aid purposes, but they do not count toward college-level degree requirements.

In theory, students will proceed through the sequence of courses, gain a variety of foundational skills, and perform well in their first college-level (or "gatekeeper") math and English courses, as well as in introductory courses such as biology, history, and sociology, which require strong math, critical reading, or writing skills. And indeed, students who successfully complete traditional sequences and move on to gatekeeper courses perform just as well as students who are deemed "college-ready" by the placement exam (Attewell, Lavin, Domina, & Levey, 2006; Bahr, 2010). Unfortunately, however, the vast majority of students referred to traditional developmental education sequences never make it to gatekeeper courses (Bailey, Jeong, & Cho, 2010). Those who complete the sequence are therefore rather exceptional, and it is not clear whether they might have performed quite well even in the absence of developmental education (Bailey, Jaggars, & Scott-Clayton, 2013). Given the expenditures of student money and time (as well as taxpayer dollars), researchers and policymakers around the turn of the twenty-first century began to ask whether the performance gains from developmental education were worth the investment. Below, we briefly review evidence regarding the ineffectiveness of the traditional system, as well as research documenting the reasons for its poor performance.

10.2.1 The Traditional System's Ineffectiveness

To assess the effectiveness of developmental education, most researchers have focused on the extent to which it helps underprepared students to successfully complete the first levels of English Composition and college-level mathematics within a given span of time. For example, only 16% of community college students referred to developmental mathematics complete a college-level math course within

three years (Bailey, Jaggars, & Jenkins, 2015). While these results seem dismal, they do not necessarily indicate that developmental mathematics was unhelpful: These students might have performed even *more* poorly in the absence of developmental supports. In order to determine whether developmental education was indeed helpful, researchers need a comparison group of similarly-underprepared students who did not undergo the program; yet in most colleges, this comparison group does not exist, given that all underprepared students are referred to the college's developmental program.

Researchers have tackled this problem by applying a "regression discontinuity" (RD) approach, which focuses on students who score within a few points of the college-ready cutoff score on the college's placement exam. Students who score a few points below the cutoff (and are thus referred to developmental education) are virtually identical to those who score a few points above the cutoff (and thus may proceed directly to gatekeeper courses). For example, the COMPASS algebra module has a standard error of measurement of 8 points, meaning that a score of 45 is not distinguishable with 95% confidence from a score of 30 (ACT, Inc., 2006, p. 92). In multiple studies, researchers have found that students just above and below remediation cutoffs are also indistinguishable from one another in terms of key pre-existing characteristics such as race, gender, age, high school achievement, and other test scores (Bailey et al., 2013).

Focusing on this around-the-cutoff population, RD analyses typically also include controls for student background characteristics and placement scores, and compare between similar students referred to developmental education versus college-level work. In the absence of developmental education, these two groups of students would be equally likely to progress to and succeed in college-level courses. To be effective, a developmental education program would need to demonstrate that it helps just-below-cutoff students perform *better* than their just-above-cutoff peers who directly entered college-level coursework. That is, those referred to a developmental course should overcome the semester lost in developmental education by earning better grades and proceeding more quickly toward a degree. Yet across a variety of rigorous studies, developmental students never made up for the time lost in their first semester; their academic outcomes were no better, or sometimes even worse, than similar students who did not take developmental education (Calcagno & Long, 2008; Martorell & McFarlin, 2007/2011; Dadgar, 2012; Scott-Clayton & Rodriguez, 2012; Xu, 2016). In some rigorous studies, a few positive results have been scattered among null and negative results (e.g., Bettinger & Long, 2009), but there has been no study showing consistently positive results for the traditional system of developmental education (Jaggars & Stacey, 2014).

Supporters of the traditional system rebut such studies by arguing that most developmental students do not score within a few points of their college's college-ready cutoff score, and therefore the regression discontinuity studies' results are not generalizable to the larger developmental population (Goudas & Boylan, 2012). However, college-ready cutoff scores vary widely across institutions, and therefore also vary from study to study. For example, using the COMPASS algebra exam, Boatman and Long (2010) examined a statewide college-level cutoff of 50, while

Scott-Clayton & Rodriguez (2012) examined a college-level cutoff that varied from 27 to 40 across the colleges in their sample. In addition, several regression discontinuity studies have considered very poorly scoring students by focusing on lower-level cutoffs (Boatman & Long, 2010; Dadgar, 2012; Melguizo, Bos, Ngo, Mills, & Prather, 2016; Xu, 2016). For example, Boatman and Long examined students at the cutoff between top-level and mid-level developmental math (a COMPASS algebra cutoff of 28), between mid- level and lowest-level developmental math (a COMPASS pre-algebra/arithmetic cutoff of 30), between upper-level and lower-level reading (a COMPASS reading cutoff of 53), and between upper-level and lower-level writing (a COMPASS writing cutoff of 28). In most cases, such analyses yield null effects. Similarly, in a propensity-score matching study (Hodara & Jaggars, 2014), the authors focused on very poorly scoring students in math (scoring between 17 to 26 on COMPASS pre-algebra/arithmetic) and in writing (very low scores on the system's written-essay exam) whose colleges required longer versus shorter developmental sequences for students in that range of scores; they found that students assigned to shorter sequences were more likely to eventually complete college-level math and English.

Proponents of the traditional system also point out that the students of real concern are not those near the top of the developmental spectrum, but those with very obvious academic deficits: students who don't understand fractions or percentages, who can't read college-level textbooks, or who write incoherent sentences riddled with grammatical and spelling errors. It seems self-evident that these students cannot succeed in college without intensive help, and multiple developmental education courses would seem to provide that help. Yet, as we pointed out above, many students who are referred to multiple courses never complete them. For example, a study examining 57 community colleges in seven states focused on students who were referred to the third level of developmental math, meaning that they needed to complete three developmental courses as well as the college-level math course before they could earn a degree. Only 17% of these students completed their developmental math sequence within three years, and of those who completed the sequence, only 53% enrolled in and completed college-level math in the same timeframe (Bailey, Jeong, & Cho, 2010). The situation was not much brighter for those enrolled in the lowest levels of reading: 29% completed the sequence and of those, 55% completed college-level English.

10.2.2   Factors Impeding the Success of the Traditional System

Why are the results for the traditional developmental education system so dismal? Research points to at least three factors: placement tests that refer some students to developmental education when they could be successful in college-level courses,

lengthy course sequences, and instructional approaches that fail to motivate and engage students in relevant and challenging material.

Placement Most community colleges use standardized tests as the sole measure of placement because the process is highly efficient: the exams can be administered quickly, scored by computer, and almost instantaneously applied to determine the placement for each student (Jaggars & Hodara, 2013). Research has revealed four key problems with this approach.

First, there is no clear-cut and common understanding of which placement scores represent "college readiness." For example, in a survey of public two-year colleges, the minimum ACCUPLACER score needed for entry into college-level English courses ranged from 50 to 106 (Fields & Parsad, 2012). Similarly, in a study of Ohio community colleges in the late 1990s, researchers found that a prospective student with a given level of high school performance and ACT/SAT score would have a very small chance of taking developmental education (perhaps a 15% chance) at some community colleges, but a very high chance (perhaps 90%) at other community colleges (Bettinger & Long, 2003, p. 18). Even in states with strong consistency in college-ready cutoff scores, colleges may vary widely in terms of lower-level cutoff scores. For example, in one community college system, a student who scored very poorly on the writing exam would be required to take two developmental writing courses at some colleges, but only one developmental course at others (Jaggars & Hodara, 2013).

Second, some students perform more poorly on placement exams than their underlying level of math or English preparedness might warrant, a phenomenon that may be particularly pronounced among students of color (Attewell et al., 2006). Many students are unaware of the purpose and consequences of the placement exams, including some who take the exam on the same day they learn about its existence. This lack of awareness is caused by multiple issues: open-access colleges don't want to discourage students from enrolling and thus downplay the exams' importance; some faculty believe the exams can be "gamed" and prefer that students do not prepare for them; and some students show up at the college to apply and register on the same day, leaving no time for education about, or preparation for, the exam (Fay, Bickerstaff, & Hodara, 2013; Hodara et al., 2012; Jaggars & Hodara, 2013; Venezia, Bracco, & Nodine, 2010). As a result, most students don't prepare for the exam, and some rush through it. Particularly if they earned good grades in high school, students are then surprised, confused, and frustrated to learn that they must spend time and money on courses that will not count toward their degree.

Third, depending on the student's desired major, the content of a placement exam is not necessarily aligned with the numeracy, literacy, and study skills the student will need to succeed in college-level courses. In math, placement exams are typically designed to determine whether students are prepared for an advanced college-level algebra course. Yet a liberal-arts student can typically fulfill her college-level math requirement with a statistics course or quantitative reasoning course, which do not require the same set of foundational concepts as college-level algebra (Jaggars & Hodara, 2013; National Center on Education and the Economy, 2013). Even if

placement exams are well-aligned with introductory math and composition, they are unlikely to be aligned with the reading, writing, research, and quantitative reasoning skills that students need to succeed in other key introductory program courses, such as biology, psychology, or history. Placement tests also do not tap other skills and behaviors that are important components of college readiness, such as students' class attendance patterns, time management skills, listening and note-taking behaviors, the extent to which they are able to realize when they need help, and their propensity to seek help (Conley, 2010; Hodara et al., 2012; Karp & Bork, 2014).

Fourth, when the best placement for a given student is unclear, faculty typically believe it is better to place the student in a developmental course (Jaggars & Hodara, 2013). This belief stems from the fact that each instructor can see only the successes and failures of students who actually enroll in their own courses: It is painfully clear to an instructor when an underprepared student is struggling in their college-level course, and few faculty relish the notion of failing such a student. In contrast, instructors cannot observe the success that *could have been* if a student were allowed to attempt their course, nor the barriers to progression that block the path of a student who is not allowed to attempt it. As a result, "marginal" students – some of whom could succeed in college-level courses with a B or better -- are far more likely to be referred to developmental education than to be allowed into college-level coursework (Scott-Clayton et al., 2014). Such students appear more vulnerable to college dropout, perhaps because they believe they are wasting time and money in unnecessary coursework (Scott-Clayton, 2012; Venezia et al., 2010).

Taking these four issues together, researchers argue that the current placement system results in high levels of placement inaccuracy. For example, one paper estimates that about a quarter of students referred to developmental education could have earned a B or better in the relevant college-level course, had they been allowed to access it (Scott-Clayton et al., 2014).

Lengthy Sequences For many developmental students, the traditional system's time-consuming and costly sequence of multiple developmental courses is problematic. A national study found that among community college students referred to the lowest levels of developmental education, 23% of math students and 19% of reading students chose not to return to college for the next course in the sequence even though they were successful in every previous developmental course they had attempted (Bailey et al., 2010). Many community college students – whether developmental or college-ready – are pulled away from college re-enrollment by external factors such as employment or childcare responsibilities (CCCSE, 2012; Johnson, Rochkind, Ott, & DuPont, 2010). An estimated 79% of community college students are employed, with a typical workweek of 34 hours per week; 35% of these students care for dependents, including 17% who are single parents (Horn & Neville, 2006). Moreover, perhaps half are vulnerable to drop out due to financial concerns (CCSSE, 2012). Thus, even for academically-successful students, it is difficult to return semester after semester to complete a long sequence of courses. Even if students who pass each course do return for the next course, practitioners have pointed out that long course sequences virtually ensure that few students will persist

to the end of the sequence: making the optimistic assumptions that each course in a three-course sequence has an 80% pass rate, and that all who pass return, then the percentage completing the sequence will be only 0.80 x 0.80 x 0.80, or 51% (Hern & Snell, 2010).

Instructional Approaches In the 1980s and 1990s, reformers began to argue that developmental course instruction was too narrowly focused on subject-area "remedial" pedagogy, or a focus on discrete decontextualized subskills, and advocated for providing a broader set of "developmental supports" (Boylan, 1995; Higbee & Dwinell, 1996). As a result, many colleges centralized developmental math, English, and reading courses into a single department or unit in order to hire instructors with interest and experience in teaching underprepared students, and to enhance student support services such as tutoring and advising (Boylan, Bliss & Bonham, 1997; Roueche & Baker, 1986). Yet a recent large-scale study of instruction within developmental classrooms found that instruction remains largely "remedial" (Grubb & Gabriner, 2013). In English and reading, the typical curriculum is largely based on "part-to-whole" instruction: students first practice composing sentences, then move to paragraph writing, and then finally to essays. Developmental English and reading content is also often poorly-aligned with college-level literacy expectations (Armstrong, Stahl, & Kanter, 2015). In mathematics, Grubb found that students were often asked to memorize and practice sets of routine algorithms without efforts to ensure that they understood the underlying concepts. Thus, when students cannot recall the correct algorithm, they are unable to determine how to approach the problem (Givvin, Stigler & Thompson, 2011; Stigler, Givvin & Thompson, 2010). These findings are not surprising given the over-emphasis on procedural knowledge in mathematics instruction in the United States (Hiebert et al., 2003; Marchitello & Brown, 2015; Stigler & Hiebert, 1999).

Research on the skills and competencies of students enrolled in developmental courses suggest that students are in need of more conceptually rich, contextualized instruction. Developmental students have a diverse set of strengths and weaknesses (Paulson & Armstrong, 2010), but many need support to improve key skills such as comprehension, summarization, and interpretation (Perin, 2013; Perin, Raufman, & Kalamkarian, 2015). These needs are likely related to a misalignment between high school and college literacy expectations (e.g., Applebee & Langer, 2011; Karp, 2006). Most developmental students would also benefit from support to develop time management skills; strategies for engaging with challenging tasks and content; and effective and efficient approaches for reading, notetaking and studying (e.g., Cox, 2009; Karp & Bork, 2014). Developmental students may also have lower levels of self-efficacy than students enrolled in credit-bearing courses (Cantrell, Correll, Clouse, Creech, Bridges & Owens, 2013), and thus may have a stronger need for instruction that is designed to engage and motivate them (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010).

While some colleges have embraced these pedagogical challenges and created innovative and comprehensive instructional supports for developmental students (many of which will be profiled later in this chapter), Grubb and Gabriner's

(2013) study suggests that most colleges continue to provide narrowly remedial instruction. Such suboptimal practices may be sustained by the fact that an estimated 75% of developmental course sections are taught by part-time faculty (Gerlaugh, Thompson, Boylan, & Davis, 2007), who may have less access to professional development and other departmental resources that support alignment of teaching practices.

10.3   First-Wave Reforms and Their Results

While individual faculty and developmental education programs have long experimented with innovative practices, these efforts tended to be isolated and sporadic (Grubb & Gabriner, 2013). In the early 2000s, as research began to highlight the ineffectiveness of the traditional system, leading-edge community colleges began a more systematic experimentation with new placement processes, curricula, and methods of instruction. The foremost examples include colleges involved in the national Achieving the Dream (ATD) initiative, which aims to improve community college student success. In the mid- and late-2000s, ATD colleges tackled developmental education as one of their top priorities by employing a variety of interventions designed to improve developmental students' short- and long-term outcomes. Popular interventions included tutoring, supplemental instruction, advising, success courses, and learning communities.

Colleges were particularly optimistic about "developmental learning communities," which were typically aimed at students referred to only one semester of developmental education. These programs paired a college-level general education course (such as introductory history, psychology, or biology) with a developmental education course, and the two instructors worked together to align their curricula and develop common assignments. The learning community concept was based in a strong foundation of research on "contextualization" (e.g., Perin, 2011), which suggested that students would be more motivated, would learn developmental numeracy and literacy skills more deeply, and would be able to transfer those skills to other courses more readily, if those skills were taught in the context of a meaningful credit-bearing college-level course. Unfortunately, random-assignment evaluations of developmental learning communities found that students earned only a half-credit more than their peers in their first semester, and this effect completely faded by students' third semester of enrollment (Visher, Weiss, Weissman, Rudd, & Wathington, 2012). This disappointing effect may be due to several factors. First, these learning communities did not address the problem of lengthy sequences. Second, most learning community instructors devoted relatively little time to aligning curricula and assignments between the two courses; thus, the degree of contextualization may have been too mild to make developmental skills appear relevant nor to allow students to transfer those skills to their college-level coursework. Third, some community college students may not have had a strong interest in the paired general education course (e.g., Cox, 2009, p 61). Accordingly,

their intrinsic motivation may have been more strongly supported by contextualization to an academic subject or career field in which they had a deep interest. And fourth, most colleges did not strongly integrate student services into the learning community: In one community college that did incorporate student services in a more comprehensive way, developmental learning communities increased the six-year graduation rate by nearly 5 percentage points (Sommo, Mayer, Rudd, & Cullinan, 2012).

Other ATD colleges' early interventions, such as success courses and intensive advising, often showed positive effects, but these specialized interventions were typically small in scale, reaching less than 10% of the targeted population. Accordingly, by the end of the decade, developmental student outcomes among ATD colleges remained stubbornly low (Rutschow et al., 2011). In an effort to "scale up" interventions to reach more of the target population, several ATD colleges in 2009 participated in a spin-off grant known as the Developmental Education Initiative. Each college implemented its own suite of strategies, which typically included the provision of student supports (including study skills courses, tutoring, and advising) or of specialized structures for developmental coursework (such as modularized computer-assisted courses or developmental learning communities). Participating colleges were somewhat successful in scaling up their strategies over a two-year period – the typical college served only 18% of incoming developmental students with at least one strategy in fall 2009, and it more than doubled that percentage to 41% in fall 2011. However, most colleges were unable to meet the goal of serving the *majority* of developmental students with at least one strategy. Moreover, most of the individual strategies did not have strong evidence as to their effectiveness. As a result, developmental student outcomes remained largely unaffected (Quint, Jaggars, Byndloss, & Magazinnik, 2013). Around the same time, other studies of similar developmental reforms across the country found that most addressed only one element of the developmental education process, provided only a short-term intervention (often lasting just one semester), or involved limited numbers of students (Barnett et al., 2012; Boatman, 2012; Coburn, 2003; Edgecombe, Cormier, Bickerstaff, & Barragan, 2013, Visher et al., 2012). Reform efforts also tended to emphasize moderate changes to student supports or to the structure and timing of courses, and rarely emphasized pedagogical innovation, faculty professional development, or faculty engagement (Edgecombe, Cormier, et al., 2013; Grubb, 2012; Rutschow et al., 2011).

Thus, around five years ago, there was widespread recognition that the traditional system of developmental education was badly in need of reform, and colleges were eager to experiment with new approaches, but this first generation of reforms had failed to yield significant improvements in student outcomes. Colleges began to realize that the problems of developmental education were pervasive and could not be solved with incremental or small-scale changes, so they began to appreciate the need for a second generation of more substantial reforms that fundamentally rethink developmental education.

10.4   Second-Wave Reforms and Their Results

Starting around 2010, community colleges across the country began to engage in wide-scale adoption of three types of developmental reforms: revised assessment for course placement, acceleration strategies, and changes to the content and pedagogy of developmental curricula.

10.4.1   *Reforms to Assessment*

Research on the weak predictive validity of multiple-choice math and English placement exams, the resulting misplacement of many students into either developmental or college-level coursework, and the human costs of those processes (in particular, Venezia et al., 2010; Scott-Clayton, 2012) sparked a widespread movement to reform assessment and placement. Popular reforms include creating customized exams that are more explicitly aligned with the college's curriculum, preparing students for the placement exam process, using multiple measures of college readiness as part of the placement process, and/or lowering college-ready cutoff scores or even waiving placement testing entirely. We discuss examples each of these tactics in more detail below.

Customized Exams Several state systems, as well as some individual institutions, have moved toward customized exams in recent years, including colleges in California, Oregon, Texas, Washington, Virginia, and North Carolina (Hodara et al., 2012; Kalamkarian, Raufman, & Edgecombe, 2015). For example, some have developed custom writing prompts and scoring rubrics that mimic the kinds of writing students are required to complete in college, and others have developed modularized math exams that allow colleges to apply different standards of math readiness depending on the student's intended program of study. It is difficult to verify whether customized exams are indeed more effective, as their introduction is typically bound up with a variety of other changes to developmental assessment, placement, and curricula. However, to the extent that exam customization helps to trigger or support these broader changes, the effort may be a worthwhile one (Hodara et al., 2012; Kalamkarian et al., 2015).

Preparing Students for the Placement Exam The accuracy of placement exams may be improved if students are more aware of the exams and the content that will be covered. If students have already mastered necessary skills, but cannot immediately conjure them up when faced with unexpected questions on an exam, they may score well below their potential. Accordingly, a few colleges are now offering "brush-up" or "refresher" test-prep sessions for first-time exam-takers, and a larger number are offering refreshers to prospective students who failed the exam and want to re-take it (Hodara et al., 2012).

For example, a North Carolina community college created online reviews for their reading, writing, and math placement exams, which students can access and complete from any computer at their convenience. For each subject, the review includes approximately an hour and twenty minutes of content: a diagnostic pre-test, information on areas where the student is weak, instructional videos that cover the test content, a post-test, and additional resources to help students prepare for the placement exam, such as PowerPoint presentations created by faculty and links to ACT online practice materials. The college's internal research provides some descriptive evidence that the re-test review improves placement accuracy (Hodara et al., 2012). Among students who took the review course before re-testing in 2010–2011, 60% tested at least one level higher in the developmental reading and English sequence than they previously tested, and about 35% tested at least one level higher in the developmental math sequence. These students performed well in their new placements, having similar or higher pass rates than their counterparts who placed directly into the courses. Due to the success of the re-test program, the college has now made it available to first-time test-takers, and the practice has also spread to other community colleges throughout North Carolina.

Brush-up sessions and re-test reviews bear a resemblance to two other popular reforms: early assessment in high school and summer bridge programs. Both types of programs expose prospective students to the placement exam early; however, their explicit purpose is not to help students leverage existing skills to score more accurately on the exam, but rather to help students build skills they do not already have. In terms of improving placement accuracy, these programs may be most helpful when they encourage stronger alignment between the high school curriculum, the placement test, and the college-level curriculum, such that the exam is measuring the appropriate skills. For example, California State University's Early Assessment program, which was explicitly designed to strengthen the alignment between high school and college, reduced high school students' math remediation rates by 3.4 percentage points (Howell, Kurlaender, & Grodsky, 2010). However, the study did not examine whether the students who avoided remediation then succeeded in math, so the impact on placement accuracy *per se* was unclear.

Using Multiple Measures for Placement Increasingly, colleges are experimenting with "multiple-measures" approaches by supplementing placement exam scores with other indicators of student readiness (Barnett & Reddy, 2017). While many colleges are interested in understanding students' broader non-cognitive abilities such as motivation or "grit," most are focusing on high school academic records (e.g., Hu et al., 2016; Willett et al., 2015).

High school performance indicators -- such as overall GPA, math course-taking and GPA, or English course-taking and GPA -- are concrete to measure and relatively easy to gather, and research suggests that adding GPA as a multiple measure helps reduce placement error rates. In a study of a large urban community college system, Scott-Clayton (2012) performed a simulation comparing between two conditions: assigning students using the placement test only, or using the "best of" either the placement test or the student's high school performance. Under the

"best of" criterion, the rate of students referred to developmental education would fall substantially (from 75% to 67% in math, and from 81% to 69% in English) while also reducing the placement error (by 2 percentage points in math and by 5 percentage points in English). Around the same time, Long Beach City College (LBCC) began adding high school performance measures to its placement algorithm, which increased college-level placement from 14% to 59% in English, and from 9% to 31% in math. In Fall 2012, LBCC students who were placed into college-level coursework using multiple measures had slightly lower but statistically similar pass rates to those who placed into the same courses based on the exam score alone (62% versus 64% in English, and 51% versus 55% in math). Accordingly, the implementation of multiple measures strongly increased the overall proportion of entering LBCC students who completed college-level math and English, with particularly large gains for Black and Hispanic students (LBCC, 2014).

High school GPA may be a helpful addition to placement exam scores because it helps to capture non-cognitive attributes, such as academic motivation, help-seeking, class attendance, and timely homework completion (Scott-Clayton et al., 2014; Bowen, Chingos, & McPherson, 2009). Because high school records may be more difficult to access among older returning students, researchers are also examining the validity of self-reported high school GPA (Kuncel, Credé, & Thomas, 2005; Willett et al., 2015). More specific measures of non-cognitive readiness may also have some predictive power over and above GPA. For example, in a pilot study of ETS' "Success Navigator" non-cognitive test, which used data from over 4000 students at seven colleges, researchers found that placement exam scores alone explained approximately 8% of students' performance in their first college-level English course; adding high school GPA explained an additional 6%, and adding Success Navigator scores explained yet another 3% (parallel numbers for math were 2%, 7%, and 2%).[1]

Instead of or in addition to high school performance and non-cognitive tests, some colleges also take into account the student's own judgment about which course type or level is right for them. Given the limited amount of information available, students' own self-assessment – particularly when that assessment is guided by a discussion with an advisor or faculty member – may represent a valuable data point (Edgecombe, Jaggars, Xu, & Barragan, 2014; Hodara et al., 2012; Jaggars, Hodara, Cho, & Xu, 2015; Royer & Gilles, 1998). Questions remain about the efficacy of self-placement, particularly whether students with low academic confidence may be inclined to self-place lower than the level that is appropriate. However, a well-developed self-placement process that includes multiple measures of student competency and a strong counseling component may prompt productive student self-reflection on areas of strength and need (Felder, Finney, & Kirst, 2007).

Lowering Cutoff Scores In her study of a large urban community college system, Scott-Clayton (2012) suggested that most colleges' cutoff scores were too high. Her

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[1]It is unclear whether this additional explanatory power would remain if students were aware of how their self-reported non-cognitive test scores would be used.

simulations found that, although allowing all "marginal" students (those scoring a few points above or below the cutoff) into the relevant college-level course would lower each course's pass rate (a 7 percentage point drop in the proportion passing English with a C or better and 4 point drop in math), the policy would also result in a strong net gain in the number of students completing each course with a C or better in their first semester (from 18% to 64% in English and from 17% to 52% in math).

While colleges are loath to lower their college-ready cutoff scores for fear that they would be perceived as lowering their standards (Hodara et al., 2012), recent state policies have forced some colleges to lower or waive placement standards. For example, in 2014, the state of Florida enacted legislation making developmental education optional for recent high school graduates attending community college. During the first year of the reform, more students immediately enrolled in gatekeeper courses (an increase from the previous fall of about 11 percentage points in both English and math) while pass rates in these courses dropped slightly (about 2 percentage points in English and 7 percentage points in math), resulting a slight net increase in the overall likelihood of successfully completing the given course in the first semester (an increase of about 7 percentage points in English and 4 points in math, Hu et al., 2016).

Interestingly, exam customizations and multiple-measures approaches may also improve a developmental system's effectiveness simply by allowing more students into college-level courses, in much the same way as lowering the college-ready cutoff score would. For example, when the Virginia community college system implemented a new customized placement exam that was more closely aligned with their own curricula, the new exam allowed many more students to directly enter college-level English and math, while pass rates in English remained unchanged and pass rates in math declined slightly (Kalamkarian et al., 2015; Rodriguez, 2014). As a result, the number of students completing college-level English and math within one year increased by 12 and 10 percentage points, respectively. Similarly, the success of LBCC's multiple-measures system is predicated on the fact that more students are allowed to directly enter college-level courses. Thus, one key question around these reforms is how much of the improvement in course completion is due to a *de facto* lowering of the cutoff score (increasing the proportion of students allowed into college-level coursework), versus how much improvement is due to a change in the *makeup* of students allowed in. That is, would a multiple-measures approach improve course completion if a college held constant the proportion of students allowed in to college-level coursework? A large-scale random-assignment study of multiple measures across seven community colleges in New York is currently underway which may soon shed light on such questions (Reddy, 2016).

10.4.2 Acceleration.

The regression discontinuity studies we discussed earlier suggest that students at any point on the developmental pipeline are not harmed by tackling *slightly more difficult* coursework than their test scores suggest they can handle. Along these lines, many colleges are experimenting with accelerated developmental sequences, which are designed to allow the completion of developmental prerequisites within fewer semesters (Edgecombe, Cormier, et al., 2013; Jaggars, et al., 2015). The most well-known acceleration models include sequence compression, co-requisite developmental education, the I-BEST approach, and math pathways. We will first discuss research on compression and co-requisite models, then address the I-BEST model; we will postpone discussion of math pathways until the subsequent section on revisions to the content of developmental curricula.

Compression and Co-requisite Models In the sequence compression approach, a college combines two or more developmental courses into a single one-semester experience (Edgecombe, Cormier, et al., 2013). For example, rather than requiring two three-credit developmental math courses across two semesters, a college may combine them into a single course. Typically the new combined course requires fewer credits (for example, four credits rather than the original six), because the curriculum is revised to better align with the skills students need to be successful in the relevant college-level course, which often results in the removal of superfluous or repetitive content (Barragan & Cormier, 2013; Bragg & Barnett, 2008; Edgecombe, Cormier, et., 2013, Edgecombe, Jaggars, et al., 2013; Hern & Snell, 2013). While the compression approach pairs two developmental courses together, the co-requisite approach pairs a college-level course together with either a developmental course or another formally-required learning support, such as tutoring. The developmental course or learning support is tailored specifically to help the student gain and practice the skills needed to be successful with the college-level work the student is simultaneously attempting.

During the first wave of developmental reform, a variety of compression and co-requisite pilot programs appeared, and initial descriptive studies suggested very positive results (Edgecombe, 2011). Such studies compared small samples of accelerated students to peers who began in the traditional sequence, but did not measure pre-existing differences between the two groups, nor control for such differences in their analysis (e.g., Adams et al., 2009; Bragg, Baker & Puryear, 2010; Hern, 2011). However, their positive results provided the impetus for further development and scaling of the programs, and a subsequent study of the co-requisite writing Accelerated Learning Program (ALP) took advantage of larger sample sizes to perform a more rigorous analysis of one-year outcomes (Jenkins, Peroni, Belfield, Jaggars, & Edgecombe, 2010). That study's positive results encouraged a flowering of the acceleration movement across the early 2010s; these included the creation of a nationwide network of colleges implementing the ALP approach as well as the

prominence of the California Acceleration Project (CAP), a statewide network of colleges implementing developmental compression strategies.

Rigorous larger-scale and longer-term studies of ALP, CAP, and other programs confirmed that each had positive results (Cho, Kopko, Jenkins, & Jaggars, 2012; Edgecombe, Jaggars, et al., 2013; Edgecombe, Jaggars, Xu, & Barragan, 2014; Hayward & Willett, 2014). Specifically, each program increased the number of students who entered the relevant gatekeeper course and typically had no impact on pass rates in that course, suggesting that accelerated developmental students were as well-prepared to succeed with college-level work as their peers who had passed the relevant placement exam. Finally, an analysis drew together data from three different acceleration programs in order to compare between their results in a consistent way (Jaggars, et al., 2015). The comparative analysis provided four key takeaways. First, all three programs' effects were concentrated in students' first year of college, and those effects faded slightly over time but still remained strong after three years. Second, results were strongest for the co-requisite program, which enrolled students directly into the gatekeeper course with support; less strong for the program that compressed the sequence into a single developmental course, such that accelerated students enrolled in the gatekeeper course the following semester; and weakest for the program that compressed the sequence from three or four courses into two courses, such that accelerated students still had to wait another semester or two before enrolling in the gatekeeper course. The authors noted that, given the large numbers of developmental students who drop out within the first few semesters of college (e.g., Scott-Clayton & Rodriguez, 2012), the effects of acceleration for students in pre-requisite sequences may be diluted by the time those who remain are able to enroll in gatekeeper courses. Third, the analysis explored the programs' effects among students who scored most poorly on the placement exams and found that the estimated impacts of acceleration were slightly smaller among the low-scoring students than among the higher-scoring students, but these were still positive. Finally, the two acceleration programs with the strongest results also pushed their developmental students to tackle rigorous college-level work and provided "just in time" support as students struggled to meet those expectations. Contrasting these strong positive results to the very mild results obtained from shortened sequences that do not provide pedagogical support to tackle college-level tasks (e.g., Hodara & Jaggars, 2014), the comparative analysis concluded that accelerated programs should focus not only on shortening the sequence, but also on re-thinking the content and pedagogy of each program's component courses.

Modularization In an effort to accelerate student progress through developmental mathematics requirements, several states, college systems, and colleges have modularized the content of their developmental math courses (e.g., Ariovich & Walker, 2014; Bickerstaff, Fay & Trimble, 2016; Fain, 2011, 2013; Fay, 2017). In a modularized system, math courses are divided into modules (often offered at one credit each). Colleges may use a diagnostic assessment to determine the modules each student needs versus those in which the student is already proficient. In some cases, students pursuing different programs of study are required to take different

modules, thus tailoring their developmental requirements to their future coursework. For example, students pursuing a STEM degree may need to demonstrate proficiency in more modules than do students in Liberal Arts. A common feature of modular redesign is the use of instructional software to deliver math content. In what is often called "the emporium model," students work on modules independently using software, while instructional personnel are available to provide individual assistance, as needed. This approach is thought to deliver a more personalized learning experience for students, in particular when software provides customized feedback (Twigg, 1999; Wong, 2013). Colleges adopting a modular approach may set strict proficiency standards; for example, students may need to repeat module content until they meet a particular benchmark score. This "mastery learning" approach is designed to ensure that students exiting the modules have fully mastered the mathematics content (Bailey et al., 2015; Bickerstaff et al., 2016).

Descriptive analysis of modularization has found that when paired with a diagnostic placement instrument, the system can reduce the number of developmental math credit hours students are required to take, thus creating opportunities for students to proceed more quickly into college-level math (Bickerstaff, Fay & Trimble, 2016). However, while some individual students do move more quickly, others move more slowly. On average, students appear to make slow and limited progress through modularized math structures, in part because of attrition and in part because the system places more responsibility on students for self-regulation, time management, and self-directed learning -- behaviors that many developmental students struggle with (Bickerstaff, Fay & Trimble, 2016; Fay, 2017).

I-BEST As we noted earlier, a growing literature suggests that *contextualization* – teaching basic skills in the context of disciplinary content -- could help heighten students' intrinsic motivation and ability to transfer learning (Perin, 2011). The Integrated Basic Education and Skills Training (I-BEST) program, which originated in Washington State's community and technical college system, represents a combination of developmental acceleration and contextualization. I-BEST is designed for "basic skills students," which consist of adults who are interested in a specific career-technical education program but have scored extremely poorly on placement exams (Wachen, Jenkins, & Van Noy, 2011).

The seeds of I-BEST were planted in 2004 when the Washington State community college system funded a variety of pilot programs testing different approaches to increasing basic skills students' rate of advancement into college-level occupational programs. Particularly promising results came from a model in which career-technical faculty worked together with basic skills instructors to jointly design and team-teach courses. Rather than enrolling in developmental courses, students learned developmental material in the context of solving applied and relevant problems in their occupational field of interest while earning college credit. Based on the pilot model's positive results, the state system created a formal funding model to support the development of new courses and a requirement of 50% overlap between the two instructors in the classroom. By 2009, there were 140 I-BEST

programs operating across the state's 34 community and technical colleges, with the bulk of programs focusing on health care; education; clerical work and office management; and manufacturing, construction, repair, or transportation (Wachen et al., 2011). Most I-BEST course sequences are only a few months in length. Students who complete only the I-BEST coursework typically earn a certificate providing them with a slight advantage in the local labor market, but most programs encourage students to persist toward longer-term certificates, associate degrees, or bachelor's degrees (Wachen et al., 2011).

An initial study of I-BEST used propensity score matching to compare I-BEST students to basic skills students enrolled in traditional career-technical education courses; overall, I-BEST students showed stronger increases in basic skills test scores and were more likely than the traditional group to earn an award (Jenkins, Zeidenberg, & Kienzl, 2009). A subsequent study took advantage of variations in the timing of I-BEST adoption across Washington State's community and technical colleges, using a difference-in-difference approach to compare "program" pre-post differences (among colleges which implemented I-BEST) to "control" pre-post difference (among colleges who did not implement I-BEST in the same time period). Results showed that adopting I-BEST led to a 10 percentage-point increase in the likelihood of earning college-level credits and a 7 percentage-point increase in the likelihood of earning a certificate within three years among basic skills occupational students (Zeidenberg, Cho, & Jenkins, 2010).

Unlike compression and co-requisite programs, however, I-BEST programs have had difficulty scaling up due to their costs and target population. First, compared to traditional programs, I-BEST programs cost the college approximately $1600 more for the same number of credits taught to the same number of students (Wachen et al., 2012). While the higher number of awards among I-BEST students balances the program's additional costs, resulting in approximately the same cost per award, the up-front program costs are difficult for some colleges to manage. Second, I-BEST programs can only recruit and serve students who have decided to pursue a particular career field. Students who are "undecided" – who have no clear sense of the academic area or eventual career they wish to pursue – may not benefit from integrated basic skills and college-level instruction in a given program area. If basic skills are contextualized to a program or career in which the student has little interest, then the contextualization may neither heighten the student's intrinsic motivation to learn, nor help the student transfer the knowledge to an area of interest. Moreover, the student may earn credits in an area that will not apply to their eventual choice of degree. Accordingly, the I-BEST approach, while highly respected, has not spread with the intensity and speed of compression and co-requisite developmental education.

Overall, acceleration strategies (including compressed developmental sequences, co-requisite developmental education, and I-BEST) have positive results, with the strongest results accruing to those that allow students directly into college-level courses while supporting their success in those courses. It is logical to hypothesize that acceleration strategies have the strongest positive impact among students who are incorrectly assigned to developmental education due to placement test

inaccuracy (see Jaggars, et al., 2015; Scott-Clayton & Rodriguez, 2012). Accordingly, if a college were to employ a multiple-measures placement approach that strongly improved placement accuracy, the college might observe weaker effects for its developmental acceleration program than would a similar institution with high rates of placement inaccuracy.

10.4.3   Reforms to Curriculum and Pedagogy

Many first- and second-wave reform efforts focused on changing course structures and policies with limited attention to curriculum and pedagogy within developmental courses. While individual instructors may have made changes to instruction as a result of changes to placement policies or accelerated course structures, few early developmental reforms had an explicit focus on improving instruction on a large scale (Edgecombe, Cormier, et al., 2013). The California Acceleration Project (CAP) and I-BEST are notable exceptions. However, several other prominent second-wave reforms also have a strong focus on curricular and instructional improvement. We first discuss the evidence base underlying these efforts, and then turn to three specific programs: math pathways, integrated reading and writing approaches, and CUNY Start.

Research on instruction in developmental education is largely descriptive, with very few studies meeting rigorous standards of evidence for establishing the efficacy of particular approaches (Hodara, 2011; Perin, 2013). Because redesigned curricula and pedagogy often go hand-in-hand with structural reforms, it can be difficult to disentangle the impact of the course structure from impact of the instruction. Moreover, studies of instruction tend to be highly contextualized, so the field is in need of larger-scale coordinated efforts to understand "what works, when, for whom, and under what sets of circumstances" (Bryk, Gomez & Grunow, 2010). However, taking the current evidence base on developmental education instruction research together with research on high-quality teaching and learning in the broader postsecondary field (e.g., Ambrose et al., 2010; Kember & Gow, 1994), one can discern a few key trends.

First, empirical studies show positive outcomes associated with contextualizing or integrating developmental math or literacy skills instruction into disciplinary content (e.g., Caverly, Nicholson & Radcliffe, 2004; Shore, Shore & Boggs, 2004). For example, Perin, Bork, Peverly, Mason, and Vaselewski (2012) found that students who practiced summarizing using a biology-focused text showed greater gains in their summarization skills than students who practiced using a generic text that addressed many topics. The I-BEST program, described above, is an example of an effort to address students' literacy and math needs in the context of their program of study.

In addition to contextualization, research suggests the benefits of explicitly developing students' metacognitive skills. Students with strong metacognitive skills understand the ways of knowing, thinking, and learning in the discipline. They can

employ effective learning strategies, including study skills and self-regulatory behaviors, to be successful. For example, in one developmental math intervention, students received explicit guidance on self-regulatory strategies and completed a structured reflection on each quiz problem they got wrong. Students in developmental math courses taught using these strategies had higher pass rates and higher scores on a standardized math assessment than those enrolled in comparison group sections (Hudesman, et al., 2013). Other studies have shown similar gains in performance among students in developmental math and English courses with a focus on metacognitive strategies (e.g., Bol, Campbell, Perez & Yen, 2015; Blake, Mrkich, Sancak-Marusa, Philippakos & MacArthur, 2016; Nash-Ditzel, 2010).

In mathematics, there is evidence that a conceptually-oriented curriculum can improve student outcomes (Richland, Stigler & Holyoak, 2012). For example, students in a redesigned intermediate algebra course that featured collaborative problem-based learning were more likely to be successful in the subsequent college-level course (Goldstein, Burke, Getz & Kennedy, 2011). At Montgomery County Community College in Pennsylvania, the lowest scoring students are placed into an arithmetic course known as "Concepts of Numbers" that is not organized according to topics (i.e., fractions, ratios, equations), but according to concepts. For example, in the unit on addition, students add whole numbers, fractions, decimals, percents, and variables. The teaching guide and curricular materials are designed to promote "discovery learning" rather than the typical demonstration-practice cycle. A study of over 500 students found that those enrolled in "Concepts" had higher pass rates and lower rates of failure and withdrawal than students enrolled in traditional arithmetic sections (Bickerstaff, Lontz, Cormier & Xu, 2014).

Overall, research on postsecondary instruction points to the effectiveness of instructional approaches that are explicitly designed to foster conceptual understanding, draw connections across topics, meet high performance expectations, and understand when and how the skills students are learning can be applied (Kember & Gow, 1994). Building on this evidence and the personal experiences of faculty within the CAP network, Hern and Snell (2013) identified five principles for designing curriculum and pedagogy in accelerated developmental courses:

1. *Backward design from college-level courses*. Rather than replicating the traditional high school curriculum, faculty design developmental curricula to support students' efforts to complete rigorous college-level tasks. As Hern and Snell (2013) explain, "a developmental [English] course should look and feel like a good, standard college English course, only with more support and guidance" (p. 7).
2. *A relevant, thinking-oriented curriculum*. Rather than focus on "correctness in written form or mathematical procedure," faculty ask students to "engage with issues that matter, wrestle with open-ended problems... and reach and defend their own conclusions" (Hern & Snell, p. 7).
3. *Just-in-time remediation*. Rather than teaching a litany of preparatory skills prior to students tackling a college-level task, faculty observe where students need help

in order to complete the task successfully, and provide targeted help (which may include teaching a relevant preparatory skill) at that time.

4. *Low-stakes, collaborative practice.* Faculty provide students with ungraded in-class opportunities to practice the types of skills that will later be graded.

5. *Intentional support for students' affective needs.* Rather than exempting themselves from the responsibility of dealing with students' "non-cognitive" academic deficits (such as academic anxiety or lack of academic motivation), faculty explicitly tackle and work on improving these issues within the context of the course.

These five principles have permeated much of the discussion around instructional reform within the developmental education field, and their echoes are apparent in several of the reforms discussed below.

Math Pathways The traditional developmental math sequence is comprised of algebra-based courses designed to lead students to college algebra and eventually calculus. But many college students are enrolled in programs of study that do not require calculus. As such, there are increasing efforts to use "backward design" principles to create developmental math curricula that appropriately prepare students for college-level mathematics courses such as Quantitative Reasoning or Statistics. Math pathways are characterized as being more contextualized, in that they are more relevant to students' programs of study, although the in-class instruction may or may not be implemented in a contextualized fashion. Pathways are also characterized as being more accelerated than traditional models. Most pathways are designed to allow students to complete one developmental and one credit-bearing course within one academic year -- which may or may not represent acceleration, depending on how the college restricts entry into the pathway. While some colleges require students to demonstrate a certain level of readiness (often, in arithmetic) prior to entry into the pathway, others are "open access," allowing students with any math placement score to enter.

The Carnegie Foundation's Statway and Quantway pathways represent perhaps the best-known example of the math pathways approach (Hoang, Huang, Sulcer, & Yesilyurt, 2017). Within each pathway, students enroll in a year-long program that replaces the college's developmental algebra sequence as well as a college-level statistics or quantitative reasoning course. Curriculum and instruction is focused on building students' conceptual understanding through the study of real-world problems (Clyburn, 2013). In addition, instructors support students to develop "tenacity and strategies to persist despite challenges" (Silva & White, 2013). Specifically, instructors work to support students to develop a belief that struggle, challenge, and effort are a valuable part of the learning process. This approach is strongly influenced by Carol Dweck's (2006) notion of a "growth mindset." Rigorous analysis of Statway suggests that these students were three times as likely to complete college-level math in one year as their similar peers were in two years (Yamada & Bryk, 2016). Preliminary analyses of longer-term outcomes suggest that Quantway and Statway students are more likely to earn a credential and more likely to transfer,

as compared to the general population of community college students (Norman, 2017). Subgroup analyses indicated that the program's benefits were strong not only for students who would normally be placed one level below college-level math, but also for those who would normally be placed two levels below.

Similar math pathways have been implemented by other groups, including CAP in California and the Dana Center Mathways Project (DCMP) in Texas and other states. In addition to their intrinsic curricular redesign, math pathways typically include some type of pedagogical reform effort. Earlier, we discussed the five principles that undergird all of CAP's efforts; rigorous analyses show that CAP's statistics pathway effects are at least as strong as those of the Carnegie program (Hayward & Willett, 2014). Similarly, DCMP math courses include a stronger focus on collaborative learning approaches, the use of real datasets, and the contextualization of math problems in real-life situations; and in many colleges, the program includes a paired three-credit course that focuses on how to be a successful student in math specifically and in college more generally. A large-scale random-assignment study of DCMP is under way, and results from the first semester of implementation – which included only the developmental and not the college-level portion of the pathway – show stronger pass rates for students in the DCMP version of the developmental course (Rutschow, Diamond, & Serna-Wallender, 2017).

However, not all math pathways incorporate an explicit focus on pedagogy. In a recent large-scale study within the City University of New York (CUNY) system, researchers focused on students who were placed into remedial elementary algebra, and randomly assigned them to one of three math courses: the regular remedial elementary algebra course; that course with support workshops; or college-level statistics with support workshops (Logue, Watanabe-Rose, & Douglas, 2016). Support workshops were fairly traditional in their approach: Students spent 10–-15 minutes reflecting on what they had found difficult in class, did approximately 100 minutes of individual and group work on those topics, and then spent 5 minutes in wrap-up reflection. Researchers evaluated the rates at which students passed the math course to which they were assigned, and the statistics group was 16 percentage points more likely to pass compared to the traditional elementary algebra group, and 11 points more likely compared to the elementary algebra with workshop group. It is not clear if the positive effect of statistics assignment was due to the co-requisite "mainstreaming" structure, to the change in curricular content from algebra to statistics, or to both; but the results suggested that many students do not need to complete a lengthy developmental algebra sequence in order to succeed in college-level statistics.

Integrated Reading and Writing One popular developmental education reform strategy gaining traction nationally is integrated reading and writing. Many colleges and states are doing away with separate academic departments for reading and writing in favor of integrating the subjects into one academic literacy course or course sequence. Integrating reading and writing typically results in fewer prerequisite courses and thus a quicker path to college-level coursework. Integrated courses align with research, largely conducted in K-12 settings, which show the connections

between reading and writing processes, and specifically how learning one skillset influences the development of the other (Fitzgerald & Shanahan, 2000; Santa & Høien, 1999).

Studies indicate that integrated reading and writing reforms result in increased student success. Research on Chabot College's integrated course suggests the efficacy of integrating reading and writing to deliver a more rigorous and contextualized instructional experience (Edgecombe et al., 2014). Students in developmental courses at Chabot perform the same college-level literacy tasks as their peers in college-level English, albeit with additional instructional support. They read complex, full-length texts that are representative of reading assignments they are likely to encounter in college, and they write academic essays synthesizing and responding to those texts. The English department's pedagogical philosophy emphasizes the kinds of scaffolding and support that can help students succeed on these tasks.

Goen and Gillotte-Tropp (2003) found that students in their integrated developmental course had stronger course outcomes and better performance on assessment measures relative to peers in stand-alone reading and writing courses. In another study, students who had been enrolled in an integrated course performed better in college composition than students who had taken traditional developmental English or reading (Kuehner, 2017). In nine CAP colleges that implemented redesigned developmental sequences, most of which both eliminated course levels and integrated reading and writing courses, students who enrolled in redesigned sequences were more likely than their peers in traditional courses to enroll in and complete college-level English within one year (Hayward & Willett, 2014). However, it is unclear whether these positive effects are due to acceleration, curricular integration of reading and writing, or both.

CUNY Start CUNY Start is a pre-matriculation program operating at eight colleges at the City University of New York (CUNY). The program was originally designed specifically to meet the needs of students coming from adult basic education or GED programs, although now any student with a referral to developmental education is eligible. To participate, students defer enrollment into the college for one semester so that they can focus on their remediation requirements. Full-time students attend CUNY Start for 25 hours a week—approximately 12.5 hours a week for math and 12.5 for an integrated reading and writing class. At some colleges, students can enroll in a part-time program in one content area for 12.5 hours per week. The program also includes a weekly college success seminar taught by a CUNY Start advisor. Students do not pay tuition or use financial aid to enroll in the program; there is a flat fee of $75 for the semester.

CUNY Start's instructional time stands in sharp comparison to typical developmental courses, which usually run between three to six hours a week, and the program's intensive advisement and embedded tutoring distinguish it from many traditional developmental education programs. However, perhaps what is most unique is the program's highly structured curriculum and pedagogy. Instructors undergo a semester of intensive training in the program's curriculum and

instructional method before taking on their own class (Scrivener & Logue, 2016). The mathematics curriculum is designed so that students are positioned as active participants in developing mathematical ideas with a goal of developing students' understanding of math concepts. This occurs through the use of non-routine problems, student discussion, real-life applications, and instructor questioning (Hinds, 2011). The integrated reading and writing curriculum employs an approach called "cognitive apprenticeship," in which instructors model reading and writing practices as well as scaffold learning so that students gradually take on more responsibility for literacy tasks. Student discussion and teacher questioning are essential to the reading and writing curriculum as well (Scrivener & Logue, 2016).

An internal evaluation found that CUNY Start students were less likely than students in traditional developmental education to accrue 20 credits within a year of college application (this result is to be expected, given the students' delayed matriculation). Nevertheless, they were more likely to pass college-level math and English within two years, were almost twice as likely to graduate within 3 years, and more than twice as likely to graduate with a GPA of 3.0 or higher within 3 years (Allen, 2015).

10.5 The Gathering Third Wave of Reform

As the evidence base on the effectiveness of various reform efforts has accumulated, two conclusions have become increasingly clear. First, it is often difficult to scale effective reforms across the entire population of students who can benefit from them. And second, even if currently-popular evidence-based reforms were scaled to every student who can benefit, they would be insufficient to substantially improve the degree completion rates of developmental students. Accordingly, we have very recently seen the beginnings of a third wave of developmental reform that is tied up with the larger "guided pathways" reform movement.

10.5.1 Limits to Current Reform Approaches

The Difficulty of Scaling Colleges who implement pilot versions of popular reforms such as math pathways and co-requisite education typically show positive outcomes for the initial cohorts of students involved, yet they find it difficult to scale the model to the majority of developmental students at that college (Jaggars, et al., 2015; Quint et al., 2013). In their study of colleges that successfully scaled up developmental reform programs, Edgecombe, Cormier et al. (2013, Edgecombe, Jaggars et al. 2013) found that such programs need to be "structurally, financially, and culturally institutionalized" (p. 17). For example, pilot planning and implementation needs to involve a broad base of faculty, rather than just a small group of reform-minded faculty, and implementation plans must incorporate a durable and

collaborative faculty professional development infrastructure (Edgecombe, Cormier, et al., 2013, Grubb, 2012; Rutschow & Schneider, 2011).

In order to overcome the challenges of scaling, some state legislatures and education systems such as those in Connecticut, Florida, and Tennessee have recently taken matters into their own hands by requiring public colleges to eliminate developmental placement testing, convert all developmental education into a co-requisite approach, or limit developmental placement and coursework to only a small subset of the incoming student population. Such top-down directives may result in weak implementation and a variety of unintended consequences; however, they have aroused the attention of colleges across the country, who are now more motivated to design and scale up developmental reform on their own terms rather than at the behest of a relatively uninformed state-level actor. To encourage and assist individual colleges in these efforts, many state higher education systems are now providing financial grants or incentives, as well as technical assistance, to colleges experimenting with developmental reform and scaling.

The Difficulty of Moving Graduation Rates   State-level organizations, as well as individual colleges, have been most interested in reforms that provide immediate and easily-measurable positive impacts on introductory college-level math and English enrollments and pass rates: multiple-measures placement, developmental acceleration (especially the co-requisite approach), and math pathways. However, colleges that introduced these reforms several years ago have not shown marked increases in their graduation rates. This is not surprising, given that the baseline graduation rates of developmental students are extremely low. For example, among students who were placement-tested at one large urban community college system, 17% never enrolled in college, and 64% had dropped out within three years. The typical developmental student was enrolled for only 3.2 semesters over three years, and completed approximately 7 remedial and 22 college-level credits within that time (Scott-Clayton & Rodriguez, 2012). These dismal numbers suggest that developmental students face a variety of challenges which cannot be solved simply by increasing college-level math and English completion.

One major challenge for students is achieving academic success in key introductory disciplinary courses. For example, courses such as Western Civilization, Biology I, Introductory Business, Principles of Accounting, and Beginning Spanish can be even larger "stumbling blocks" for students than introductory math and English (Zeidenberg, Jenkins, & Scott, 2012). Some colleges restrict entry into disciplinary courses until students complete developmental education, based on the logic that the math and English skills built in developmental coursework will help students succeed in other courses. Yet it is not clear that developmental courses build the *type* of reading, writing, and quantitative skills necessary for success in disciplinary coursework. For example, developmental and introductory college-level English typically focus on essay composition rather than on reading and writing skills critical to disciplinary courses, such as identifying key ideas, assessing an argument, or writing research papers (Cox, 2009). The developmental learning

community approach popularized during the first wave of reform represented one effort to address this problem. However, that approach typically suffered from weak implementation, which may have contributed to its mild results; learning communities are also difficult to scale up due to inherent logistical challenges such as course scheduling (Edgecombe, Cormier, et al., 2013, Edgecombe, Jaggars, et al., 2013; Visher et al., 2012).

In addition to their isolation from disciplinary courses, popular reforms often pay little attention to pedagogy. Among the popular reforms that do emphasize pedagogy, all are focused on enhancing instruction within the developmental portion of the curriculum rather than within introductory college-level courses. Yet popular reforms also allow larger numbers of students to enroll directly into college-level courses, making the courses more heterogeneous and more difficult to teach (Jaggars & Hodara, 2013). Thus, effective reform of developmental education will require improvements in strategies for teaching introductory college-level courses so they can be effective for students at a wide variety of levels of preparation.

In general, positive benefits of reforms that focus only on one segment of a student's experience tend to fade as the student returns to the traditional, un-reformed systems of the college (e.g., Barnett et al., 2012; Bickerstaff et al., 2014; Karp, 2011; Visher et al., 2012). Together with the current base of evidence on popular reforms such as multiple-measures assessment, math pathways, and co-requisite remediation, this observation suggests that the wide-scale implementation of these developmental reforms will strongly increase student completion of college-level math and English, but it will only have a mild impact on colleges' overall graduation rates (Bailey et al., 2015).

10.5.2   Comprehensive Reform Models

In 2016, the Institute for Education Sciences convened an expert panel to review findings from rigorous research on developmental education and develop recommendations for practitioners (Bailey et al., 2016). The panel produced six recommendations:

1. Use multiple measures to assess postsecondary readiness and place students
2. Require or incentivize regular participation in enhanced advising
3. Offer students performance-based monetary incentives
4. Compress or mainstream developmental education with course redesign
5. Teach students how to become self-regulated learners
6. Implement comprehensive, integrated, and long-lasting support programs

Notably, three of these recommendations are not directly related to developmental education course structure or instruction. Instead, recommendations 2, 3 and 6 speak to the need to create comprehensive student supports that extend both beyond the classroom and beyond their time in developmental education.

Recognizing that a more comprehensive approach will be necessary to substantially improve the graduation rates of underprepared students, the City University of New York is at the forefront of experimentation with comprehensive developmental reform. Not only did they develop the START model described earlier in this chapter, but they also pioneered the Accelerated Study in Associate Programs (ASAP) program. Designed for low-income students with one or more developmental needs, the program provides dedicated advising and tutoring, a student success course, blocked or linked courses, and financial support (tied to student participation in key program services) for up to three years, while requiring students to attend full-time. A recent random-assignment study of the program found that the program nearly doubled graduation rates (Scrivener et al., 2015). In view of these very positive results, the ASAP program is being scaled up to 25,000 students across the CUNY system and has also spread to three community colleges in Ohio (*New York Daily News,* October 16, 2015; Sommo & Ratledge, 2016).

At the same time, other colleges have been experimenting with how to integrate developmental education into the larger movement of "guided pathways" reform, which is focused on helping students choose, successfully enter, and progress through a program of study (Bailey et al., 2015). The guided pathways agenda for underprepared students was jointly articulated by six leading organizations in the national movement to reform developmental education through the 2015 manifesto *Core Principles for Transforming Remediation within a Comprehensive Student Success Strategy*. These organizations argued that colleges should stop treating developmental education as a set of stand-alone learning activities that replicate the high school curriculum and occur prior to a student's entry into a program. Rather, developmental education should consist of a set of activities that are integrated with, and serve as supports for, the student's concurrent college-level learning in courses relevant to the student's program of study.

The primary barrier to implementing guided pathways reforms for underprepared students are the facts that most incoming students are unclear about their desired academic or career goals, and that many college faculty believe students should take time to sample various courses in order to solidify their interests and goals (Bailey, Jaggars, & Jenkins, 2015). Given this context, it has traditionally seemed sensible to funnel all students into the same remedial curriculum, preparing every student for courses in any and all program areas. However, a broad base of evidence from both higher education and behavioral economics suggests that this approach is counterproductive for the typical student who is undecided on a program of study (Scott-Clayton, 2011). In order to find a balance between exploration and early decision-making for undecided developmental students, some colleges are now experimenting with two quite different models: "program streams" (also known as "exploratory majors" or "meta-majors") and a fresh approach to common curricula.

Under the program stream model, colleges design several broad but distinct areas of study. New students compare between a small set of clearly-described streams, and they choose the one that most closely matches their interests and nascent goals. Embedded within each stream are a variety of majors that share a common set of first-semester requirements. For example, a social and behavioral sciences exploration program might be appropriate for students interested in cultural studies,

anthropology, communications, geography, political science, public administration, psychology, or sociology. For students placed at the college level, the common first-semester curriculum might include freshman composition, quantitative reasoning, a signature seminar course that explores a key social issue from the perspective of multiple social and behavioral sciences, and the student's choice of language requirement. A wide variety of colleges across the country have adopted this basic meta-major framework; however, many meta-majors are not explicitly designed to support the success of academically-underprepared entrants (Jenkins, Lahr, & Fink, 2017). In order to do so, meta-majors may also need to design co-requisite developmental curricula that are structured to help students to succeed in their first set of college-level courses, to explore careers or specific academic fields within the stream, and to build general metacognitive and "college knowledge" skills. Extending on the social and behavioral sciences meta-major example above, for students who are not college-ready, the language course might be replaced with a required support course that helps students build the skills they need to succeed in the other three courses, while building motivation and study skills. The signature seminar course might also include one or more assignments in which all students explore and critically compare the type of work they might perform across different social and behavioral science careers. For students with extremely poor literacy or quantitative skills, the college might build an ASAP or I-BEST type of on-ramp into each meta-major. The program stream approach to developmental education is relatively new. Accordingly, while the approach seems to have promising short-term results, thus far the evidence is only anecdotal, and it remains to be seen whether the approach can substantially improve graduation rates among underprepared students (Jenkins, Lahr, & Fink, 2017).

In contrast to the program stream approach, which designs a common first-semester curriculum within each exploratory major (with some variations for the student's level of readiness), the common curriculum approach designs a common first-semester or first-year curriculum regardless of the student's potential major (and sometimes, regardless of their level of readiness). The common curriculum approach may be most appropriate for colleges that have a relatively homogenous base of students: the primary example in the open-access postsecondary setting is CUNY's Guttman Community College, which has a student body that is highly diverse in terms of ethnicity, but is relatively homogeneous in that most are young, academically underprepared, lower-income students who are interested in attending college full-time. Guttman opened in 2012 with five programs of study, each of which were closely tied to the New York City area's high-demand career areas as well as to transfer opportunities within the CUNY system (Weinbaum, Rodriguez, & Bauer-Maglin, 2013). Regardless of the student's area of interest or level of college readiness, all Guttman students enroll in the same curriculum during their first fall and spring terms.[2] In the fall, students enroll in statistics, "Ethnographies of Work I,"

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[2]The college's term structure includes a 12-week first session and 6-week second session within each fall and spring term. The second session allows flexibility for students to catch up or speed up, according to their current performance and future goals. For more details on the first-semester curriculum, see http://guttman.cuny.edu/academics/first-year-experience/

and "City Seminar I." The 4.5-credit ethnography course focuses on the meaning and experience of work across varied career fields, including 3 college-level credits and 1.5 credits of college success skills as well as academic program exploration and selection. The 10.5-credit City Seminar analyzes critical issues in New York City's urban environment, and includes 3 college-level credits, 3 developmental credits in reading and writing, 3 developmental credits in quantitative reasoning, and 1.5 hours of structured group study. In the spring, students enroll in a similar curriculum (Composition I, Ethnographies of Work II, and City Seminar II). Importantly, the developmental credits are designed to scaffold students' success with the literacy and quantitative tasks required in their concurrent college-level courses (Weinbaum et al., 2013). The college's graduation rates are currently double those of the typical community college, and three times as high as urban community colleges with comparable populations (Bailey et al., 2015; Butrymowicz, 2016).

10.6   Conclusion and Future Directions

Across the past decade, developmental education research and reform have been closely entwined, allowing for a fast-paced environment of innovation and the scaling-up of new and effective practices. As a result, colleges now have a long menu of evidence-based developmental reforms from which they can choose in order to create a comprehensive and integrated set of curricular, pedagogical, and support strategies that are tailored to the unique needs of their own college's developmental student population.

Yet quite a few gaps remain in terms of the evidence. In particular, the quality of evidence on curricular and pedagogical reform in developmental education remains limited, as such reforms often accompany structural changes but are rarely the explicit focus of implementation or evaluation. Accordingly, researchers need to focus more strongly on investigating instructional approaches that work well, as well as on documenting faculty professional development models that support the success of these approaches. In addition, research has paid little attention to students who score at the lowest levels of developmental placement exams, and thus it is unclear which reform approaches might serve these students best (for example, a co-requisite model, an I-BEST model, or a CUNY START type of approach?). Finally, research suggests that the most popular reform models (including multiple measures assessment and placement, math pathways, and the co-requisite approach) will indeed improve students' rate of success in college-level math and English, but they are unlikely to substantially improve graduation rates. Accordingly, further research is needed to rigorously evaluate student learning and long-term outcomes under more "comprehensive" reforms to developmental education (such as ASAP, program streams, and the Guttman-style common curriculum model), as well as to diagnose implementation challenges that may stand in the way of scaling them up to all students who could benefit from them.

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Chapter 11
Reimagining Organizational Theory for the Critical Study of Higher Education

Leslie D. Gonzales, Dana Kanhai, and Kayon Hall

11.1 Introduction

All around the world, postsecondary education is framed as a pathway to socioeconomic mobility for individuals as well as for local and national economies (Florida, 2005; Marginson, 2016). This promise, however, has a troublesome history, particularly in the U.S. For example, a critical historical reading of U.S. higher education[1] reveals that it is an institution implicated in stratification and human oppression. Whether one focuses on colonialism and the fact that early colleges were built on stolen Native land (Dunbar-Ortiz, 2014), the tie between early U.S. colleges and the institution of slavery (Wilder, 2013), or the formal and informal ways that higher education privileges white patriarchal and middle class cultures (Cabrera, 2014; Inwood & Martin, 2008; Yosso, 2006), it is clear that the institution of postsecondary education in the U.S. was not built to serve *all*.

These historical shortcomings persist in contemporary U.S. higher education. For example, although the U.S. hosts one of the most expansive systems of higher education in the world, it is a system mired in individualism, competition, reproduction, and a hyper-capitalism that is bent towards a statist agenda (Rivera, 2016; Shahjahan & Kezar, 2013). As a competitive and individually focused system, it tends towards stratification, where the most vulnerable student populations are often siphoned into institutional types (e.g., community colleges, comprehensive

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[1]Owing to the experience and knowledge base of two of the three authors of this chapter, our contribution is largely based on U.S. post-secondary education. However, when possible, and when it makes sense, we refer to or draw from examples set in other countries.

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universities) that have fewer curricular, human, and support resources while the most privileged, wealthiest, and often predominantly white students access well resourced institutions (Bastedo & Gumport, 2003; Brennan & Naidoo, 2008; Schneider & Deane, 2015). Furthermore, research shows that it is typical for vulnerable student populations to take longer to graduate (Gladieux & Perna, 2005), to experience institutional and symbolic violence (Bourdieu, 1977; Muñoz & Vigil, under review) along the way, and/or to leave college without a degree altogether (Chen & DesJardins, 2010). Just consider how the safety of undocumented and international students came under severe threat with the election of Donald J. Trump, or how pleas for representation and inclusion among students of color, non-gender conforming, and gay students have gone ignored or only tacitly acknowledged, leading to a resurgence of student activism, including hunger strikes and building occupations (Carson, 2014; Keene, 2016; Nicolazzo, Renn, & Quaye, 2017; Pasque, Khader, & Stil, 2017; Wilson & Curnow, 2013). When non-dominant students are forced to take up such labor, it means they are doing the work that organizations have failed to do, often at the cost of their academic, mental, and emotional well-being (Curwen, Song, & Gordon, 2015).

Higher education's unkempt promises manifest in other ways as well. Specifically, over the last 30 years, managerial tactics have resulted in major shifts in the constitution of the academic profession. Whereas most college and university professors used to be hired into tenurable lines, the majority of today's college and university professors work in non-tenure-track, contingent, and part-time positions (Kezar & Maxey, 2016; Kwiek & Antonowicz, 2015; Rhoades & Olave-Torres, 2015). Furthermore, although there is evidence of this hiring trend across all types of colleges and universities, community colleges and comprehensive universities—institutions that are more likely to enroll working class, students of color, or otherwise non-traditional students—are particularly prone to this approach to hiring (Schneider & Deane, 2015; Finkelstein, 2006). Research suggests that there are numerous consequences related to such shifts in the academic profession. For one, contingent (especially part-time) faculty members have inconsistent access to health benefits and livable salaries (Campaign for the Future of Higher Education, 2015). And, it is important to point out that although almost all new hires are contingent laborers, a historical analysis of faculty demography shows that racial and ethnically minoritized people, and often women of color, have long been over-represented in contingent positions (Finkelstein, Conley, & Schuster, 2016). Moreover, because contingent faculty members are paid so poorly, they very frequently teach at multiple campuses, meaning they do not have a home campus and are often not able to be as available to students as they might like and as students might need. As the academic profession has been chipped away, this has meant that students do not have consistent access to the faculty who teach their classes and that these faculty often do not have access to the resources they need to carry out their work. Thus, the most underrepresented and marginalized faculty and student groups are likely to be affected by the adjunctification of the profession.

And yet, despite its historical and persistent shortcomings, U.S. higher education (and higher education, more broadly) remains an institution where new possibilities seems to always be within reach. Even the most critically inclined scholars tend to look for cracks in the structure and culture of higher education, imagining where big and small acts of subversion may yield change (see Collins, 1986; hooks, 1994). For example, writing about the possibility of transformation of the academy, hooks noted:

> The academy is not paradise. But learning is a place where paradise can be created. The classroom with all its limitations remains a location of possibility. In that field of possibility we have the opportunity to labour for freedom, to demand of ourselves and our comrades, an openness of mind and heart that allows us to face reality even as we collectively imagine ways to move beyond boundaries, to transgress. (p. 207)

In this chapter, we take hooks' powerful and cautiously optimistic note seriously in that we imagine colleges and universities as sites where diverse people and communities might come together to foster a social world committed to justice. However, to be such a transformative site, practitioners, researchers, and leadership must be able to re-envision higher education as *more than* a place where people come to be credentialed and graduated, *more than* a place where faculty and staff simply process programs and grants just as they process students. Indeed, to make this transition, practitioners, researchers, and leadership must embrace lenses that are radically different than those that have historically framed and guided the work of colleges and universities.

There are many potential lenses that one might use to re-envision and remake higher education. We suggest that, if reimagined, **organizational theories** provide a particularly powerful entry point for such transformative work. We focus organizational theories as a potential way forward because higher education and educational leadership graduate students often take at least one or two organizational and/or leadership theory courses during their course work (Pasque & Carducci, 2015), meaning graduate students are exposed to organizational theory and thinking early on in their studies. In these courses, students probably learn that organizational theories represent robust and diverse ways to conceptualize, think about, and study entities, as a whole. However, more importantly, these future higher education researchers and practitioners are often advised of organizational theory's utility for conceptualizing or framing the problems and topics that they will face as actors within higher education organizations.

We also suggest that organizational theory is a powerful entry point for transformative work because it takes entire entities (rather than individuals or departments, for example) as the central units of analysis, and is concerned with analyzing such entities holistically (Peterson, 2007). In the case of higher education, organizational researchers generally study a variety of issues (e.g., student success initiatives, student affairs programming, employee morale, funding patterns), but always do so by foregrounding organizational contexts and conditions. For instance, a higher education researcher might be interested in exploring graduate student education, but do so through an organizational level lens, as

Gardner (2010) did when she explored how the organizational culture shaped the experience of doctoral students at one institution (also see Marin & Pereschica, forthcoming). Another scholar, also interested in graduate education, might examine how organizational conditions allow graduate students to engage in interdisciplinary collaborations (Gardner, Jansujwicz, Hutchins, Cline, & Levesque, 2014).

Alternatively, a researcher might use particular organizational theories to consider how to encourage faculty buy-in for a new initiative (Harris, 2010; Hartnell, Kinicki, Lambert, Fugate, & Doyle Corner, 2016; Kezar, 2012). Another scholar interested in academic labor might wonder how to foster faculty members' commitments to their home institution while supporting, or balancing, the need to support the external connectivity and reputation of scholars (Gouldner, 1957, 1958; Niehaus & O'Meara, 2015; O'Meara, Rivera, Kuvaeva, & Corrigan, 2017; van Knippenberg & Sleebos, 2006). All in all, organizational theories help higher education researchers study problems through a lens that emphasizes the college or university context—both internal and external—rather than approaching problems as if they arise in vacuous spaces, or within individuals (Gumport, 2012).

Despite the robust power and multiple angles afforded by organizational theories, their use in higher education research has declined in recent years, especially among scholars who proclaim a commitment to social justice and equity. Bastedo (2012) wrote, "the study of organizational topics is in sharp decline, owing largely to a lack of perceived connection between organization theory and major contemporary concerns in higher education" (p. 5). Elaborating further, Bastedo reflected, "scholars of higher education [who are] interested in access, equity, and social justice often fail to see the usefulness of organization theory...on the other hand, scholars of organization theory see themselves as disconnected from the rest of the field" (p. 5). Pasque and Carducci (2015) picked up Bastedo's commentary and noted not only the seeming gap between organizational theory and social justice, but also noted that most applications of organizational theory in higher education scholarship fail to interrogate or revise the assumptions inscribed in organizational theory (also see Manning, 2013; Pasque & Lechuga, 2017).

Our handbook chapter builds on the work of Bastedo (2012) and Pasque and Carducci (2015). Like Bastedo, we highlight the merits of organizational theory (e.g., its interdisciplinarity, its robustness, its diverse lenses). Like Pasque and Carducci, we recognize the limitations of organizational theory as it is typically applied and practiced in higher education organizational research (e.g., its individualist, often top-down conception of leadership; its lack of grounding for assessing organizations, whose charge is fundamentally different than economic and technical markets). However, while Bastedo (2012) urged scholars to reconsider the utility of organizational theory in its most familiar forms and Pasque and Carducci provided methodological pathways for critical organizational research, our specific aim is to reimagine familiar organizational theories by infusing them with insights and

commitments drawn from the critical paradigm[2] (Burrell & Morgan, 1979). As such, a significant portion of this chapter synthesizes well-known organizational theories and presents them as four distinct schools of thought. This synthesis may be particularly helpful to individuals who are new to organizational theory, or as a refresher to those who are interested in the history or evolution of organizational theory. However, the heart of our work lies in the reimagined rendition of organizational theories and may be particularly attractive to those committed to critical higher education organizational research, administration, and practice. To illustrate the potential of organizational theory, in both its familiar and reimagined forms, we consider how each school of thought and their reimagined rendition allows a researcher, leader, and/or practitioner to address a specific issue. These issues include: labor in/justice, intersectional justice, reparative justice, and epistemic justice. Each presents an example of the historical and persistent failure for higher education to serve all. Our application of both familiar and reimagined organizational perspectives appears in the third section of this chapter, and might be particularly helpful for scholars who are interested in developing a view of organizational theory that is deeply grounded in a higher education issue and its respective literature. As a preview, we describe our four selected issues below:

- **Labor justice** deals not only with the fact that the academic profession has been so severely deprofessionalized that the same professors who teach college students by day may also face homelessness at night (Sanchez, 2013), but it also deals with the fact that colleges and universities have come to exploit the emotional labor of faculty members (as well as student affairs professionals) by playing on the passions and commitments often held by these laborers (see Gonzales & Ayers, 2018; Grandey, Rupp, & Brice, 2015). Moreover, it is important to note that while such labor injustices touch the majority of higher education employees (faculty and student affairs staff), they render particularly distinct and disparate effects on and for women and people of color (Ahmed, 2017; Finkelstein et al., 2016; Wong, 2007; Zambrana, Harvey, Wingfiled, Lapeyrouse, & Dávila, 2016), which leads to our second issue: **intersectional justice**.
- The Intercommunity Justice and Peace Center (2017) notes that "oppression is complex and multifaceted. Individuals experiencing one injustice may also be experiencing another injustice at the same time," which means that any effort at

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[2]We choose to use the language critical paradigm, but want to note that others use labels like critical theory or critical tradition. Our use of "critical paradigm" is informed by Burrell & Morgan's (1979/2006) definition, in which they state that paradigms are "very basic meta-theoretical assumptions which underwrite the frame of reference, mode of theorizing, and modus operandi of the social theorists who operate within them. It is a term, which is intended to emphasize the commonality of perspective which binds the work of a group of theorists together in such a way that they can be usefully regarded as approaching social theory within the bounds of the same problematic. This definition does not imply complete unity of thought. Instead, it allows for the fact that within the context of any given paradigm there will be much debate between theorists, who adopt different standpoints." (p. 23).

justice must be intersectional. Years of research confirms the need for **intersectional justice** for multiple marginalized or minoritized people in academia. For example, scholars have shown that minoritized women, LGBT and Trans* people of color, who serve in the role of faculty, staff, or administration not only engage in the typical work of higher education, but do so with the added burden of moving through, or running up against organizational practices and policies that are deeply invested in whiteness, patriarchy, and nativism (Acker, 1990; Ahmed, 2012, 2017; Baez, 2000; Bourdieu, 2001; Cabrera, 2014; Inwood & Martin, 2008; Keene, 2016; Smith, 1987; Yosso, Parker, Solórzano, Lynn, 2004). When it comes to investments in whiteness, colleges and universities cannot erase or deny the roles that they have played in colonial nation-building, which brings us to our third issue: **reparative justice**.

- **Reparative justice** is when "a state, or individuals or group, repair the consequences of violations—either because it directly committed them or failed to prevent them" (International Center for Transitional Justice, 2017). Applied in a higher education organizational context, reparative justice requires one to think about colleges and universities as tools of colonization, and to prioritize repatriations to communities whose lives have forever been altered in the name of building a college, or perhaps more to the point, building a nation (Harkavy, 2006; Marullo & Edwards, 2000; Tuck & Yang, 2012; Wilder, 2013). By presenting this issue, we follow the work of Native and Indigenous scholars (Brayboy, 2013, Keene, 2016; Lipe, 2014; Reyes, 2017; Tuck & Gaztambide-Fernández, 2013; Tuck & Yang, 2012), and point out U.S. higher education's historical and continual intertwinement with colonialism and neocolonialism.
- Fourth and finally, we address the issue of **epistemic injustice** (Frank, 2013; Gonzales, 2015a). Connected to the marginalization of non-dominant groups and tied to the colonial and neoliberal relations in which colleges and universities fully participate, are narrow rules as to whom and what has come to be valued as knowers and knowledge. Such narrow rules—evinced in hiring and tenure and promotion guidelines—often operate under the guise of disciplinary expertise and professional notions of "fit," but the material consequences are felt disparately by marginalized individuals, including people of color, LGBT communities, and working class people as well as scholars whose work reflects critical and non-conventional approaches (Arnold, Crawford, Khalifa, 2016; Collins, 1986; Dotson, 2012; Gonzales & Terosky, 2016; Gonzales & Waugaman, 2017; Lamont, 2012).

We want to stress that these are not the only issues deserving of attention. However, given the recent context of U.S. (e.g., violence against People of Color, the Key Stone Pipeline, the appointment of Betsy Devos; the stripping of tenure in Wisconsin; the direness of adjuncts), the issues we have highlighted are, in our mind, warranted. In selecting four recent issues, we aim to offer concrete scenarios that are accessible and relevant to current and future higher education leaders and researchers. However, and perhaps most importantly, we want to call attention to the kinds of issues that organizational theory rarely addresses. In other words, rather

than perpetuate the assumption that organizational theory is only used to advanced status quo and elitist agendas, we show how it can be reimagined for justice.

11.1.1 Chapter Organization

In the next section (Sect. 11.2), we provide a condensed overview of organizational theory in the form of four schools of thought[3]: (1) scientific management; (2) organizational behavior; (3) environmental perspectives; and (4) organizational culture. This overview is followed by a discussion of the critical paradigm. Readers might consider Sect. 11.2 as a primer for Sect. 11.3. Section 11.3 provides a much more in-depth discussion of each school of thought and features citations of seminal papers that contributed to the formation of organizational theory in its familiar forms. After introducing each school of thought, we deconstruct each and reimagine them as we draw from the critical paradigm. However, it is key to note that, in reimagining conventional organizational theories, we also attempt to leverage and reappropriate any utility that the original theories may provide. Thus, we compare how the conventional and reimagined school of thought allows higher education leaders and leadership and researchers to think about colleges and universities specifically in relation to one of the justice issues noted above. Since Sect. 11.3 contains extensive narrative, we present image-enhanced summaries for each school of thought to break up the text. The final section, Sect. 11.4 features our reflections, a disussion on the limitations of our work, and suggestions for moving critical organizational theory applications forward in higher education research.

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[3]Scholars who are familiar with the development of the academic disciplines may find that the four schools of organizational theory, as we have constructed them, align quite well with the evolution of the academic disciplines. We have not stressed this connection, or pointed out how the formation of various schools of organizational theory was influenced by their attachments to distinct academic disciplines. However, such analyses would also offer valuable future contributions, and scholars may want to explore the literature that addresses the ecology of the academic disciplines (Fourcade & Khurana, 2013) and disciplinary boundaries or interdisciplinarity (Jacobs, 2013).

[4]It is necessary to note that our discussion of organizational theory reflects a western, or more specifically, a U.S.-based perspective, meaning most of the studies and writers that we cite, especially for the conventional discussion, are drawn from the U.S. context. We state this because we want to stress that our writing reflects our own academic background and experience, rather than a "correct" discussion of organizational theory.

11.2 An Orientation to Organizational Theory and the Critical Theory Paradigm

The purpose of this section is to provide a brief overview of four major schools of thought within organizational theory and the critical paradigm that we use to reimagine organizational theory. Because organizational theory and the critical paradigm entail centuries worth of work and development, our discussion cannot address all the nuances within these bodies of work. Instead, this section is intended to prime readers for the argument that we develop over the course of this chapter.[4]

11.2.1 Organizational Theory

Organizational theory explicitly focuses on organizations in all of their diverse structural arrangements, their cultural traditions and norms, and their ability to survive and thrive under variable environmental conditions (Fligstein, 2001). Bess and Dee (2008) suggest that organizational theory "comprises a body of knowledge about *how and why* organizations function" (p. 467). We agree with Bess and Dee, but note that although an organizational theorist's overriding concern is the organization, this does not preclude them from being interested in questions related to human perspectives, experiences, or interactions. Indeed, people's behaviors and perspectives are very often the entry point for understanding organizations.

Certainly, it is true that such human and interpretive perspectives in organizational theory have not always existed, and that only recently has organizational theory evolved from depicting organizations as machines to framing organizations as impermanent, human collectives that are re-accomplished all the time. Thus, within this broad body of work considered organizational theory, one can find realist conceptions of organizations, interpretive images that stress the human role in building and maintaining organizations, and even poststructural takes on organizations. Accordingly, while some organizational theories focus on structural arrangements and processes, others focus on human interactions and understandings, perhaps stressing the role of leaders or the role of relationships among various subgroups. Still other organizational theories might center on symbolic means, including texts, images, and artifacts, and while some organizational theories focus exclusively on the internal workings of organizations, others direct one's attention to external conditions.

For the purposes of this chapter, we present these diverse organizational theories as four schools of thought. A school of thought can be understood as "a set of ideas or opinions about a matter that are shared by a group of people" (Cambridge-Dictionary, online version). In this way, readers might want to consider organizational theory as a broad umbrella whose overarching concern is organization and organizational matters. However, situated underneath the organizational theory

umbrella are unique ideas and opinions that focus the theorist's attention in certain ways, on certain means, and for certain purposes (Stern & Barley, 1996).

We start with the earliest wave of organizational theory, which we refer to as scientific management (Fayol, 1949; Taylor, 1919). Theories within this school of thought were primarily concerned with managing and designing organizations in order to maximize efficiency and productivity. These approaches strived to minimize the role of humans, human agency, and human emotion in organizations by implementing tight controls and well-defined processes. For all of these reasons, scientific management can be understood as internally focused.

Organizational leaders and social scientists came to realize that scientific management had significant shortcomings, which largely stemmed from the attempt to drown out any and all human elements. As a result, organizational theorists developed an eclectic school of thought that we refer to as organizational behavior. Organizational behavior, as we define it, is a school of thought that elevates the role of humans, human interactions, and human's experiences as ways of understanding organizational performance (Follett, 1926; Merton, 1957; Roethlisberger, 1941). Just like scientific management theories, the early iterations of organizational behavior conceptualized the organization as a closed system, while elevating concerns like human satisfaction and human relationships. Contemporary iterations of organizational behavior acknowledge the external environment for the influence it has on individuals and individual dispositions (Fugate & Kinicki, 2016).

In some ways, organizational behavior theories primed the next evolution of organizational theorists to consider multiple and dynamic influences on organizations. Around the 1950s, organizational theorists became enthralled with the idea that organizational behavior could not be understood, nor performance maximized, if researchers and leadership neglected the various environments in which an organization was embedded (Meyer & Rowan, 1977; Salancik & Pfeffer, 1978; Scott, 1983; Selznick, 1957). This turn in organizational theory, which we call open-systems, or the environmental school of thought, emphasized system level thinking and strategic management.

Finally, whereas the environmental school of thought pushed leaders to recognize the influence of external stakeholders, other theorists returned again to study the inner-workings of organizations. However, rather than restrict their focus on roles and process, this vein of theory stressed the importance of symbolic acts and practices. We refer to this as the organizational culture school of thought. Organizational culture traditions consider how tacit but powerful norms, values, and traditions shape organizational decision-making and prioritizing. Having introduced the four schools of organizational theory that we will be working with throughout the rest of this chapter, we now describe the critical paradigm, which we draw on to reimagine organizational theory.

11.2.2   The Critical Paradigm

If societies have always found ways to organize, then there have always been people creating rules and managing such organizational schemas. Understanding how societies are organized, who gets to make those decisions, how they are maintained, and exposing who benefits is the critical paradigm's most pressing concern (Allan, 2011; Freire, 1970/2000; hooks, 1994; Martínez-Alemán, 2015; Zald, 2002). Said otherwise, the critical paradigm, which we rely on to reimagine the various schools of organizational thought noted above, is best described as a range of theories whose central aim is to critique, interrogate, and transform any system implicated in the oppression of humans. However, other than their fundamental commitment to critique and dismantle oppressive systems and situations, it is quite difficult to pin the critical paradigm to just one definition. Jermier (1998) explained that the critical paradigm is such a broad umbrella that within it, scholars often take up positions and perspectives that seem irreconcilable. Still, Jermier suggested that all iterations of critical theory seem to be based on the following insights and commitments: (1) that there are misuses of power in society; (2) that these misuses of power lead to mistreatment of some individuals and groups, (3) that there is a need for utopian thinking as a form of resistance, and (4) that researchers must align social science with the interests of the mistreated (see p. 236).

Most writers trace the beginning of the critical paradigm to the work of Hegel, Marx and the Frankfurt School (Burrell & Morgan, 1979/2006; Martínez-Alemán, 2015) and include in it work as diverse as feminism, critical race theories, poststructuralism, postmodernism, and postcolonialism (see Allan, 2011 Guba & Lincoln, 1994; Lather, 1992; Prasad & Stablein, 2012). According to Martínez-Alemán (2015): "Marxists, feminists, gender and queer theorists, structuralists and post-structuralists all utilize critical theory to identify and locate the ways in which societies produce and preserve specific inequalities through social, cultural, and economic systems" (p. 8). We begin our discussion of the critical paradigm by introducing Hegel and emphasizing Marx. We emphasize Marxian thought because of its commitment to human emancipation, and the assumption that progress often unfolds through a confrontation of competing interests and ideas that feed a revision of systems and practice. However, we recognize how Marxian thought's alignment with modernity is problematic as it over-simplistically embraced the notion that society slowly, smartly, and universally progresses forward. To this point, the comforts of progress for some have risen from the oppression, attempted erasure, and displacement of others.

Both Hegel and Marx suggested that society and the human condition could be understood through a set of exchanges or arguments that they termed as the dialectical process. For Hegel, the dialectical process was ideational, or subjective. Human progress, according to Hegel, was contingent on one having a thesis (e.g., a belief, a commitment), confronting a rebuttal or an anti-thesis, and eventually arriving at a compromise or a new thesis, after dealing with tensions between the original and rebuttal thesis. In other words, Hegel believed that progress might be

made through the constant battle and re-visioning of ideas. Hegel did not move his argument or thinking towards a material analysis, which leads to Marx.

In comparison to Hegel, Marx's dialectical process was based on a clash between classes, and based on material conditions. Although Marx's work can be understood as structural or materialist, he was very much driven by a concern for the human spirit and condition. Simply put, Marx critiqued the capitalist modes of production, in which capitalists owned the material necessary for production and competition in a capitalist economy and laborers' only resource was their labor.

Different from Hegel, Marx was convinced that the only way to improve the human condition was through material (not subjective) realities and conflicts. Marx's ultimate hope was that society would progressively move towards (and achieve) an arrangement where humans could capitalize on their *species being*: the unique human ability that humans have to create. Marx argued that when people are no longer able to control their creative process, they are alienated from the very essence of their humanity. This element of Marx's work is particularly relevant to our thinking about higher education, as it touches upon labor, labor conditions, and being able to control one's labor process. On the whole, we borrow and return to two key ideas from Marx throughout this chapter: (1) that change comes through a dialectical process involving both ideas and material—an assumption that challenges the functionalist commitments inherent in much of organizational theory (Kezar & Dee, 2011; Pasque & Carducci, 2015) and (2) the realization that organizations as workplaces are sites of human interaction, seeded in historical relations, and should offer people the opportunity to capitalize on their species being.

It is important to note that there was an ideational element to Marx's work, in that he stressed people come to know the world and make sense of the world through ideas advanced by the ruling class. This element of Marx's work provided significant impetus for the Frankfurt School's critical theory approach (Burrell & Morgan, 1979/2006), which influences a great deal of our thinking in this chapter. The Frankfurt School, which included scholars like Adorno, Habermas and Horkheimer, was deeply concerned with inequities and injustices, but employed a more cultural or interpretive lens than that of structural Marxism. In other words, the Frankfurt School shed light on the importance of symbols, language, and the idea that knowledge in itself is a resource of power. Moreover, Frankfurt scholars stressed that knowledge is never neutral—that it is tacitly passed along (and normalized) through various kinds of exchanges. To this point, the Frankfurt School proceeded on and provided two assumptions that we draw from throughout our writing: (1) knowledge claims are never value-free and are always marked by larger societal context, and one's position in that context (also see Freire, 1970/2000) and (2) the most taken-for-granted and seemingly mundane convention is deserving of interrogation, including how we understand organizations, or the taken-for-granted nature of organizations.

Critical feminist, critical race feminist, intersectional, and Indigenous scholarship has pushed on the critical paradigm from multiple directions in order to spotlight the implications of existing in white imperialist and patriarchal capitalist society (hooks, 2015) as a non-dominant person—whether one is a minoritized brown body, a gay or working class person, an immigrant person, or a non-gender conforming person (Anzaldúa, 1999; Brayboy, 2013; Brayboy, Solyom, Castagno, 2015; Carson, 2014;

Chang, 2011; Collins, 1986; Crenshaw, 1991, 2016; hooks, 2015; Muñoz & Maldonado, 2012; Prasad & Stablein, 2012; Wing, 2003). A central aim of critical race, critical race feminist, and Indigenous, as well as post- or anti-colonial work is to expose how structural and cultural arrangements result in distinct and disparate experiences and outcomes for people who are not in the majority (e.g., people of color, women, non-binary, queer, or working class). Scholars who work in this vein show how powerful institutions, like the state, the courts, schools, and the labor market privilege white, masculine, and western-centric ways of being and "presenting." Indeed, scholars working in these areas also often aim to create space for multiple forms of knowledge and knowledge claims (Collins, 1986; Delgado Bernal, Burciaga, & Carmona, 2012; Dotson, 2012) and share "counter-narratives" (Delgado & Stefancic, 2012) or "oppositional knowledge" (Collins, 1986) to highlight how non-dominant groups live, thrive, and survive in the face of structural and cultural marginalization. We continuously draw on these commit-ments as we reimagine organizational theory in this chapter.

Whereas critical theory started with structural theories like Marxism, it eventually evolved to include interpretive and eventually anti-foundationalist perspectives, like post-structuralism and postmodernism (Lather, 1992; Martínez-Alemán, 2015). Post-perspectives elicit a skeptical view of the world and urge one to consider how power is not only located in material and structural conditions, but also disbursed through communicative and symbolic means and always with material conse-quences. Thus, post-structuralism interrogates how text, talk, and symbols come together to form taken-for-granted concepts, such as "gender" or "immigrant," or in the specific case of higher education, "prestige" and "excellence." We revisit the notion that power is lodged in the texts and artifacts that organizations use to bring their organizations to life on a daily basis, and with very real material consequences.

Different from post-structuralism, the aims of postcolonial, decolonial, or anti-colonial thought[5] add to the critical paradigm in important ways. Post-colonial thought challenges the modernist thrust located in Marxist theory, which the Frank-furt School carried on as well. In this way, post-colonialism rejects the promise of modernity as it is often cast as an outcome of Western creations (e.g., Western science, bureaucracy, time use) and imposed on people around the world through imperial tactics. To this point, Prasad and Stablein (2012) noted:

> . . .although postcolonialism does draw upon the resources of. . . . Marxism or post-structuralism to critique cultural and structural reproduction manifest in political and eco-nomic arrangements, it also repeatedly deviates from them in highly creative and significant ways (p. 15).

Thus, postcolonial and decolonial thought are included as part of the critical paradigm because each interrogates and deconstructs in the name of human

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[5]Post-colonialism accounts for the effects of colonialism, whereas anti-colonialism challenges the notion that colonization has ended. Decolonial or decolonization centers Indigenous peoples and the repatriation of their land.

emancipation, but it does so by often decentering Western thought and challenging epistemic imperialism (Shahjahan, 2013).

In sum, the critical paradigm, as we have constructed it for the purposes of this chapter, furnishes powerful ideas, commitments, and values that we use to reimagine organizational theory. For one, whereas most organizational theories are intended to "manage" an entity, critical theories question the implications of managerial tactics that fail to understand workplaces as sites of human activity, aspiration, and potential. Moreover, whereas most organizational theories treat organizations as neutral sites, or strive to neutralize the human element of organizations, theories within the critical paradigm see the necessity in recognizing the human element, and particularly how humans are positioned differently in society. Additionally, whereas organizational theories can and do consider the views and experiences of people, most organizational theories do not conceptualize those views and experiences of people as indicators of the human condition, but merely as entry points for producing better organizational results. And finally, whereas most organizational theories elevate one leader and their singular ability to control and interpret information in strategic ways, critical theories embrace diverse knowledges experiences for the purpose of making justice-driven transformation. Indeed, before moving forward, it is timely to point out that we refer to leaders and leadership in at least two ways. First, when communicating conventional organizational theories, especially the first three schools of thought, leadership is often operationalized according to positional leadership. In reimagining organizational theory through the critical paradigm and in conjunction with the specific theories that we rely on to animate the critical paradigm, we tend to lean towards collective, distributed notion of leadership/leader (Kezar, 2000). This is because the critical paradigm compels one to recognize that leadership comes from everywhere and that people throughout an organization and a community can make valuable contributions despite their position (Kezar, 2000; Ospina & Foldy, 2009; Santamaría & Santmaría, 2012). Having laid out several key ideas and commitments from the critical paradigm, we now set out to fully discuss and reimagine each school of thought.

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[6]It is important to note that each school of thought could be reimagined in many ways if one leverages the critical paradigm in its fullest scope. However, to advance a concrete argument, we reimagine conventional organizational traditions by leveraging the critical paradigm in very specific ways. Specifically, we chose to leverage the critical paradigm in ways that allowed us to show commonalities or potential points of convergences between the organizational and critical perspective.

[7]Other scholars have used classical, rational, modernist, or managerialism to describe the set of theories we describe here (see Kezar, 2011; Morgan, 2006; Tierney, 1987).

11.3   Reviewing and Reimagining Organizational Theories

This section—the heart of this chapter—includes four sub-sections. In each subsection, we describe and then reimagine each school of thought.[6] Then, we conclude each subsection by applying the conventional and reimagined renditions of the organizational theory to one of the issues introduced earlier in the chapter (e.g., labor justice, intersectional justice, reparative justice, epistemic justice). To break up the text for each subsection, we have designed one-page summaries that may be helpful to readers as they work through the argument.

11.3.1   Scientific Management School of Thought[7]

We begin our discussion with the scientific management school of thought which foregrounds organizational design, standardization, and the division of labor. Scientific management is perhaps best known via the work of Frederick Taylor. Taylor was an engineer, who studied and designed workplaces for private industry. He viewed organizations with an insider's view which led him to conceptualize organizations as closed systems focused on the internal workings. In this way, Taylor believed that organizations worked through top-down approaches—leaders set goals and employees or laborers simply followed. Taylor suggested that if organizational managers designed the correct structures and processes, human influences and proclivities for error could be neutralized.

Given its focus on control and design, the scientific management school of thought is also highly focused on management or managerial roles. Henri Fayol's (1949) work is particularly central to how scientific management conceptualizes organizations and organizational leadership. Fayol held that management's most important responsibility was to articulate organizational rules, roles, and to uphold those rules and roles in a consistent fashion. Fayol outlined 14 distinct principles for formal leaders stressing that leaders must ensure a clear division of labor so that employees understand their expectations. Fayol noted that disciplinary systems were important instruments to ensure employee understanding and compliance. It might be difficult to imagine how Taylor or Fayol's approach would work in a college or university setting but Weber's work illustrates how such ideas came to influence complex organizations including those where people had a more variable range of discretion and agency.

Specifically, Max Weber (1948) observed that Western organizations seemed to be developing in ways that maintained the controls and structures so valued by Taylor and Fayol but through the use of implicit rules and intricate systems of organizing people. Weber dubbed this new organizational form the "modern organization" or "bureaucracy." He noted that the modern organization was comprised of six characteristics: (1) the division of labor into smaller tasks and more clearly defined roles for improved accountability; (2) a managerial hierarchy or a clear

outline as to how positions were related; (3) formal selection in place of nepotism; (4) career orientation or the idea that one could professionally mobilize; (5) formal written rules over taken for granted norms; and (6) impersonality or detachment from one's work. These six elements worked together to provide a framework to guide employees and managers. Although restrictive, the practice of bureaucracy quickly spread leading Weber to the following reflection:

> Bureaucratization offers above all the optimum possibility for carrying through the principle of specializing administrative functions according to purely objective considerations. Individual performances are allocated to functionaries who have specialized training and who by constant practice increase their expertise. "Objective" discharge of business means a discharge of business according to calculable rules and without regard for persons. (as cited in Appelrouth and Edles, 2008, p. 191)

Weber had not only noticed the form and structures of the modern organization but the approach to management. He noted that historically, authority had rested on three types of legitimacy: (1) tradition; (2) rational/legal bases; or (3) charisma. Traditional authority, according to Weber, was supported by a belief in the "sanctity of immemorial traditions" and was typically passed along through family legacy (e.g, respect for family elders). Charismatic authority was based on the belief in the character of an individual which is unique and involves some level of heroism, mysticism, or magic. However, the modern organization form eschewed both tradition and charisma and instead expected leaders to have some formal, legal, or professional credential (see Scott & Davis, 2007).

The theories that constitute the scientific management school of thought inform common approaches to higher education. For example, higher education's twists on scientific management include "total quality management" and "accountability" or "audit" systems (Deem & Brehony, 2005; Kanji, Malek, & Tambi, 1999; Teelken, 2012). All three of these approaches encourage higher education leaders to delineate and clarify employee roles and expectations to the greatest degree possible so that leaders can measure, award, or penalize employees for their productivity. Designing roles and defining role performance in such ways assumes that humans and context can be neutralized with the right process; that humans do not or should not inform the labor process since they do not hold authority and only have their labor to offer; and that all labor can be measured via objective measures.

11.3.2 Reimagining Scientific Management

Here, we reimagine the scientific management school of thought. Recall that in the introduction we noted that we planned to appropriate any utility from conventional organizational theories and reimagine them for a more just approach to administration. In this case, we want to hold on to the fact that scientific management alerted researchers to the importance of examining roles and processes of the organization because of the very real and inescapable fact that all colleges and universities, especially public ones, are accountable to the larger public. However, in pulling

from the critical paradigm, it is possible to think about organizational workplaces—role designs, processes, and outcomes—in radically different ways.

To reimagine scientific management, we draw from two bodies of work that are firmly situated in the critical paradigm: critical management studies (Spicer, Alvesson, & Karrëman, 2009) and collective leadership (Contractor, DeChurch, Carson, Carter, & Keegan, 2012; Kezar, 2000, 2001). Similar to scientific management, critical management and collective leadership perspectives recognize the importance of leadership and the necessity for organizations to meet their goals. When blended together, these theories can promote a critically informed version of scientific management that keeps organizational roles, goals, and performance in mind while they are defined though collective or shared leadership rather than singular, positional leaders. Next, we unpack and then connect these two theories.

Critical management studies was developed in the United Kingdom in the 1990s. It draws heavily from Marxian thought especially Marx's concern for human emancipation as well as post-modernism and post-structuralism (Spicer et al., 2009). The post-theoretical bent in critical management studies is particularly helpful for deconstructing taken-for-granted organizational norms and conventions such as what constitutes work, leadership, or even professional freedom (Maravelias, 2003). On the whole, critical management offers two insights about organizations. First, it highlights that the rules, policies, and goals that guide an organization are not neutral constructions but represent the interests of the elite. In this way, critical management immediately prompts one to interrogate the rules, policies and goals as they have been defined. From a critical management perspective, one questions, what is the political nature, or who are the winners and losers in relation to said rules, policies, and goals? Second and relatedly, one asks leaders to realize that organizations are not merely places where people work on tasks but spaces where relations of power circulate *between workers*, between *workers and leaders*, and *between workers and their work*. Guided by a critical management view, a leader understands that the work process as it is shared and distributed among workers is a political situation likely riddled with several tensions and inequities such as when employees are paid differently for the same work. Moreover, inspired by CMS, leaders are forced to ask how the organization's structure and governance process allows people to define their work or to have a stake in their own labor process.

This is where notions of collective leadership become important. Proponents of collective leadership which is sometimes called shared or distributed leadership, suggests that leadership is not the property of one individual but that people throughout an organization have the capacity to contribute and inform the on-goings of the organization (Contractor et al., 2012). Collective leadership, when intentionally paired with critical management, would compel formal leaders to unleash their leadership authority and invite laborers into the process of defining work settings, thinking through organizational goals, and setting performance measures that are not only sensible to the organization's goals but also sensible to the context and conditions of laborers and their labor. This approach to organizing is similar to "worker cooperatives" (Burdin & Dean, 2009) where an organization's "labor force chooses the management and the administrative structure using a

democratic political process" (p. 518) and aligns well with higher education's historic—although declining—approach to shared governance (Bleiklie & Kogan, 2007; Rhoades, 2005; Stensaker & Vabø, 2013).

It is important, in our view, to note that when one pulls these theories together, it is not necessary to fully do away with what has been learned from scientific management. Both critical management and collective leadership recognize the importance of leadership, defining goals and work roles, and ensuring that an organization is achieving its goals. However, these theories challenge the idea that work processes, roles, and goals must be defined in a hierarchal way, and it also challenges the idea that these processes are absent of politics and power. Holding the conventional and reimagined versions in mind, we now consider how they each allows an organization to address the issue of labor justice. Specifically, we highlight the declining status and security of the academic profession as well as gaps in labor experiences and outcomes for tenure-line and non-tenure line faculty who often hold very similar academic qualifications.

Application: Labor Justice and the Academic Profession The academic profession was once constituted by a majority of full-time, tenure-track professors. Although there has always been variation according to states and institutional types, professors were paid a livable salary, received health, life, and retirement benefits, and enjoyed a certain degree of respect and deference due to society's trust in their hard-earned educational credentials and expertise (Finkelstein, Seal, & Schuster, 1998; Bowen & Schuster, 1986). Although it varied, faculty were expected to teach, research, and provide service to their institution and their discipline. The constitution of this role assumed that these activities were complementary and allowed professionals to think about their work and roles through a more holistic lens. After a 7-year review period, faculty had the opportunity to be reviewed for the purposes of promotion and tenure. Tenure, which grants a faculty member a seemingly permanent position—barring any egregious affair—was intended to encourage, even provoke faculty to push the boundaries in their teaching and research by pursuing necessary, perhaps risky, or not well-understood lines of inquiry and knowledge production.

Today's professoriate in the U.S. and across the globe is constituted in radically different ways. Specifically, in the United States, non-tenure line faculty or adjuncts make up about 70% of the academic labor market with part-time faculty comprising about 51% of the academic workforce (Campaign for the Future of Higher Education, 2015). In the United Kingdom, Huisman, de Weert & Bartelse (2002) estimated that "30% of the staff in traditional universities, 40% in former polytechnics, and 95% of contract research staff are employed on temporary contracts" (p. 146). While the situation differs from country to country within the EU, there is generally a high demand from new doctoral graduates for the few new academic positions available in European universities (Kwiek & Antonowicz, 2015). In India where there is a high demand for higher education, there are governmental restrictions for the hiring of permanent full time faculty at universities yielding an established pattern of temporary contract employment (Tilak & Mathew, 2016).

For the most part, in hiring adjuncts, higher education organizations place faculty into positions where they are expected to focus either on teaching or research to streamline or make one's work activity more efficient (Rhoades & Olave-Torres, 2015). In most cases, faculty in research-focused positions which tend to be tenure-lines, earn more and have access to better benefits. Meanwhile in teaching-focused positions which tend to be non-tenure or part-time positions, faculty earn less (CFHE, 2015). Thus, hiring adjunct faculty is not only a way to define roles and streamline work tasks but it a cost-saving move.

When one digs further into these numbers, especially recent data on the U.S. professoriate, which reveals that women of color fill a disproportionate number of part-time, non-tenured faculty member positions (Finkelstein et al., 2016) just as they have since the 1970s, it becomes clear how colleges and universities have become complicit in the (re)production of labor injustice. On the one hand, the inequitable salary differentials as well as the resource and support differentials experienced by these groups of faculty constitute one injustice. On the other hand, basic workload expectations constitute another injustice. Specifically, while tenure-line faculty must handle growing administrative demands, programming, and accountability, contingent faculty, especially those working part-time, must work multiple jobs at multiple institutions to create a livable salary. Additionally, non-tenure-line faculty are usually not incorporated into departmental or institutional service and often lack access to the most basic of professional resources (e.g., offices, ongoing professional development, library access), which leads to sub-par teaching and learning conditions for faculty and students alike (Moorehead, Russell, & Pula, 2015).

Taken together, the academic profession has been unbundled and pulled apart (Bansel, Davies, Gannon, & Linnel, 2008; Gehrke & Kezar, 2015; Lorenz, 2012; Rhoades & Olave-Torres, 2015). From a scientific management perspective, unbundling the faculty role makes sense. Administrators have more control over role definition and can maximize organizational resources—something leaders are particularly sensitive to in today's resource-constrained higher education environment. Further in line with scientific management, when faculty roles are pulled apart, it becomes easier to evaluate (and reward) faculty on the basis of indicators, like the number of courses or students taught, the number of articles published, or the amount of grant money one is awarded. On this note, unbundling assumes that the nature of teaching, research, and service is measurable by number of hours spent, students served, or committees staffed.

However, when insights from critical management and collective leadership are infused into scientific management, different questions and concerns emerge. First, higher education leaders are forced to confront the fact that unbundling is not a neutral economic decision but a decision with the potential to dramatically change the conditions of other people's lives including their livelihood, health, and safety—and so it is a decision that serves some, but not all, or even the majority. Starting from this grounding, a critical management stance would compel positional leaders to ask to what extent they can use their platform to orient the academic hiring and evaluative process towards equity. Because university and college presidents are

expected to present boards with data-based strategic plans, they can reorient the process of academic hiring by highlighting research that illustrates the negative consequences attached to the reliance on adjunct faculty (e.g., slower and lower graduation rates, lower performance in subsequent courses, especially in mathematics (Bettinger & Long, 2005; Umbach, 2007). Empirical research can also be supplemented by student voices and data gathered through institutional research efforts. In these various ways, leadership disposes of the neutrality that scientific management perspectives assign to organizational goals in order to advocate not only a fairer labor process, but better conditions for teaching and learning.

However, the conditions of labor can only be made just if faculty are given an opportunity to further define their work, their roles, and the goals of the organization. When paired together, critical management and collective leadership perspectives compel leaders to eschew the idea that they understand the nature and nuances of faculty work in the ways or to the depths that their faculty do. This is where formal leaders, following collective leadership, invite faculty into the policy making, role designing, and goal setting process in line with the historic convention of shared governance. Rather than create structures and processes that define faculty work and outcomes from the top, formal leaders can ask faculty members to suggest such structures and processes. Faculty members know the nature of teaching, research, and service best, and are best suited to redesign faculty roles and workloads and could inform how such work should be measured (Kezar & Maxey, 2016). Incorporating faculty into such leadership conversations also would represent an opportunity to allow these individuals to redefine the meaning of their work in today's contemporary context.

Even more pragmatically, formal leaders could ask both tenure-track and adjunct faculty to design "base packages" of resources that each person no matter their appointment type, would receive at hiring. The goal of such base packages would be to position all faculty to feel supported and encouraged in their work (e.g., email, access to institutional library and online resources, parking permits, office space with dependable technology, basic benefits). Designing such base packages is especially important for adjunct faculty who make less and who tend to be women of color who already face persistent salary inequities throughout their careers (Finkelstein et al., 2016).

Taken together, a reimagined version of scientific management compels formal leadership to consider that although some practices and policies have become normalized, such as hiring adjunct faculty, they are not necessarily sound or just, nor are they neutral just because they are organizational goals. Instead, as we have shown here, when universities unbundle the academic profession, labor injustice has followed. If and when leaders are willing to share leadership by asking faculty to define roles, work processes, and articulate viable goals and necessary resources in light of the very real constraints that public universities are facing, labor justice seems more possible.

Section Summary

Scientific management proposes a closed-systems perspective and is concerned with aligning the internal functions of the organizations such that leaders, managers and workers know and adhere to the mission of the organization. As a school of thought it foregrounds control, stability, and assumes that an organization's rational and linear structure is both neutral and progressive. In this chapter, we reimagined scientific management with critical management and collective leadership approaches. Like scientific management, both of these perspectives understand and accept the need to produce and demonstrate outcomes, but each asks how leaders can structure organizations in order to have laborers inform role designs and labor processes. Critical management recognizes that there are power structures within organizations and therefore neutrality in goals, policies and procedures cannot be assumed. Critical management studies suggests humanizing the organization leadership's central task. Collective leadership further challenges the notion of formal or hierarchical leadership and posits that anyone within an organization can have a say in outlining its affairs. A reimagined version of scientific management brings into focus how organizational systems can be unjust, counterproductive, or even specious. Scientific management reimagined with critical management studies and collective leadership requires the humanization of organizational systems while keeping in mind organizational goals and targets (Fig. 11.1).

11.3.3 Organizational Behavior School of Thought[8]

Here, we present a school of thought that we call organizational behavior. The theories in this school of thought are sometimes associated with the human relations or the human resource movement. Although organizational behavior represents an eclectic school of thought but on the whole, its consistently focused on the intersection of individuals with one another, individuals and groups, and individuals in relation the organization writ large (Fugate & Kinicki, 2016). Organizational behavior theorists believe that organizations perform better when the needs and desires of people are being met (Maslow, 1943). Although it may seem like there are parallels between organizational behavior and our reimagined version of scientific management, organizational behavior is particularly attuned to individual and group

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[8]Some writers describe the theories presented in this subsection as "neoclassical" to suggest that they are a direct response to classical or what we termed scientific management perspectives above (Shafritz et al., 2006). We deliberately chose not to center scientific management perspectives and therefore chose not to refer to them as "classic." Some might also suggest that organizational behavior is only limited to the actual practice or organizational behavior techniques (Fugate & Kinicki, 2016), but we have tried to position it as a broader school of thought that includes human behavior perspectives and a concern for human relations.

Key Descriptors and Assumptions

Scientific Management
- Top down alignment
- Organization as a machine
- Role specialization
- Rational
- Efficiency
- Effectiveness

Reimagined Scientific Management
- Radical humanism
- Organization as a human system
- Critical interrogation
- Equity and justice
- Emancipation from oppression
- Management ideologies
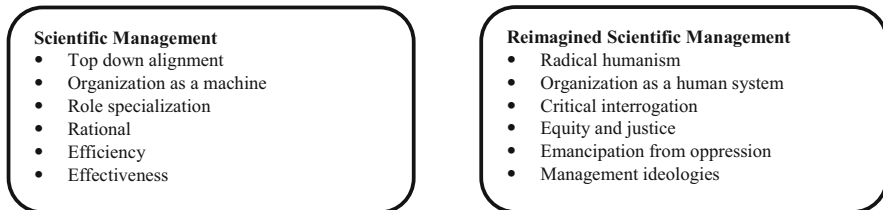
Commonalities between Scientific Management and Reimagined Scientific Management

- Roles, processes, structures
- Quantifiable conditions (efficiency, productivity, profit)
- Assumption that formal and tangible organizational structures and systems can be designed and controlled to impact human and organizational performance in desired ways

Typical Questions

- What are the best ways to organize faculty to ensure high productivity and efficiency?
- What is the return on investment on grant-writing professional development workshops for faculty?

- How can we learn from faculty how to best organize their work?
- How are work arrangements supporting or suppressing faculty's ability to develop their professional identity and to function fully at work?

Fig. 11.1 Conventional and reimagined versions of scientific management

dynamics. Additionally, the aims of organizational behavior theory are always quite strategic, in that, organizational behavior seeks to elevate human needs and relations to improve organizational performance rather than as a way to foster the full humanity of people or to ensure that the organizational work place is a site of justice. In this way, organizational behavior operates from a more transactional than transformational logic.

Like scientific management and early organizational theory, in general, organizational behavior stresses the role of formal leaders but in this school of thought, leaders should serve, model, and inspire rather than manage, enforce, and discipline. Writers like Chester Barnard (1938) argued that organizational success was contingent on a leader's ability to create a vision, communicate that vision, and help people understand how each one of them is a part of that vision, and thus connected to one another. A distinguishing feature of Barnard's writing was the realization that organizations are collections of humans with variable interests and strengths that a leader might leverage to achieve organizational ends. In this way, although organizational behavior elevates a singular leader at the top of a hierarchy, the leader's work is much more relational than the leader idealized in Taylor's work. Barnard's influence is evident in leadership-member exchange, transformational, servant leadership theories (Bass, 1990; Mahoney, 2002; Jones, LeFoe, Harvey, & Garland,

2012; Sergiovanni, 1990; Vasillopulos & Denney, 2013), which are often highlighted in education administration courses (Marion & Gonzales, 2013; Pasque & Carducci, 2015). In different ways, these theories lead a researcher to account for how a leader's presence and approach encourage organizational member commitment or shape employee morale.

While Barnard stressed a leader's relational role, Mary Parker Follett (1926) suggested that performance could be boosted through wide-spread not only top-down human relations. Thus, Follett urged leaders to nurture democratic approaches to governance, to build relationships with employees, and most importantly, to help them build relationships with one another. Follett's work is often described as democratic because she encouraged leaders to learn from their employees in order to improve work processes. Finally, Follett argued that instructions given in authoritative and domineering ways by supervisors increases the distance between supervisors and employees and makes employees less likely to commit to their work and their organization. Follet's work was quite revolutionary at the time. She elevated the importance of human relations, stressed the importance of learning from employees, and sought to flatten the organization in ways that now seem quite popular. In higher education, scholars have drawn from Follett in studies concerning organizational commitment and job satisfaction (see Daly & Dee, 2006; O'Meara et al., 2017).

Theories focused on human decision-making represent a slightly different dimension in the organizational behavior school of thought. Whereas some perspectives stress relational aspects, decision-making theorists want to understand why individuals act in certain ways—how people make particular decisions with regard to work (Shafritz, Ott, & Jang, 2006). The thinking behind decision-making theory is that if organizational leadership can understand what motivates people or what encourages people to give more energy to their work, then such knowledge can be used as levers for productivity. Herbert Simon (1946), a central writer in the decision-making genre, noted that an individual's decision-making is always "bound" (p. 64) or limited by factors, like physiological and mental processes, values and beliefs, technical know-how, and imperfect information (also see Manning, 2013). Cyert and March (1959) theorized that an organization is held together by various coalitions with different goals. Cyert and March argued that if one wants to maintain or improve an organization then one has to account for the various goals held by stakeholders. In the higher education context, a researcher might leverage decision-making theory by accounting for how various coalitions, such as academic administrators, faculty, and regents negotiate between their various, competing goals (see Eckel, 2000; Pfeffer & Salanick, 1974). Decision-making theorists pointed out that conflict is inevitable in organizations since they are constituted by various coalitions that hold their own agendas but managing this conflict rather than dissecting it or asking why coalitions formed in the first place were not questions initially raised by this line of work.

Taken together, the organizational behavior school of thought constitutes a robust set of views on organizations. Some of these views elevate the role of transformative leaders in raising and sustaining the morale and commitment of employees; some

elevate the role of leaders as fostering conditions for employees to build relations with one another and offer advice to the organization; and finally, some views emphasize how and why humans act in certain ways, why people are motivated and compelled to make certain decisions over others, and how the organization might attend to people's various dispositions.

11.3.4 Reimagining the Organizational Behavior School of Thought

Here, we reimagine organizational behavior. However, there are elements of organizational behavior that we want to maintain. First, organizational behavior theory's emphasis on human relationships and human dispositions as a way to understand and approach organizational mission is valuable. Second, organizational behavior especially Follett's work, stressed that employees have important insights to offer to organizational leadership—an assumption that aligns well with higher education where shared decision making power is tradition (Jones et al., 2012; Rhoades, 2005; Stensaker & Vabø, 2013).

And yet, for all the human-centered insights that organizational behavior brought to organizational theory, and which higher education researchers draw from today (Berger, 2000; Umbach & Wawrzynski, 2005; Umbach & Porter, 2002), the organizational behavior school of thought fails to acknowledge how power is inscribed in any and all human relationships and interactions.[9] When organizations are filled with people from diverse histories, social locations, and otherwise differentially positioned groups, relations of power cannot be ignored, particularly if one wants to administer an organization that is committed to justice and inclusion.

Thus, we reimagine organizational behavior by threading it with insights from applied critical leadership (Santamaría & Santamaría, 2012) and intersectionality (Crenshaw, 1991, 2016). Whereas applied critical leadership foregrounds the transformative possibilities inscribed to formal leadership positions, intersectionality inspires a deeper historical account of human relations and accounts for the impact of multiple forms of marginality. Here, we describe each of these theories and show how they align well with the kinds of concerns and questions relevant to organizational behavior.

Applied critical leadership (Santamaría & Santamaría, 2012) draws together ideas from transformational leadership, critical pedagogy, and critical race theory. Applied critical leadership provides a theoretical grounding that is not only critical but pragmatic. Specifically, applied critical leadership focuses on a leader's transformative potential to ensure that educational institutions function as spaces of social

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[9]It should be noted that Follett did address power in her writing. However, her writing about power was general and not usually attached to any specific social relations defined by gender, race, and so on.

justice. Fundamental to a leader's work is the need to seriously reflect on their own identities and privileges. Santamaría and Santamaria (2012) stress that a leader must be aware of how their "identities interrupt or enable [their] ability to see alternative perspectives." (p. 8). If one considers that the majority of high-ranking leaders on U.S. post-secondary campuses are white and male and that the representation of minoritized leaders declined across all racial and ethnic groups between 2008 and 2013 (American Council on Education, 2013), such reflexive work is particularly important, as white men operate from privileged grounding.

Moreover, such reflexive work is imperative for the next phase of applied critical leadership which draws from critical pedagogy (Freire, 1970). Critical pedagogy is an emancipatory approach to teaching and learning and applied critical leadership suggests that transformation hinges not only on the willingness of leaders to be reflexive about their positionality but also on their willingness to foster organization wide learning (see Gonzales, 2015a). For example, a reflexive leader practicing applied critical leadership would recognize how their positionality limits or inter- feres with their understanding or ability to know certain things (e.g., what it is like to be a first-generation student, how power dynamics feel to women when entering an all-male meeting), and then a formal leader works with others who are better positioned to teach, share, and even make policy on such items. Thus, similar to organizational behavior, Santamaría and Santamaría (2012) believed in the transfor- mative potential of leaders. Like Follett's take on organizational behavior, applied critical leadership recognizes the need to foster both horizontal and vertical relations. However, applied critical leadership is insufficient for reimagining organizational behavior, as it prioritizes the role of the positional leader but does not go far enough in considering the many types of relationships that exist in an organization and how those shape particular conditions and consequences for various groups of people.

To broaden and also deepen organizational behavior's understanding of relation- ships, we draw from intersectionality. Kimberlé Crenshaw coined the term intersectionality—variably described as a theory, a framework, a methodology, or a heuristic—in the mid 1980s after accepting a law suit involving a Black woman named Emma DeGraffenreid. DeGraffenreid filed a suit claiming race and gender discrimination against a manufacturing plant where she had applied for a position but was not hired. DeGraffenreid believed—and Crenshaw went on to document— that she was not hired because the business was attending to gender and racial equity as if they operated on distinct tracks as if gender and race never crossed. Specifically, when hiring racially minoritized people, the plant tended to hire Black men, usually for physically laborious jobs. When the plant hired women, it tended to hire only white women, usually into secretarial jobs. DeGraffeneid's case exposed what it means to live at the intersections of structures, law, and cultural norms that do not include one, or fail to account for one, who is multiply marginalized. In this way, Crenshaw stresses that intersectionality is not about identities but about how struc- tures render consequences for people who hold multiple marginalized identities (also see Anthias, 2013).

Several scholars in several fields have further developed, or clarified, intersectionality. For example, Dill and Zambrana (2009) suggested that

intersectionality is committed to four values or practices. First, it elevates the experiences of racially minoritized and otherwise marginalized people. Second, it eschews essentialist views of identity, including group identity. For example, intersectionality theorists reject the notion that all people who identify and present as women experience the social world the same way; this is because women are also racialized, come from a certain economic class, have diverse native languages, and live in a world where all of those variables come to matter. Third, intersectionality pays attention to how large institutions, like courts and schools, work together. For instance, as of 2017, the U.S. Equal Employment Opportunity Commission has stated that LGBT persons are a protected class. If for some reasons, such protections were rolled back, there would be implications in hiring practices or within public school practices. In this way, large institutions draw from one another in ways that affect marginalized groups. Fourth and finally, intersectionality stresses that social science research should be used to advocate for multiply marginalized people, who are sometimes made invisible by institutions and policies.

Together, applied critical leadership and intersectionality challenge leaders to be reflexive before engaging in their work or with their members. For example, while organizational behavior suggests that it is important for leaders to ask employees for advice, intersectionality compels one to recognize how power, related to the different positionalities of leaders and employees, is inscribed in such an interaction. These theories also sharpen the focus that organizational behavior places on human relationships and interactions with one another as well as with the organization itself. For instance, while organizational behavior might stress the importance of collegiality, intersectionality asks, "What does collegiality mean, and does it include everyone? Is collegiality a way towards community or is it a way towards compelling conformity?" We now consider how organizational behavior and its reimagined rendition allows one to address intersectional justice in relation to diversity efforts.

Application: Intersectional Justice—Rethinking Diversity Work Across the globe, whiteness, racism, and sexism pervade central societal institutions, including health care, education, and the government (Ahmed, 2007, 2012, 2017; Ehrenreich & Hochschild, 2003; Leonardo, 2009). While it is true that racism, sexism, and classism (along with other isms) manifest differently in different parts of the world in context-specific ways, research shows that, in the context of education and higher education, people of color, especially women of color and trans* women of color, experience particularly daunting, layered, and often violent forms of marginalization (Ahmed, 2017; Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2012; Pérez-Bustos, 2014).

Thus, it is quite typical for post-secondary organizations, no matter where they are located, to administer diversity and inclusion efforts (e.g., offices, programs, initiatives) (Ahmed, 2012, 2017; Deem & Ozga, 2000; Cross, 2004). For example, Cross (2004) documented South African universities striving to define and advance diversity across their campuses. Ahmed (2012) interviewed several diversity workers throughout the U.K. and found that diversity efforts on campus made colleagues uncomfortable (see Chap. 2 especially). Similarly, Berrey (2011) showed that, in the U.S. higher education, diversity efforts typically fail and ultimately

undermine racial justice. So, on the one hand, diversity efforts are ubiquitous, and on the other hand, they rarely yield transformative results. The research also shows that women and people of color are often charged to lead or be the face of diversity efforts (Ahmed, 2017; Turner & González, 2011).

From an organizational behavior perspective, universities initiating diversity efforts makes sense. After all, a key assumption of organizational behavior is that organizations are more likely to fulfill their missions when morale is high and when the leader has displayed a commitment not only to the organization but to its members as well. In using an organizational behavior lens, leaders might articulate their own ideals and commitments to diversity in order to initiate a diversity effort. They might look out to members of the organization to further define the initiative, to identify the level at which the problem operated, and to increase the sense of ownership that members have in relation to the effort. If working more from the decision-making domain, a leader might be interested in understanding if there are optimal conditions that make people more or less inclined to support and engage in diversity work. In other words, rather than interrogate and dismantle the depths of racism, sexism, heteronormativity, and other isms, organizational behavior suggests a cosmetic, rather than a deep or transformative, approach to diversity work (Berrey, 2011; Iverson, 2012; Griffin & Hart, 2016).

However, when informed by applied critical leadership and intersectionality, university communities would approach diversity work in an entirely different way. Following applied critical leadership, a leader understands and makes public their own positionality in order to identify the parameters of their understanding. Such reflective work is not a part of organizational behavior traditions because it does not recognize relations of power within and among organizational members nor does organizational behavior recognize the power inherent in a leader taking on a learner role. Thus, applied critical leadership would compel leaders to recognize that before they can address such issues, they must be willing to confront the limits of their knowledge and understandings of specific issues before meaningfully engaging in or fostering, what we call, intersectional justice. Adding an intersectionality lens to applied critical leadership can inform intersectional justice efforts in an important way. Specifically, because intersectionality is not about identities but about how structures bring particular meaning, conditions, and conse-quences to people who hold particular identities, intersectionality forces university leaders and community members to assess gaps or differences within and across differences and in relation to specific structures and processes. For example, in drawing from Anthias' (2013) work, Núñez (2017) showed how Latinx migrant youth come up against colleges and universities in distinct ways based on their language, class, and college generation. Taking this example further, an applied critical leadership and intersectional lens helps a university community recognize the diversity within populations that are often referred to or dealt with as if they are monolithic. Imagine that a university's Latinx population is rapidly growing. It would not be atypical for many of the staff and professionals who interact with students to assume that Latinx students are immigrants. However, intersectionality encourages one to think more carefully about the Latinx population. Whereas Latinx students might generally experience racism, Latinx migrant students might

experience particular anxiety tied to class backgrounds as they apply for programs like College Assistance Migrant Program [CAMP; https://www2.ed.gov/programs/camp/index.html). Meanwhile, Latinx immigrants are likely to experience racism layered with nativism, and hypersurveillance as they share personal information to the university and the governments to request Deferred Action Childhood Arrival (DACA) (Chang, 2011; Muñoz & Vigil, forthcoming).

By enhancing organizational behavior with insights from applied critical leadership and intersectionality, leaders can hold on to the importance of human relations and human interactions in relation to organizational outcomes. However, applied critical leadership would compel leadership and organizational members to invest time to investigate and address privileges attached to their identities and histories, and how those identities allow them to understand (or keep them from understanding) how organizations reproduce sexism, racism, and other isms. Meanwhile, intersectionality helps members and leaders consider how these isms manifest within and across groups in different ways.

Section Summary

The organizational behavior school of thought is often seen as an eclectic set of responses to the top-down, mechanistic predilections of scientific management. Central to this body of work is belief that organizations can achieve efficiency and success through the satisfaction of human needs, especially the need for human connectivity. Like the organizational behavior school of thought, applied critical leadership and intersectionality understand how important interpersonal relationships and meeting human needs are when it comes to organizational performance but both also recognizes that people possess complex histories and identities that shape how they experience the workplace. Applied critical leadership attends to leaders' role in shaping an inclusive and validating organizational space, but asks leaders to understand that their own histories, identities, and positionality impacts their ability to fully understand oppressive circumstances. Intersectionality pushes leaders to be cognizant of and address the ways in which an institution on its own or interacting with other institutions affect people who hold particular identities, particularly People of Color. Organizational behavior reimagined with applied critical management and intersectionality requires consideration of how identities, power relations, and structures interact within an organization—even an organization that is concerned with human relations and wellness (Fig. 11.2).

11.3.5   Environmental Perspectives as a School of Thought[10]

In dealing with and prescribing strategies for success, the scientific management and organizational behavior schools of thought assume a closed-system perspective,

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[10]Some writers describe the theories within this school of thought as "systems" or "general systems." We chose the descriptor environmental because this school of thought turns a researcher's attention to external resource providers or influences.

Key Descriptors and Assumptions
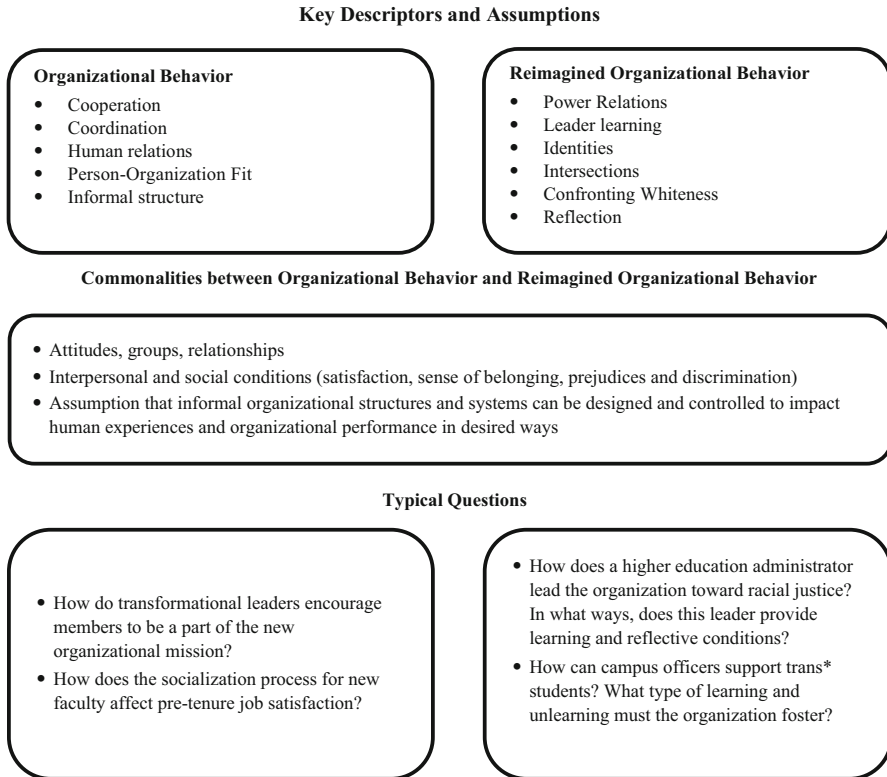
Fig. 11.2 Conventional and reimagined versions of organizational behavior

meaning that leaders and researchers focused on the internal design of organizations (e.g., scientific management) and people within those organizations (e.g., organizational behavior). However, in the 1950s and 1960s, organizational theory took a significant turn as thinkers began to contemplate how external conditions shape an organization's viability. This shift yielded what we refer to as the open-systems or environmental school of thought (Marion & Gonzales, 2013; Stern & Barley, 1996).

The environmental school of thought emerged during a moment of social, political, and civil transformation. Multiple countries were coping with the aftermath of World War II and the Vietnam War. In the U.S., minoritized and otherwise marginalized communities (and allies) were advocating for equal rights in massive numbers. Showing how the civil, social, and political movements influenced the evolution of organizational theory, Marion and Gonzales noted:

> . . .[open] systems theory emerged during an interesting era, one that undoubtedly influenced its popularization. It was period of social upheaval, a time in which baby boomers. . .were exercising teenage rebelliousness, a time of liberal politics, a time in which [U.S.] society

> was becoming increasingly concerned about the disenfranchised and alienated...In earlier years people tended to hold individuals solely responsible for their behavior. If someone failed, it was because of their own shortcomings and not because of shortcomings of the system itself.... Open systems theory, by contrast, [sought] solutions to problems within the broader context of organizational and environmental dynamics. If a person fail[ed], it is in part, because of the failures in the system (p. 74).

Thus, whereas previous organizational theories concentrated on internal dynamics, environmental perspectives argued that organizations can only be understood if one recognizes that they are part of and affected by a broader environment. Within this school of thought are various conceptions about the nature of environments and how environments pressure organizations.

For example, organizational ecology suggests that an organization's survival is not only or even primarily dependent on managerial decisions, leadership quality, or internal organizational design, but on the environmental conditions. Influenced by biological perspective, ecology theory states that the environment enables survival (or forces extinction) through natural selection (Carrol, 1984; Hannan & Freeman, 1993; Scott & Davis, 2007; Singh & Lumsden, 1990; Wholey & Brittain, 1986). Like biologists who argue that a population will either adapt and evolve to the natural environment or face death, organizational ecologists focus on issues such as population density, length of an organization's life, and environmental characteristics, such as policy conditions or labor market conditions that force an organization to adapt. According to organizational ecology, the most resilient organizations tend to survive unless they are able to capitalize on specific niche demands. In this way, organizational ecology theory helps organizations determine if they should serve a general or niche/specialist purpose. Higher education researchers have used an ecology perspective to examine when and why some women's colleges have remained women-serving institutions while others have loosened gender requirements (Morphew, 2009).

Taken together, organizational ecology draws from biological assumptions to understand and study organizations. While this perspective can help a strategic team in higher education read how the environment is pressing against a college or university, it is often critiqued for its overly structural approach and lack of space for agency. However, resource dependency theory sees the:

> [organization] as an open system that is dependent on contingencies in the external environment" (Hillman, Withers, & Collins, 2009, p. 1404) [but it also] sees that managers can act to reduce environmental uncertainty and dependence. (p. 1404)

To this point, Scott and Davis (2007) noted that resource dependency theory is "an array of tactics organizations use to manage their exchange relations, so as to balance the need to minimize dependence and uncertainty while also maintaining managerial autonomy" (p. 221). Resource dependency assumes that people, particularly leaders, can and should identify information within the external environment in order to make strategic decisions on behalf of the organization (Callen, Klein, & Tinkelman, 2010; Salancik & Pfeffer, 1978). Thus, proponents of resource dependency suggest that leaders employ diagnostic activities such as environmental scans and SWOT

analyses[11] (Helms & Nixon, 2010) in order to gather such information. With environmental scans, leaders consider the behaviors of their resource providers and competitors in order to make assessments about potential changes that might affect the organization. Resource dependency theory is used quite frequently in higher education as leaders and policy makers need to continuously monitor the behavior of resource providers (Barringer, 2016; Gumport, 2002; Slaughter & Rhoades, 2004; Tierney & Hentschke, 2007; Toma, 2012; Weisbrod, Ballou, & Asch, 2008). Although much of resource dependency work claims an apolitical or objective stance, there is a notable set of higher education scholars who have sought to understand the political, and neoliberal-serving ways that resources flow throughout higher education. Inspired by the work of Thorstein Veblen (1918/2015), who noted the power-laden nature of resource dependencies, higher education researchers Slaughter & Rhoades (2004) and Taylor and Cantwell (2015) have traced how universities engage industry, government, and increasingly, transnational agencies/bodies to procure resources (also see Rowlands, 2013).

The final perspective within the environmental school of thought that we discuss is institutionalism. Some describe institutionalism as a cultural version of resource dependency (Gonzales, 2013). Either way, institutionalism eschews the strictly economic, rational bent that characterizes resource dependency to say that not all organizations operate rationally. Institutionalism is largely derivative of Selznick's (1949, 1996) Tennessee Valley Authority study. In this work, Selznick realized that the TVA's work hinged, not on economic or material resources, but on its ability to be seen as a trustworthy entity among local Tennesseans. This simple but powerful insight forms the basis of much of institutional thinking. In 1977, Meyer and Rowan extended institutionalism to argue that that because some organizations and organizational fields rely on tacit cultural resources (also see Zucker 1977), change is difficult to achieve, and habits, practices, as well as forms tend to become homogeneous or deeply institutionalized.

The notion that some organizations rely on cultural resources, such as trust and legitimacy, presented somewhat of a blow to organizational theorists who had long relied on a rather hard-nosed economic rationalism (Meyer & Rowan, 1977; DiMaggio & Powell, 1991; Scott, 1983; Zucker, 1977). Institutionalists working in the 1970s leaned on Selznick's argument to say that an organization whose work and outputs are social and cultural in nature cannot (or should not) be measured by economic, objective ends but must be evaluated on social and cultural grounds. In terms of identifying cultural resource providers, new institutional scholars recognize: (1) coercive/legal, (2) mimetic/standardizing, and (3) normative resource providers and influencers (DiMaggio & Powell, 1991). Institutionalism has come to be very popular in recent years among higher education organizational researchers as it allows a researcher to account for the various and diverse types of resource providers that a cultural organization, like a college, must keep in mind (Gonzales, 2013; Morphew, 2009).

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[11]Strength, Weaknesses, Opportunities, and Threats.

Taken together, environmental perspectives help organizational researchers and leadership look beyond internal dynamics and understand how their organization is embedded in and influenced by the larger world. Although the environmental school of thought represented a radical shift in organizational thinking, it has not fully tapped into its critical potential outside of the critically inclined academic capitalism (Slaughter & Rhoades, 2004) and select applications of institutionalism that highlight how cultural resources are often predefined or determined by the wealthiest or most powerful of higher education institutions and actors (Gonzales, 2013). Below, we unleash the potential of environmental thinking by blending it with ideas drawn from anti-colonial and decolonizing perspectives.

11.3.6   Reimagining the Environmental School of Thought

Here, we reimagine the environmental perspective, as we draw on postcolonial and decolonial scholarship. In keeping with familiar environmental perspectives, postcolonial work helps us to hold on to the fact that organizations are not situated in a vacuum, and that they are embedded in a wider context that matters. However, decolonial and postcolonial perspectives bring a historical and critical lens to understanding, or assessing, that context.

Describing the purpose of post-colonial work, Spivak (1988) explained that the post-colonial project is interested in disturbing "regulative political concepts, the supposedly authoritative narrative [which] was written elsewhere. . . .reversing, displacing, and seizing the value coding itself" (p. 228). In other words, Spivak's suggests that post-colonial work exposes how colonial logics and values are expressed in taken-for-granted concepts and conceptions. Meanwhile, Prasad (2003) described post-colonialism as "an attempt to investigate the complex and deeply fraught dynamics of modern western colonialism *and* anticolonial resistance" while acknowledging "the ongoing significance of the colonial encounter for people's lives both in the West and the non-West" (Prasad, 2003, p. 5). Post-colonialism and decolonizing thought aligns with an organizational theorist's environmental bent, but it questions how an environment came to be and assumes that local, state, and national boundaries are not naturally occurring. Such questions are deeply important since many colleges and universities occupy land taken from Indigenous and Native people and communities (Altbach, 1989; Altbach & Knight, 2007; Lipe, 2014; Tuck & Gaztambide-Fernández, 2013; Wilder, 2013).

Central to post-colonial thought and to our reimagining environmental perspectives is Edward Said's writing about the process of "othering." Othering, according to Said, is a way that European and American colonizers constructed the East and Middle East and people who live within the Middle East as inherently different, as less than, as dangerous—as other. Using their access to political, economic, and cultural channels, colonizers were positioned to ascribe statuses to the places and people whom they colonized. Said introduced a critical point that has been more deeply developed in subsequent post, anti, and decolonial work. Specifically,

Said pointed out colonialism exceeds political and economic materialism, and is an ideological, cultural, and discursive matter. Today, postcolonial scholars specify various forms of colonialism (Veracini, 2011; Shoemaker, 2015) including colonialism, settler colonialism and neocolonialism. Thus, in reimagining environmental perspectives for higher education research, we aim to call attention to settler colonialism, which is described here:

> Rather than emphasizing imperial expansion driven primarily by militaristic or economic purposes, which involves the departure of the colonizer, *settler colonialism focuses on the permanent occupation of a territory and removal of indigenous peoples* with the express purpose of building an ethnically distinct national community. (Bonds & Inwood, 2016; p. 1)

A postcolonial approach to considering organizations demands that researchers deconstruct the very fundamental Western basis of contemporary organizations including organizational environments.

Illustrating similar kinds of work and drawing from both anti-colonial and decolonial literatures, Shahjahan and Kezar (2013) asserted that much of higher education policy and research is methodologically bound by "national containers," meaning higher education research is "colonized by categories (e.g., racial categories, funding formulas) that are structurally and discipline-wise embedded in the nation state" (p. 23). The pair continued to elaborate on the shortcomings of such "nationalist" approaches:

> . . . . when [researchers] speak of environmental influences on a U.S. higher education institution, [they] are often referring to an environment bound to the nation-state such as federal and state governments and/or national accreditation agencies. . . .[In this way,] environmental influences tend to refer to national economies rather than global economic structures (p. 20).

Shahjahan and Kezar went on to argue that a methodological nationalist framework ignores the ways in which nation-states arise from politically and socially constructed, rather than naturally occurring boundaries.

We take Shahjahan and Kezar's argument in conjunction with post-colonial work that forces a researcher to confront the history of a situation (in this case, higher education and organizational environments), to examine power and violence in the context that situation, and to see how the situation has come to be defined. In the case of higher education, the environmental school of thought overlooks the importance of history, fails to account for how colonial violence shaped the relationship between colleges and communities, and how many of the resources that a university relies on (e.g., land, water, other natural resources) are actually contemporary vestiges of the colonial relationship. In this way, post-colonial and decolonizing approaches can help a researcher account for history, for assets that the university derives from the local terrain, and perhaps most importantly, can assist a researcher in fostering reparative justice.

Application: Reparative Justice, Land, and Native Communities Within the interior of the United States are hundreds of Native American nations and tribes (Wang, 2014), and along the nearly 7,500 miles of borderland that the U.S. shares

with Canada and Mexico are diverse communities including many Native and/or Indigenous people displaced by European settlers. According to Wilder (2013), a central feature of European colonialism involved the erection of colleges, often built by enslaved Black people. These "colonial colleges" had several purposes: (1) to support the development of what would eventually become the U.S.; (2) to train white wealthy males for their assumed rightful political and societal positions; and (3) to engage the Native communities, when it was strategic to do so. Of this, Reverend William Smith of College of Philadelphia (University of Pennsylvania) wrote:

> In [Indian] schools, some of the most Ingenious and Docile of the young Indians might be instructed in our Faith and Morals, and Language, and in our Methods of Life and Industry, and in some of those Arts which are most useful. . .To civilize our Friends and Neighbors;— to strengthen our Allies and our Alliance;—to adorn and dignify Human Nature;—to save Souls from Death; to promote Christian Faith, and the Divine Glory, are the motives. (as cited in Wilder, 2013, p. 94)

Throughout his text which traces U.S. higher education's intertwinement in the institution of slavery and colonialism, Wilder reports that "the deployment of academies to subdue Indians repeats in colonial history" (p. 94) and happened alongside the removal of Native people from their lands. As settlement expanded westward, colonization was repeated in slightly different ways as the Native and Indigenous people of the southwest were dehumanized and displaced.

Today, though, it is common for colleges and universities to want to set aside these strained histories or move past them quite quickly in order to work with communities for the purposes of research and socioeconomic development (Annette, 2005; Bender, 2008; Fourie, 2003; Hall, 2009). Consider how federally funded research projects are structured: A federal agency of the U.S. government sets an agenda and sends out the call. Universities throughout the U.S. receive the call and faculty determine if their work fits the call. Part of the analysis that the faculty may conduct is an environmental scan especially when they need to be able to access resources from the local environment, including natural resources (e.g., land, water, farms, geology) or human resources (e.g., working with a certain population). However, the typical environmental diagnostic does not recognize the importance of historical relations between the university and the local land and communities. Of this, Gonzales (2017) noted:

> It is not typical for post-secondary organizations to attempt to understand their own histories. . .a critical interpretation of this [failure to consider history] is leaders' unwillingness to reflect on relations of power that implicate the institution in racist, sexist, classist, and sometimes colonial practices and relations. (p. 114)

To Gonzales' point, research suggests that when universities initiate partnerships, community partners often describe the university's approach as top-down and paternalistic (Ascher & Schwartz, 1989; Anyon & Fernández, 2007; Perkins et al., 2004; Silka, 2008).

Decolonizing how the environment is understood in the context of higher education requires that university members begin by interrogating the history of the land where the organization sits—to understand how communities especially Native or Indigenous communities, have been affected by the seizure of their land. Using a decolonizing/post-colonial stance, a university would reject the ahistorical or nationally driven approach to understanding their environments. In learning or unlearning particular histories of their university, higher education actors would start by listening and learning from the stories of Indigenous people (also see Lipe, 2014; Macaulay, Commanda, Freeman, Gibson, McCabe, Robbins, Twohig, 1999; Reyes, 2017). In describing such approaches to community-university research relations, Poff (2006) said:

> …stories describe stark accounts of betrayal and upset, as well as descriptions of positive experiences. They provide dramatic reminders to researchers of the importance of respectful and collaborative relationships with traditional community leaders and their members (p. 27).

However, understanding history is not enough. Tuck and Yang (2012) explained that "decolonization brings about the repatriation of Indigenous land and life" (p. 1). Thus, centering Indigenous and Native histories and voicesis only step one; returning land and resources to Native peoples is what true decolonizing work and reparative justice requires. Thus, in addition to "learning about, accounting for, and honoring local histories and knowledges, assets and gaps from the community" as Gonzales (2016) suggested, a decolonized approach to understanding environments would mean that a university commits to sharing or returning resources or having Native leadership inform how partnerships should work so that, there are clear and favorable agreements that benefit and return resources to Native communities. In this way, a university's understanding of its environment is deeply transformed when Native and Indigenous communities are recentered as both owners and knowers.

Section Summary

The environmental perspective views organizations as situated in larger networks of entities and stakeholders. Viewpoints within this school of thought differ in terms of the degree of agency leaders and other organizational actors are perceived to possess. However, all of these views agree that complex external economic, social and cultural conditions impact an organization's form and goals. Like environmental or open-systems perspectives, postcolonial, anti and decolonial thought stress that organizations are embedded in environments, but recognize that modern ways of organizing are reflective of historical and contemporary colonialism. One variation of postcolonial thought, settler colonialism draws attention to the seizure of land from Indigenous people and settler occupation of this land in order to build a new ethnic community. Anti and decolonial thought illustrate how an understanding of an organization's environment is narrowed by the politically and socially constructed notions that favor nation-state. The environmental perspective reimagined with postcolonial, anti and decolonial approaches to organizing compels organizational leadership not only to be more inclusive and equitable in terms of

Key Descriptors and Assumptions

Environmental Perspective
- Environment analysis (SWOT)
- Resources
- Ecosystem
- Organization life cycle
- Strategy
- Interdependencies
- Ahistorical

Postcolonial or Decolonial
- Hegemonic ideologies
- Decolonization
- Cultural Imperialism
- Historical
- Methodological Nationalism
- Holistic
- History

Commonalities between Environmental Perspective and Reimagined Environmental Perspective

- Internal work is influenced by external conditions and forces
- Assumption that organizations are part of a wider environment that influences the organization and which the organization also acts upon

Typical Questions

- How does the political environment shape higher education's extra-curricular events?
- How do federal and state financial incentives influence the growth of competency based certificate and degree programs in US community colleges?

- What are the connections between a higher education organization and surrounding Native communities? How can the organization return resources (land and otherwise) to the community?
- What are the factors influencing the rise of global citizenship branding in higher education?

Fig. 11.3 Conventional and reimagined versions of environmental perspective

partnership work, but to restore equity and justice in terms of resources, including land (Fig. 11.3).

11.3.7 Organizational Culture School of Thought

The final school of thought that we discuss is organizational culture. At the outset, it is helpful to note that both critics and proponents of organizational culture acknowledge that culture can feel elusive—too big and too broad to really allow for any explanatory power, but also too important to ignore (Trowler, 2008). Reflecting both the breadth and power of organizational culture, Corbally and Sergiovanni (1984) defined it as "the system of values, symbols, and shared meanings of a group

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[12]We agree with Manning's assessment, but we also want to stress that these different approaches are actually distinct epistemological and ontological groundings.

including the embodiment of these values, symbols, and meaning into material objects and ritualized practices" (p. viii).

It is notable that theories of organizational culture were developed around the 1970s, around the same time that a number of academic disciplines were struck with epistemological and ontological crises related to the production and representation of knowledge. For a field like organizational studies, which has historically been oriented towards modernity, rationalism, and empiricism (Casey, 2002), the idea that knowledge might be tacit and always steeped in contingencies and subjectivities represented a significant shift in thinking. However, thoroughly interpretive takes on organizational culture made a slow debut in organizational studies.

To this point, Manning (2013) helpfully notes that organizational culture is underlined by at least two distinct approaches:[12] (1) the corporate and (2) the anthropological. Both approaches suggest that to understand an organization, one must take seriously language, symbols, norms, values, and even architecture (Manning, 2013; Schein, 2004), but for different purposes. In the corporate world, Ouchi (1981) seems to have been among the first to reflect on the importance of culture for businesses. After having observed organizational life and activities in Japan and the U.S., Ouchi (1981) noted that organizations in these two countries had different "styles." While U.S. companies operated in accordance with scientific management norms (e.g., formal, hierarchical, output oriented), Japanese companies utilized flatter forms of organizations, employed consensual decision-making, and utilized both objective and subjective measures to assess their employees.

This being said, the corporate approach tends to be realist and also evaluative in nature, meaning researchers deem some cultures better or smarter than others (see Manning, 2013; Tierney, 1987). To this point, rather than assume that culture is contingent on local context and meaning-making among organizational members, practitioners and leaders assume that they can replicate organizational cultures that seem to work well (e.g., Lundin, Paul, Christensen, & Blanchard, 2000). Working from such realist and evaluative conceptions of culture, organizational researchers produce cultural diagnostics and typologies intended to help leaders steer their organization towards a productive culture (Blau, & Scott, 1962; Cameron & Quinn, 2011; Doty, & Glick, 1994; Topping, 1996).

Another strand of work that that stems from the corporate approach to organizational culture is Albert and Whetten's (1985) organizational identity. Albert and Whetten argued "organizational identity tells people "who we are" and "what we do." More specifically, Whetten (2006) "specified [organizational identity] as the central and enduring attributes of an organization that distinguish it from other organizations" (Whetten, 2006, p. 220). Whetten went on to note that an organizational identity rests on the specific claims that an organization uses to define itself, which is different than the numerous individual identity claims that people within the organization might make.

Noting the importance of organizational identity in a post-industrial economy and environment, Albert, Ashforth, and Dutton (2000) wrote:

> As conventional organizational forms are dismantled, so too are many of the institutionalized repositories of organizational history and method, and the institutionalized means by which organizations perpetuate themselves. Increasingly, an organization must reside in the heads and hearts of its members... A clear sense of identity servers as a rudder for navigating difficult waters (p. 13).

Applications of organizational identity, or similar ideas, are common in higher education research. For example, after closely studying three liberal arts colleges, Clark (1972) suggested that they fostered "organizational sagas" which reflected "a collective understanding of unique accomplishment" for each institution (p. 178). Clark specified that the sagas were communicated "through mottoes, traditions, ethos... long-standing practices...unique roles played by an institution" (p. 235). Clark added that sagas became "images held in the minds (and hearts) of students, faculty, and alumni" (p. 235). Clark's approach to saga (or identity) represents a realist, or what Manning might call a "corporate" perspective, but other higher education scholars have leveraged a more interpretive approach. For example, Garcia (2016) deployed a social constructivist perspective to show how faculty and staff members constructed an organizational identity independent of the university's formal positions and policies. Garcia's work showed that although organizational identity is typically understood as a top down approach, organizational actors can create, disrupt, or revise organizational identity as well.

In some ways, Schein's (1993) well-known work represents a middle ground between realist corporatism and interpretive anthropological approaches. Schein suggested that organization's culture is operationalized through elements like visible artifacts, espoused beliefs and values, and taken-for-granted assumptions. For Schein, these elements come together through a variety of means, including statements from leadership as well as meaning making and daily interactions among organizational members. Visible artifacts are observable characteristics, such as the workplace layout, how people are greeted, or how people interact at meetings. Espoused beliefs and values are stated in an organization's mission statement or similar prominent statements. Taken-for-granted assumptions are pieces of knowledge that organizations expect their employees to know, or "pick up" through participation in the organization. Shein's work has frequently informed higher education research. For example, after accounting for several of the elements in Schein's work, Bergquist (1992) outlined four organizational archetypes common to higher education: the collegial culture; the managerial culture; developmental culture; and negotiating culture. Bergquist explained that faculty, administrators, and staff built these various distinctive cultures through their interactions and implicit expectations and that each rendered implications for colleges and university outcomes.

Organizational culture represented a significant turn in organizational theory. Rather than suggest that organizations are rational entities, organizational culture theorists pointed to tacit, interpretive elements within organizations: values, human's valuing of said values, and symbolic practices that hold deep power. For the most part, organizational culture is often positioned as a way to bond members to the

organization, or to communicate an identity or deep sense of purpose to a broad audience. It is often used as a way to explain why an organization behaves in certain ways. Indeed, organizational culture theorists, in our view, attempt to describe the culture of an organization as if it is bound up within the entity, itself, rather than connected to larger ideological conditions. However, next, we consider how insights and commitments from the critical paradigm might help leaders and researchers read organizational culture as a powerful, potentially oppressive force—and one that is connected to macro societal and ideological conditions.

11.3.8   Reimagining Organizational Culture

As we reimagine the organizational culture school of thought, it is first imperative to note that white Western academics (mostly anthropologists) developed theories of culture after studying populations (usually of Color) abroad. These Western academic exploits objectified ethnic groups and rendered ethnocentric simplifications of many people's ways of life. While it is true that cultural studies (and social science disciplines, in general) have been willing to confront this problematic past, its colonial legacy should always be noted.

Reimagining organizational culture means recognizing that cultural theories originally stemmed from relations of power, ethnocentrism, and judgment, organizational culture is not innocent. In many ways it represents a mirror of power—often captured in text, symbols, architecture—and illustrates how history shows up in organizational life. Thus, we suggest that organizational culture perspectives can be improved if researchers and leaders consider the ways in which organizational culture manifests larger ideological bents within society. To accomplish the reimagining of organizational culture, we lean on two bodies of work that may seem somewhat surprising. First, we lean heavily on Marxian thought. Second, we connect Marxian impulses to post-structuralism.

As we noted earlier, Marx's work was concerned with the political economy, the labor market, and worker's rights. For these reasons, Marx is often described as a structuralist. However, Marx was also interested in the power of ideas, as he wrote, "the ideas of the ruling class are in every epoch the ruling ideas" (as cited in Tucker, 1978, p. 100). In much of his work, Marx argued that to understand the state of the human condition—how people experienced, normalized, and made sense of life—

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[13]Some people may be surprised by our joining together of Marx and post-structuralism. However, Marxian thought heavily influenced post-structuralist thinkers, like Foucault (Choat, 2010). For more on this point, see Peters and Berbules (2004) who argue that "poststructuralist reading practices allow us to contemplate a fluid rereading of Marx" (p. 84) as accomplished by Deleuze, Derrida, and Foucault (see pp. 81–100). Indeed, Foucault (1984) wrote that Marx "established an endless possibility of discourse (as cited in Peters & Berbules, p. 85)...For Foucault, Marx, like Freud, was a founder of "discursivity" rather than a founder of a science—though admittedly, this was not the way in which Marx saw himself" (p. 84)."

one had to understand the ideas that the "ruling class" circulated through its major institutions (see Bowles & Gintis, 1976; Brint & Karabel, 1989; Kanter, 1993; Morley, 2001 for contemporary applications). In this way, classic arguments from Marx's work help us reappropriate organizational cultural theory's focus on ideas, symbolism, values, and traditions, as representations of the powerful and elite in society.

We join Marx's commentary on superstructure to post-structuralism (Foucault, 1982; Peter & Berbules, 2004).[13] Poststructuralism can be understood as a perspective that elevates the role of language (text and talk) in relation to how people experience society. Peters & Berbules stated that "poststructuralism highlights the centrality of language to human activity and culture—its materiality, its linguisticality, and its pervasive ideological nature" (p. 5). Said another way, post-structuralism suggests that rather than power being located or centralized in structural arrangements, it moves through discursive practices, such as the naming and ordering of things and behaviors (e.g., normal, deviant, excellent, ugly, knowledge, superstition). Thus, post-structuralism is comfortable with ambiguity, in that it points out and disrupts the narratives that are used to subtly and not-so-subtly organize our lives (Allan, 2010; Smith, 1987).

Thus, while Marxian ideas can be used to consider how organizational culture is a reflection of the ruling ideas within society, poststructuralism calls specific attention to the power within texts, talk, and symbols. Foucault's work concerning the construction of "deviance" and Butler's (1988) work on the construction of "gender" are ways that poststructuralism can reveal the ideological and material consequences attached to language, or how the world is ordered through language (Choat, 2010; Foucault, 1982; Martínez Alemán, 2015; Smith, 1987). Taken together, these theories allow us to reappropriate organizational culture's focus on norms, values, and symbolism to show how they are connected to power and society, writ large.

Application: Epistemic Justice—Legitimacy in Academia Every year colleges and universities hold orientations sessions that are intended to help new organizational members learn about their work place. Extensive time is spent organizing these events and developing messaging that communicates the organization's mission and aspirations. In hiring new tenure-track faculty, extensive time is allocated to describing the tenure and promotion system during orientations (Gonzales, 2014). Moreover, new faculty are often assigned formal or informal mentors, whose utmost purpose is to orient and socialize professors to the implicit and explicit expectations for tenure (Ponjuan, Conley, Trower, 2011; Zambrana, Ray, Espino, Castro, Cohen, & Eliason, 2015).

Overtime, as certain faculty are promoted, rewarded internal seed grants; as some faculty are denied tenure, or told they must work harder to present a clearer case, new faculty candidates continue to learn about the values that its university holds. All of these elements—the mentoring efforts, the naming of grant winners, the granting of tenure—constitute a university's organizational culture, or perhaps more specifically a university's academic culture. When taken in from an organizational culture perspective, such texts and symbolic processes are presented as normative, or what

it takes to "fit" within the context of a university (Gonzales & Satterfield, 2013; Gonzales & Terosky, 2016; O'Meara, 2007). More specifically, a university's organizational culture signals who and what constitutes a legitimate and valuable scholar—someone who is worthy of lifelong employment and collegial validation.

However, research shows fit often comes easier for some than others. Specifically, women, and People of Color, overall, have long been underrepresented among the tenured ranks (Arnold et al., 2016; Finkelstein, Conley, & Schuster, 2016; Griffin, Pifer, Humphrey, & Hazelwood, 2011; Kelly & McKann, 2014). To this point, Griffin et al., documented that Black faculty experienced both personal and structural racism, and located the structural racism in the tenure and promotion process. Several of the interviewees in the study discussed how their work had been questioned, largely because of its race-relatedness (also see Delgado Bernal & Villapando, 2002). Gonzales and Terosky found that legitimization within academia often hinges on preferences for pure disciplinary work (rather than interdisciplinary), a scholar's seeming detachment from their scholarship (objectivity), as well as other Western norms related to knowledge production (also see Gonzales, 2017).

Whereas organizational culture theory might be used to assess how a university's members construct such norms, a Marxian informed poststructural approach pulls these cultural artifacts apart to ask, "from where and from whom do these cultural values stem?" In this way, informed by a Marxian inspired poststructuralism one can connect how a university's organizational culture (particularly its faculty hiring, social and evaluation process) are manifestations of neoliberalism and the dominance of science, or a scientific epistemology, in American society. Describing the effects of such organizational culture practices, Monzó and Soohoo noted, "this is not always a matter of benign ignorance…there are people who have a vested interest in not having particular epistemologies legitimized because this would threaten the system of privilege and power from which they benefit (p. 150)." When organizational culture is understood as possibly reflecting the ruling relations of society, it shifts from a perspective that is internally focused on understanding (and promoting) organizational fit and norming to a lens that shows how organizations reproduce systems of inequity and marginalization. Only in understanding how organizational culture as a force of power can higher education practitioners and researchers show how it represses epistemic justice, which is

> a state where individuals, from all backgrounds, but especially marginalized backgrounds, have the opportunity to leave impressions on old and new knowledge, and especially to articulate knowledges that have long been silenced" (Gonzales, 2015b, p. 28).

Section Summary

The organizational culture perspective is concerned with norms, values and their manifestation in artifacts and rituals as ways to socialize and guide humans. Organizational culture has been operationalized in numerous ways: as sagas or identities, as typologies that yield particular tendencies, or as strong but fluid patterns that help members make sense and bond with their workplace. Central to these lines of thinking is the assumption that these intangible elements have very tangible effects on an organization and its members. Like organizational culture, post-structural

Key Descriptors and Assumptions

Organizational Culture
- Typologies
- Norms/Values
- Collective understanding
- Logics
- Ideology
- Socially constructed reality
- Traditions

Reimagined Organizational Culture
- Power
- Discourse
- Fluidity
- Instability
- Disrupt
- Deconstruct

Commonalities between Organizational Culture and Reimagined Organizational Culture

- Immaterial conditions (norms, symbols, rituals)
- Power
- The power of rules

Typical Questions

- How can an organization leverage its cultural practices and identity to encourage people to feel membership?
- What is the relationship between cultural factors in collegiate sporting culture and student athlete misconduct?

- How does an organization utilize discourses and symbols in ways that make it difficult to question the organization's way of life?
- How does cultural notions like fit manifest in the hiring, tenure, and promotion guidelines for faculty?

Fig. 11.4 Conventional and reimagined versions of organizational culture

thought draws attention to the importance of values and norms but acknowledges the role of power and oppression in determining which values and norms become embedded in organizations. Marx's notion of the superstructure illustrates how the ruling class' ideas dominate the everyday life of people of all levels within society. Post-structuralism further draws attention to the role of language in circulating hegemonic discourses in everyday life. The cultural perspective reimagined with notions of power and conflict exposes how socializing mechanisms within organizations are not neutral or innocuous but are methods to dictate who and what is valued (Fig. 11.4).

11.4 Chapter Summary and Future Research

This chapter had two central aims. First, we wanted to highlight the merits of organization theory in the study of higher education. Second, we strived to reimagine frequently used organizational theories by infusing them with ideas and

commitments drawn from the critical paradigm. Below, we briefly summarize our chapter, note the limitations of our work, and invite others to build on and improve the arguments we have started here.

We started the chapter by offering an overview of organizational theory which we organized into four school of thoughts. We labeled these school of thoughts scientific management, organizational behavior, environmental, and organizational culture. We realize that our approach to organizing the very vast body of organizational theory is imperfect and that other scholars have organized organizational theory in different ways. We also realize that our approach to organizing organizational theory may feel somewhat linear, as if one school of thought neatly unfolded in response to the other, and relatedly, we acknowledge that our work is largely drawn from the ecology and evolution of Western organizational theory and thinking. All of these features, we admit, are limitations. We hope that future scholars can build on what we have started here to improve these limitations.

Following our brief overview of organizational theory, we discussed the critical paradigm. Like organizational theory, the critical paradigm is a large body of work which forced us to produce a condensed discussion. As a reminder, we chose to position the critical paradigm as a higher or more abstract level of theorizing, and then discussed more specific theories below it. As we introduced the critical paradigm, we reviewed key principles, which guided our thinking throughout the chapter, such as the notion that society and organizations are sites of conflict, the commitment to expose dehumanizing features of organizations, and the willingness to question seemingly mundane and functional practices.

In the third section, we detailed each of our organizational schools of thought and infused them with insights, commitments, and views drawn from the critical paradigm. We drew from several bodies of work and theories, including critical management, intersectionality, applied critical leadership, decolonial thought, collective leadership, critical feminism, and post-structuralism. Indeed, this leads us to another potential limitation of this work. In choosing to go broad, we likely missed important organizational theory pieces.

Still, as we conclude the chapter, we hope readers have a general sense of organizational theory's major school of thoughts and the critical paradigm. This chapter only takes a first step towards the reimagining of familiar organizational theories. We only hope that scholars continue to clarify and more fully operationalize our ideas, extend them or challenge them, and flesh them out through critical justice oriented research in the future.

11.4.1   Future Research

We reimagined scientific management studies with ideas located in critical management studies and collective leadership. In doing so, we sketched out possibilities for upholding the importance of leadership and defining roles, labor, and outcomes, but doing so from a collective and critical stance. To illustrate how a reimagined version

of scientific management might work for framing a problem, we considered the issue of labor justice. There are several ways that a researcher could go deeper with this suggestion. For example, in having people involved in defining their work as well as sensible measures for their work performance, one might be interested in examining if such practices yield improvements in work outcomes across various groups. Researchers could also conduct critical analyses of labor-related policies such as job contracts, evaluation guidelines, and language around worker expectations in order to trace to what extent jobs have been designed in consistent and fair ways. There is also an opportunity to take these ideas further to see if employees can assist in defining and clarifying the kinds of labor that often goes unseen (e.g., emotional labor). Finally, working from a critically informed version of scientific management, researchers might take a broader view of labor justice and pay attention to groups that go understudied by higher education scholars (e.g., graduate assistants, post-doctoral students, custodians, middle management) (see Cantwell & Lee, 2010; Cantwell & Taylor, 2015; Levecque, Anseel, DeBeuckelaer, Van der Heyden, & Gisle, 2017 for exceptions).

With regard to organizational behavior, we integrated ideas from applied critical leadership and intersectionality. Like organizational behavior, applied critical leadership elevates the transformative potential that leaders hold while intersectionality pushes on the simplistic human relations approach to recognize how human relations and organizational structures marginalize people in distinct ways. Grounding this argument, we took up the issue of intersectional justice and used the example of diversity work. Researchers have extensive room to build on and flesh out this reimagined take on organizational behavior. For example, since organizational behavior is very interested in tracing the effects of individual—organizational fit, intersectionality provides a way to examine how an organization structures expectations and experiences at a number of levels (e.g., at the most personal level, at the university level, and then at the larger institutional level, where universities display, reflect, or challenge societal rules and norms). Those interested in the impact of applied critical leadership might examine to what extent leader reflexivity and commitment to learning make a difference in diversity work outcomes.

To reimagine the environmental school of thought, we turned to anti and decolonial perspectives which expose higher education's involvement in colonialism and challenges leaders and researchers to think about the environment in radically different ways. We showed how a decolonizing perspective forced one to examine, expose, and then repair the violence caused by a university's involvement in colonialism. Researchers could study if and how partnerships and related strategic plans reflect colonial tactics (e.g., paternalistic, hierarchical university direction). Drawing moreso from Indigenous scholarship, researchers could question to what extent Native community partners are elevated as leaders and knowers inside such efforts (see Collins & Mueller, 2016).

To reimagine organizational culture theories, we set aside its tendency to present organizational culture as a normative glue that can hold people together and give them tools for sensemaking, and instead, we chose to see organizational culture through a conflict and power lens provided by a Marxian informed post-

structuralism. Although much organizational culture work privileges the idea that organizational culture is a way to bond members to the organization, we showed how culture can work to discipline, damage, and potentially silence knowers within academe. Future scholars might further advance this work by blending poststructural impulses with theories that highlight agency in order to display how culture can be subverted, countered and remade in ways that allow scholars to manage not only their careers, but their sense of epistemic belonging.

This chapter aimed to review and reimagine organizational theory for the critical study of higher education. We look forward to seeing others move organizational research towards such a justice-centered purpose.

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