CHAPTER 2

Pathways from Academe to Industry: An Empirical Analysis of Academic Marketing to Prospective Students

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Universities and private industry have long exchanged money, people, and knowledge to profit from markets. Back-and-forth flows of research dollars and discoveries can be lucrative in the knowledge economy, and while activities are not always fruitful, they may in some cases lead to additional resources and prestige for partners and contribute to regional and national economies. In channels between academe and industry, markets and profits, moving students into the workforce may be the "greatest contribution of all" (Geiger and Sá 2005, p. 19).

Trained for specialized forms of work, college graduates may reify institution–industry relations and pathways to high-technology fields

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and jobs (Lane 2012). For states with income taxes, their salaries may broaden tax bases without government raising actual tax rates (Feller 2004). In the 1960s, some students protested academe's involvement in external relationships that threatened public-good missions of universities (Leslie 1993), but within a contemporary political and economic context many students now extend and leverage networks to pursue entrepreneurship for personal and societal gains (Mars and Rhoades 2012; Mars et al. 2008; Slaughter et al. 2002).

A number of stakeholders seek to influence relations among students, academe, and industry. For example, the Kauffman Foundation finances campus programs for student entrepreneurs who are considered crucial to economic development (Torrance 2013). Since the 1970s, federal and state governments have heightened investments in university–industry research (Geiger and Sá 2008), and they have further invested in students through subsidies and financial aid, positioning them as consumers who purchase higher education goods and services (Saunders 2014). Their recruitment—the sheer competition for them—has become frenzied.

Indeed, many institutions have expanded their academic marketing and admissions operations to meet enrollment goals. Utilizing technological advancements, these institutions increasingly embrace digital mediums of reaching external stakeholders. Through text and visuals, institutions can be very deliberate in their self-depictions. As Metcalfe (2012, p. 52) observes, "we can consider an image of a higher education institution, especially an official view, as being, by extension, a truth-claim about the institution itself." Additionally, the development of Enrollment Management divisions suggests institutional commitments to *targeted* student recruitment by optimizing allocation of resources, distribution of students across degree programs, and the skill and ability levels of students on campus for retention, completion, and prestige (Hossler 2015).

Printed and digitized viewbooks (glossy, multicolored booklets highlighting institutional features) are prominent approaches through which institutions market academics to prospective students. To "sell" them on their schools, institutions often emphasize higher education as a private good for individual benefit (Hartley and Morphew 2008). Universities have been known to invest millions per year in website marketing (Schneider and Bruton 2004), as nearly all prospective students search college websites (Anctil 2008). Advertising and consulting firms produce

the majority of research on institutional websites, and their research often lacks theoretical foundations and, thus, extends empirical knowledge gaps about how institutions communicate with students (Saichaie and Morphew 2014).

In this study, we seek to contribute conceptually and practically to understanding the effects of the wider political economy on student–institution relations. Moreover, in the context of the knowledge economy, we aim to unpack what academic marketing suggests about boundaries of higher education, student roles on campuses, and what future career success looks like and conveys about institutional values. By way of conclusion, we address research and policy implications for institutional leaders who shape expectations and experiences for students on their campuses (e.g., Mangan 2012; Young 2013).

University–Industry Relations: Background and Context

Universities and Specialized Knowledge

For more than 100 years, universities in the US have had resource- and knowledge-exchange relationships with industry. Since the second half of the nineteenth century, a number of elite institutions have appealed to the private sector for subsidizing research and organizational development (e.g., Veysey 1965). Thus, universities have held economic relevance by producing and leveraging specialized knowledge. Academe and industry do not always initiate or embrace partnerships, but when they do, through the act of transferring research discoveries and producing graduates, economic growth may occur (Geiger 2004).

By the twentieth century, World War I, World War II, *Sputnik*, and the Cold War further positioned universities as integral to industrial and national competitiveness. In each epoch, policy-makers foregrounded research policy, and their education initiatives in science were increasingly important for developing human capital (Gumport 2011). In the 1980s, as the economy became knowledge-based, research and education were entwined with economic policy and aimed to support industrial strategy (Slaughter and Leslie 1997).

Organizational Adaptations

In the 1970s and 1980s, many campuses had changed along with shifts in the surrounding political and economic environment. Some institutions expanded technology transfer operations after the passage of the Bayh-Dole Act, which granted intellectual property rights to federally funded investigators and streamlined the process of applying for patents, and in the 1990s a number of universities built up research parks and incubators to facilitate market-oriented research with industry (Slaughter and Rhoades 2004). Enrollment patterns changed as well, with many students embracing curricula and programs to prepare for professional careers, especially in emerging high-technology fields. Because of this development, some researchers and analysts have called for balanced rather than targeted public funding for research, teaching, and service to help universities support cycles of economic growth (Feller 2004).

While higher education alone does not drive economic development, state and federal policy-makers increasingly perceive universities as important for regional and national growth (e.g., Warshaw and Hearn 2014; Geiger and Sá 2008). Research policies tend to capture much analytical attention, yet student dynamics in this arena are somewhat muted in extant literature.

Students and the Political Economy

Student learning and development has received close attention over the years, but this literature tends to overlook broad political and economic influences on undergraduates. Responding to this knowledge gap, Mars et al. (2008) studied undergraduate student entrepreneurs at two public research universities. They found that students, who are state-subsidized, utilized curriculum for entrepreneurship and "university infrastructure specifically designed for that purpose" of capitalist rather than public-good activity (p. 639).

Internships, co-op programs, business competitions, and intellectual property rights for undergraduates can facilitate exchanges of students between academe and industry, and market influences may permeate academic departments and curricula (Campbell 1997; Mars et al. 2008; Rhoades 2000). Together, such developments reveal institutional environments in which students may leverage resources to access shape, and enter industry and markets.

For many students, decisions to attend and graduate from college are economic; they may receive financial returns from investments in higher education. Society, too, can benefit in tax revenue, volunteerism, low crime rates, and, through other channels, increased health and longevity of citizens (McMahon 2009). Links between higher education, workforce development, and economic growth may incite more federal and state investments (Lane 2012).

Government's targeted appropriations to institutions may inform universities' allocation of resources. Departments, faculty, and students may receive disproportionate shares of funding based on claims of proximity to and productivity in markets. But funding does not necessarily follow student enrollment and can stratify based on other biases (Slaughter and Rhoades 2004).

Student and university interests can and often do diverge. Universities involved in industry-and-government collaboration may prompt student protests, such as those of the 1960s at Stanford University (Leslie 1993, pp. 241–249). Institutions' pursuits of revenues may increase financial costs and health and safety risks for students (Slaughter et al. 2009). As institutions work toward self-interests and goals, promoting market and consumer mentalities, they could indeed limit student learning by de-emphasizing individual agency and empowerment to learn (Saunders 2014).

Competition for Students

When interests of stakeholders' overlap, there can be powerful results. Robust, profitable industries, such as pharmaceuticals and biotechnology, have emerged from academic research, institution-industry partnerships, faculty consulting, training of students for scientific careers in private laboratories, and policies that favor investment in and deregulation of innovation. Developing human capital allows institutions to shape labor markets and claim importance externally (Geiger and Sá 2005, 2008).

Amid system-wide deregulation and competition in higher education, institutions have initiated targeted recruitment strategies for students (Hossler 2015). The literature on academic marketing focuses primarily on viewbooks and mission statements (Hartley and Morphew 2008; Morphew and Hartley 2006; Taylor and Morphew 2010), and, as Hartley and Morphew conclude, viewbooks tend to emphasize private benefits of degree attainment. Institutions' reliance on websites has

heightened since the late 1990s (Hossler 1999), and website marketing closely matches analog counterparts, promoting individual gains from higher education (Saichaie 2011; Saichaie and Morphew 2014).

Resources and technological advancements have fueled web-based marketing to prospective students (Hossler 1999; Schneider and Bruton 2004). Yet research on websites has been limited. Research on academic marketing to prospective students is conceptually and empirically lean, precluding an understanding of how institutions craft messages to shape relations with and expectations for students (Saichaie and Morphew 2014).

Purpose and Research Questions

At the interstices of academe, industry, institutions, and students, knowledge gaps remain. In particular, it remains unclear how institutions first aim to recruit prospective students into academe–industry links. This study seeks to understand how universities portray pathways to industry to prospective students, asking:

1. In what ways do universities portray boundaries between academe and industry, students and markets?
2. What are the messages conveyed about students' roles in this context?

Theoretical Framework

To anchor our study conceptually, we draw on institutional theory, academic capitalism, and concepts of strategically deployed shifters (SDS).

Institutional theory addresses the broad boundaries and normative environments within which universities, industry, and students interact. It suggests a field of organizations and actors comprised of rules, reward systems, cognitive-cultural meanings, and taken-for-granted understandings (Campbell 1997; Scott and Davis 2006). In this way, the images and text on universities' websites are likely infused with values and meanings rooted in the shared beliefs and expectations of peer institutions, industry, and students. Websites can invoke phrases and visuals to connote legitimacy as perceived within a field. Additionally, institutional theory accounts for isomorphism (DiMaggio and Powell 1983), in which universities may emulate one another by way of mimetic pressures (e.g.,

mirroring those who have appeared successful), normative influences (e.g., adopting approaches from a professional network), and coercive elements (e.g., following regulatory, legal mandates) to appear relevant to stakeholders.

Academic capitalism problematizes field dynamics. The theory of academic capitalism collapses distinctions between universities and environments (Slaughter and Leslie 1997; Slaughter and Rhoades 2004), a distinction institutional theory emphasizes rather than debunks. It addresses entwinement of government, universities, and industry that, since the 1980s, has tightened. Federal and state governments may adapt legal, regulatory environments and target funding to stimulate academe-industry partnerships and economic growth. Institutions may selectively allocate resources and employ market ethos to restructure and stratify programs, professors, and students based on claims of productivity in generating external revenues, and transition from serving the public good to becoming an academic capitalist/knowledge regime. Students have often been portrayed as participants of exchange between academe and industry (Slaughter et al. 2002), while recent empirical work suggests that undergraduates actively leverage market opportunities (Mars and Rhoades 2012; Mars et al. 2008).

Institutional theory and academic capitalism address the issues of values and field dynamics, but neither directly accounts for academic marketing. Within the context of academic capitalism, marketing messages to prospective students may become SDS. In higher education marketing materials, terms (e.g., excellence, diversity, leadership) can have many purposes and referential primes. Urciuoli (2003) labeled these terms SDS: "people using term X in a referring expression in field A are engaged in a different pragmatic activity from those using the formally identical term X in a referring expression in field B" (p. 396). "Student entrepreneurship" could highlight campus opportunities for career development, but deployed with other concepts (e.g., innovation, leadership, research, technology) it can refer to institutions' market interests. Thus, depictions of student roles may reflect some agency but as constrained by institutional context.

Our guiding concepts suggest external entwinement of universities and blurred boundaries of engagement (RQ1). They also address ways in which institutions may communicate campus expectations for students (RQ2). Next, we outline our empirical approach.

Data and Method

Data for our study came from publicly available websites of 16 US research universities from the Association of American Universities (AAU). We focused on this sector because AAU members receive disproportionate shares of federal research funding and demonstrate longstanding ties, since the AAU's formation in 1900, to industry and government (e.g., Slaughter et al. 2009). The unit of analysis is each institution's websites. In total, we analyzed 48 web pages from our sample, about three sites per institution, across which we then traced effects of institution–industry relations on academic marketing.

AAU Sample

The 16 institutions comprise four subgroups, constituting a stratified sample. We selected and matched universities according to undergraduate profiles, control, selectivity, and geographic region (Hartley and Morphew 2008; Saichaie and Morphew 2014). The technique permitted depth into each institution and subgroup, while also considering the breadth of variation across universities and subgroups in our sample. These data do not tell us how messages and underlying values have been formed, or how effective such marketing has been. But these data may express what—and who—institutions value (Metcalfe 2012). And they may help us understand points of contact among prospective students and institutions, entranceways from academe to industry.

Data Collection

Data collection occurred between March 2012 and April 2012, and August 2013 and September 2013—time periods when students actively gather information about colleges and academic programs (Hossler et al. 1999).[1] Logically, institutional officials and admissions officers are aware of this timing and update content accordingly. We analyzed changes in data at two points in time to strengthen internal validity.

To ensure consistency in data collection, we conducted key word searches on institutional home pages and admissions websites. Key words

[1]We reviewed the data again in September 2016 from the institutions. Our preliminary analyses suggest similar discourse to that analyzed during the original collection periods.

were constructed a priori, based on the guiding conceptual framework and what students are likely to use. We entered each key word on institutional home pages: "entrepreneur," "entrepreneurial," "entrepreneurship," "entrepreneurship center," entrepreneurial curriculum," "entrepreneurial courses," entrepreneurial major," and "entrepreneurship studies." When the path yielded a menu page, we used one degree of separation, one-page click away (Mitra and Cohen 1999), as well as short, direct information routes to data analogous to the path prospective students take (Poock and Lefond 2001).

Data Analysis

We employed content and discourse analyses. Content analysis is empirically grounded, suited for textual and visual data, and helped identify messages and meanings (Holsti 1969). Furthermore, content analysis permitted identifying themes and their frequencies. We followed Krippendorff's (2004) strategy of reduction and sampling for data and inferring and unitizing themes.

For close examination of textual and visual data, we used discourse analysis and developed rubrics to guide us (Fairclough 1995; Kress and van Leeuwen 2006) and adapted them from prior studies of academic web-marketing (Saichaie and Morphew 2014). Moreover, rubrics provided for systematic analyses, providing criteria by which to classify and code data (Saichaie 2011).

Findings were distilled into working categories (e.g., "entrepreneurship centers"). Then we aggregated categories into sets of emergent themes (e.g., "academic descriptions of entrepreneurship centers") to form selectively coded narratives (e.g., "academic structures to leverage for economic gain"). Together, the analytic steps led to within- and cross-group results for the sampled institutions. Next, we present our study's empirical results.

Findings

Three core themes emerged from our analysis: structures, processes, and pipelines. Through various organizational structures, the institutions in the sample presented opportunities for students to acquire specialized knowledge for economic benefit. Processes of training, largely rooted in curricula, suggest aims to certify student entrepreneurs. Finally,

universities in our study depicted cocurricula as ways for students to prepare for and enter industry.

Structures: Building for Economic Gain

Institutions in our study highlighted organizational structures that expressed commitments to entrepreneurship in four key areas: organizational location (e.g., strategically, physically); ranking and prestige; academic context (e.g., teaching, research); and individual benefits to students. These areas introduced prospective students to programs and showcased how the programs were positioned to support the achievement of student and institutional entrepreneurial goals.

Organizational location. Across sampled universities, industry and market opportunities were presented as emanating from campus locations or offices and "centers," places with differing levels of attachment to and affiliation with academic departments. Nine institutions had centers in business schools or colleges (Florida, Georgia Tech, Minnesota, PSU, Texas, USC) and two institutions linked with programs in engineering (Columbia and Princeton). Five institutions had multiple entities on their campuses (Illinois, Michigan, Stanford, UNC), while three institutions featured stand-alone units (Carnegie Mellon, MIT, WUSTL). Organizational formations varied among institutions, but missions overlapped in articulations of reaching and attracting prospective students.

Ranking and prestige. The entrepreneurial outlets at all of the institutions' websites signified prestige in other manners as well, notably in their active and pivotal campus roles. The messages conveyed an expansive range of opportunities that current, and select, students, faculty, alumni, donors, and guests engaged in. Topics included prominent speakers, grant and personal awards, high-profile events, programmatic rankings, student, faculty, and alumni innovation. The CalTech Entrepreneurs Club displayed photographs from their trip to SpaceX and included a quotation from its founder, Elon Musk. Stanford's embedded video from its "Pay It Forward" speaker series featured Mark Zuckerberg, founder and CEO of Facebook. PSU celebrated "Start up Week" that featured prominent (and alumni) entrepreneurs. MIT featured its Digital Shingle Project where "every year hundreds of MIT graduates 'hang out their shingle' and start companies from the ideas, technology, and skills they gain from MIT, resulting in 200 to 400 businesses started annually."

Five of the institutions (CMU, Florida, Michigan, UNC, USC) promoted the ranking of their entrepreneurial programs on their home pages, often in conjunction with the ranking of business or MBA programs. For example, at USC:

> The USC program has consistently ranked among the top programs in the nation and has been ranked #1 by *Princeton Review* and *Entrepreneur Magazine*. *Business Week* with *U.S. News and World Report* labeled the Greif Center as 'one of the best Entrepreneurship programs' in the country.[2]

University of Florida's Center for Entrepreneurship and Innovations chose to visually present its top-ranking visually putting a "No. 1" graphic on a picture of business figures.

Academic context. Thirteen institutions emphasized the academic context of entrepreneurship, presenting learning and research opportunities for prospective students. The Illinois Academy for Entrepreneurial Leadership's stated mission was to "encourage entrepreneurial awareness and initiatives across all disciplines at the University."[3] Minnesota's center worked to "inspire and educate the next generation of entrepreneurs." UNC's Kenan-Flagler Center for Entrepreneurial Studies touted "award-winning innovation in entrepreneurial pedagogy."[4]

Teaching frequently was paired with research as many of institutions also chose to emphasize the central role of research endeavors. Research activities appeared in missions at 10 institutions. At Texas, "The Herb Kelleher Center for Entrepreneurship Growth and Renewal is…about teaching, learning and researching entrepreneurship and business enterprise."[5] Stanford integrated research and teaching: "As a single point of contact for entrepreneurship at Stanford, the Stanford Entrepreneurship Network (SEN) is a federation of over two dozen entrepreneurship-related campus organizations that conduct research, teach courses and/

[2] Retrieved from: http://www.marshall.usc.edu/faculty/centers/greif 04/23/13.

[3] Retrieved from http://business.illinois.edu/ael/curriculum/index.html 04/23/13.

[4] Retrieved from http://www.kenan-flagler.unc.edu/programs/undergraduate-business/curriculum/customize-degree/entrepreneurship 04/23/13.

[5] Retrieved from http://www.mccombs.utexas.edu/Centers/Kelleher-Center.aspx 04/23/13.

or provide outreach services."[6] USC mentioned its stature in terms of teaching and research: "The Lloyd Greif Center for Entrepreneurial Studies is among the nation's leaders in entrepreneurship education and research."[7]

Individual benefits. Some institutions incorporated commercial benefits in their messaging academic. UNC spoke broadly: "Entrepreneurial career opportunities come in many forms, whether you want to start your own company, work for a start-up, find an entrepreneurial opportunity within a larger company, or go into related areas such as venture capital or social entrepreneurship."[8] MIT was specific, offering "Industry Focus" in fields such as biotechnology and healthcare, energy, and materials technology that helped students "delve into the specific challenges and solutions of entrepreneurship in a particular industry."[9] Minnesota called attention to commercial activity that stemmed from a particular course: "Carlson School Class Opens Doors to Careers, Bathrooms Company sprouted from Entrepreneurship in Action class."[10]

Data suggested structures to ensure students would receive individual support for entrepreneurial endeavors. The structures connected students to prestigious campuses, faculty, peers, and external stakeholders. This subtheme would play out more so as the institutions focused on particular curricular affordances for skill-building and a platform to explore careers.

Processes: Training and Certifying Student Entrepreneurs

Institutions presented processes that would develop students into entrepreneurs and business leaders. Elements of the academic core were oriented toward industry- and market-goals. Curricula and instruction became primary means of helping students acquire skills—and credentials—for employment.

Curricular preparation. Fifteen institutions promoted specific curricula for developing and certifying entrepreneurial skills and know-how. At

[6] Retrieved from: http://sen.stanford.edu/ 04/23/13.
[7] Retrieved from: http://www.marshall.usc.edu/faculty/centers/greif 04/23/13.
[8] Retrieved from: http://www.kenan-flagler.unc.edu/entrepreneurship 04/23/13.
[9] Retrieved from: http://entrepreneurship.mit.edu/ 04/23/13.
[10] Retrieved from: http://www.csom.umn.edu/holmes-center/ 04/23/13.

USC's Lloyd Greif Center for Entrepreneurial Studies, "Undergraduate students looking for an opportunity to develop their entrepreneurial skills in a dynamic environment that engages the real world will find what they're looking for in the Lloyd Greif Center for Entrepreneurial Studies."[11] Washington University in St. Louis's (WUSTL) program descriptions were analogous to USC's: "Students will have the opportunity to build on ideas, skills, inventions and perspectives from their primary disciplines to enhance the creativity and excitement of the entrepreneurial process."[12] Columbia highlighted benefits of interdisciplinary approaches for students, as "engineering and technology classes provide students with a focused look at the development and diffusion of new technologies from both a commercial and social perspective."[13]

Public institutions evinced messages consistent with those at private universities with course descriptions. A Michigan course (Problem Solving, Troubleshooting, Entrepreneurship, Intrapreneurship, and Making the Transition to the Workplace) helped "students hone and enhance their problem solving, critical thinking, creative thinking, and troubleshooting skills and to ease the transition from college to the workplace."[14] Georgia Tech broadly promoted its leadership minor as: "Training for the next generation of leaders."[15]

Social entrepreneurship was a curricular or programmatic feature on websites at 10 institutions in our study. Princeton's Keller Center bridged "technology and society through innovation, leadership, and entrepreneurship."[16] Georgia Tech's Institute for Leadership and Entrepreneurship advocated "socially responsible and sustainable value creation." Illinois positioned social entrepreneurs as "changemakers," offering opportunities to develop in the field: "Interested in starting or

[11] Retrieved from: http://www.marshall.usc.edu/faculty/centers/greif/curriculum/undergrad 04/23/13.

[12] Retrieved from: http://sc.wustl.edu/Curriculum/Pages/MajorMinorConcentrations 04/23/13.

[13] Retrieved from: http://engineering.columbia.edu/entrepreneurship_minor 04/23/13.

[14] Retrieved from: http://www.cfe.umich.edu/classes 04/23/13.

[15] Retrieved from: http://scheller.gatech.edu/programs/under/prospective/cert/cert_eng_entrep.html 04/23/13.

[16] Retrieved from: http://commons.princeton.edu/kellercenter/courses/overview.html 04/23/13.

joining a social venture—a not-for-profit organization, or a for-profit organization with a social mission? Illinois has many options for you to *build your skills*—courses, programs, a range of co-curricular activities"[17] (emphasis in original).

"Innovative" pedagogy and curricula were prominent, though seldom defined. Penn State's Farrell Center for Corporate Innovation and Entrepreneurship championed "creation and management of educational programs in corporate innovation and entrepreneurship; research; and outreach."[18] Minnesota claimed "Teaching Real-World Skills Through the Holmes Center, faculty with applied entrepreneurial experience deliver an innovative curriculum that features experiential courses and creative problem-solving opportunities."[19] USC's "faculty—a diverse mix of academics and entrepreneur practitioners—together offer undergraduate and graduate programs designed to help students acquire the tools, develop the skills, and cultivate the mindset central to organizing, launching, and managing successful new ventures." Internships complemented instruction in much of the sample as well. Princeton reinforced its claim with a recent alumna's testimonial about "independence to pursue my projects in the way that worked best for me, but I also received constant mentorship. This internship solidified my belief that I want to work in the startup world after graduation."[20]

Student–faculty interaction. Despite messages of teaching and skill-building, infrequently were students and faculty shown interacting together in the classroom or otherwise. Six institutions (Georgia Tech, Illinois, Michigan, Minnesota, PSU, UNC) featured faculty visually. In fact, only a total of 13 images included student/faculty interaction.

Pipelines: Industry and Markets

Institutions in our study illuminated various "pipelines" that served to connect prospective students to entrepreneurial, industry networks. Specifically, pipelines entailed student organizations (clubs, societies) as well as competitions and events. They presented professional

[17] Retrieved from: http://business.illinois.edu/ael/curriculum/index.html 04/23/13.

[18] Retrieved from: http://www.smeal.psu.edu/uge 04/23/13.

[19] Retrieved from: http://www.carlsonschool.umn.edu/strategic-management-entrepreneurship/courses.aspx 04/23/13.

[20] Retrieved from: http://commons.princeton.edu/kellercenter/index.html 04/23/13.

development activities for students to leverage for pathways to industry (e.g., biotechnology, engineering).

Student organizations. Fourteen universities promoted student-entrepreneurship organizations, such as the MIT Entrepreneurs Club and Penn State Entrepreneurs Network. Competitions occurred across nearly all sampled institutions. There, undergraduates vied for monetary prizes and to pitch ideas to business executives. The "Columbia Engineering Fast Pitch Competition"[21] allowed students the opportunity to hone their "elevator pitch" skills. At Minnesota, students could partake in the Minnesota Cup, "the largest statewide new venture competition in the country."[22]

Institutions further showcased the prowess of their home-grown talents and funding streams for students. Michigan featured the following text about significant funding obtained by a start-up: "U-M startup AlertWatch secures $1M in seed funding."[23] CalTech promoted its "FLoW Business Plan Competition Launch Event" where first prize was $100,000, opportunities to "Connect with investors, entrepreneurs, and technologists in clean energy."[24]

Professional development. Other institutions marketed opportunities for direct student-industry contact. Stanford's Entrepreneurship week featured events to tighten student–industry links (e.g., the Entrepreneurs Career Expo and Art of Networking). Illinois presented an expansive view of the ways its Academy for Entrepreneurial Leadership prepares students for post-graduation: "We offer a broad base of workshops, lectures, and experiential learning programs that reach out to the campus and the community, including internships and business plan competitions that have involved hundreds of students and have impacted local firms."[25] Minnesota credited its innovative programs, "The Holmes Center collaborates with more than 250 members of the entrepreneurial business community each year to speak, mentor, and hire interns."[26]

Professional relationships. The majority of the institutions mentioned relationships with high-profile businesses. According to Michigan's

[21] Retrieved from: http://engineering.columbia.edu/entrepreneurship 04/23/13.
[22] Retrieved from: http://www.csom.umn.edu/holmes-center/ 04/23/13.
[23] Retrieved from: http://www.cfe.umich.edu/ 04/23/13.
[24] Retrieved from: http://www.entforum.caltech.edu/ 04/23/13.
[25] Retrieved from: http://business.illinois.edu/ael/ 04/23/13.
[26] Retrieved from: http://www.csom.umn.edu/holmes-center/ 04/23/13.

entrepreneurial home page, "our graduates have fueled the formation of many of the world's leading companies, including Google, Domino's Pizza, Sun Microsystems, Stryker Corp., H&R Block, Borders and Federal Express."[27] Visual images marketed the type of connections—and potential career prospects for students—made possible through participation in campus activities and networking. Princeton signified the strength of its alumni network by describing connections between its graduates and companies, such as Mint and Progressive Insurance, and displaying the corporate logos of these firms prominently.

Data suggested "business/corporate" language and market focuses on institutions. Institutions tightly coupled the discourse around skill-building and professional development that sought to facilitate student connections with industry. The institutions touted the extensive relationships with the commercial/private sector to demonstrate their deep connections to industry. In this way, students might largely receive private gains from education with other, broader learning and development benefits.

Discussion and Implications

In the knowledge economy, many universities have deepened their long-standing engagement with industry and markets. Several have intensified commitments to preparing students for jobs and careers in which the utilization of specialized knowledge carries potentially lucrative benefits (Geiger and Sá 2005; Lane 2012). Some students could be "tokens of exchange" between academe and industry (Slaughter et al. 2002), while others exercise agency as entrepreneurs (Mars and Rhoades 2012). Yet little is known about institutional efforts to recruit prospective students into academe–industry relationships. This study has sought to contribute to understanding academic marketing to prospective students about pathways to industry. We close with a summary of our analyses and implications for institution-student dynamics.

Universities in our study have developed new organizational forms to anchor training for students. These campus units (e.g., entrepreneurship centers) seem portrayed as academic departments that conduct teaching, research, and service. As institutional theory suggests, organizational structures communicate values (Scott and Davis 2006), and their

[27] Retrieved from: http://www.cfe.umich.edu/ 04/23/13.

marketing, in our analysis, evinces specialized study to facilitate economic gains for students in their careers. Language conveys norms (Fairclough 1995), with distinctions between "training" and "educating" in our sample. Skills are foregrounded with pedagogical approaches less prevalent, constituting "training" benefits of studying at universities rather than entering industry directly. Campus structures, featured in our study, may thus extend the packaging of knowledge for economic transactions (Saunders 2014).

Indeed, representations of curricula in our study suggest academic opportunities to attract and certify student entrepreneurs. Faculty who pursue market-oriented research have tended to guard instruction from external stakeholders (Campbell 1997). Yet in our analysis, we see increasing external influence over curricula, which could come, in part, from the involvement on campuses of external funders, such as the Kauffman Foundation.

Entwinement of teaching and markets underscores academic capitalism (Slaughter and Leslie 1997; Slaughter and Rhoades 2004), but, rather than supplanting public for private good, the market environment on campuses may present a nexus for students to leverage (Mars and Rhoades 2012; Mars et al. 2008). Recall that academic marketing messages in our study emphasized personal gains, such as training for entrepreneurship, and social benefits from applying academic learning to societal problems. While many may argue that students seek postsecondary education across majors and programs to enhance potential earnings (e.g., Saichaie and Morphew 2014), data in our study reveal explicit links among academic training and niches within the labor market.

The concept of the strategically deployed shifter (SDS; Urciuoli 2003) provides a critical perspective of ways in which institutions in our study operationalize text and image. Layered among enticements to personal and social gains, institutions in our analysis addressed prospective students with relational discourse. PSU presented a "high touch" approach:

> …Smeal focuses all these resources on you, the student. From day one, you will have an academic adviser to help you navigate through your academic career. And our freshman seminar is a small, intimate course

> designed to help you learn the basics about academic life and business, and transition successfully into your college years.[28]

Stanford referenced its geographic location to contextualize the educational experience: The use of relational discourse seemed to position students among resources and people, but in a way that would benefit institutions' own place in these relationships.

The portrayal of cocurricular campus experiences seemed to strengthen the market messaging of institutions in our study. Student clubs, institutional events, and networking opportunities were depicted as pathways to markets. In the context of the current political and economic climate, cocurricula, in our study, may become an opportunity for personal growth utilized for entrance into careers. We see further evidence of academic capitalism through the permeation of external environments in marketing messages of campuses. As the concept of SDS suggests, these messages may seem intended to advocate campuses helping students, while universities could ultimately benefit in collaboration goals with industry and accountability to government and external funders (Geiger and Sá 2008).

But what does entrepreneurship, as presented at these institutions, look like? Who does it include and exclude? What messages are being sent about the use of higher education for certain forms of career success? Our visual analyses encompassed over 100 images. Analogous to prior research (Hartley and Morphew 2008; Saichaie 2011; Saichaie and Morphew 2014), our study's data were consistent and rather homogenous across institutions. For instance, websites seldom showed students, faculty, or other participants engaged in the learning process (e.g., working in classrooms; conducting experiments; reading books and studying, etc.). These images fell into consistent categories of:

- student(s) posing in front of/with an award (e.g., trophy, novelty-sized check);
- student(s) posing with an invention/business concept/presentation; and
- students posed in pairs or a small group of five or fewer, and students in formal, business attire (e.g., suit, tie).

[28] Retrieved from: http://www.smeal.psu.edu/uge 04/23/13.

Marketing messages could be similar across sampled institutions, due to field influences that persuade conformity in appearance for legitimacy and relevance. Images throughout this study evinced shared values of personal gain and meritorious accomplishment from utilizing practical applied training and supportive relationships on campus. However, there are some fine-grain nuances that emerge from close visual analysis.

With regard to the type of people who represent institutions and programs, men appeared twice as often as women in the sampled images. The Midwest group had the highest number of men, but this subgroup also employed the most images ($n = 37$) on its sites. The South group had the fewest number of women on web pages in the sample, though it had the fewest images on its sites.

Generally, the differences between and among the sample institutions and groups seem superficial. The programs in the Midwest place the strongest emphasis on teaching. The institutions and programs in the West mention their linkages to Silicon Valley, though institutions in the East did so as well. Most places have overlapping curricular with business or finance programs. All promote relationships with industry vis-à-vis name-dropping (e.g., referencing names of corporations). The institutions are quick to talk about the prestige of their programs and benefits for individual students, even in the case of social entrepreneurship. This aligns with previous research examining messages of higher education institutions to prospective students; essentially, the message to students is that it is "all about you" (Hartley and Morphew 2008; Saichaie and Morphew 2014).

Thus, academic capitalism appears to work *on* and *for* select universities, industry, individual students, and geographic regions. While conformity in appearance to national marketing trends may strengthen institutions' external claims as legitimate economic actors, it can *stratify* which students benefit, the types of experiences and careers that students may have, and where students may work after graduation. As our data suggest, marketing messages tend to privilege white men who pursue high-technology entrepreneurship in urban, metropolitan centers. Institutions in our study may promote these students who can contribute to economic growth, but miss opportunities to shift stratification toward new equilibriums of equity among undergraduates and also serve local needs and developing industries (Rhoades 2000).

In turn, our study raises questions for institutional policy and research. First, consideration of admissions practices seems warranted,

for enrollment management could reinforce the stratification depicted in marketing messages. Second, persistence, learning, and completion could be examined, since outcomes for students in entrepreneurship programs are unclear. Third, cross-sector comparisons may shed light on the extent to which some institutions (e.g., elite research universities) may prepare students for high-status, lucrative, and geographically unbounded jobs and careers as compared to others (e.g., community colleges). Fourth, our study is part of a growing call for using different methodological approaches (e.g., critical, visual) and forms of data to help researchers and practitioners examine increasingly nuanced questions about institutions and students (Metcalfe 2012; Saichaie and Morphew 2014). Finally, business majors—and entrepreneurs—may spur economic growth, but whether that assertion is true—an assertion perhaps driving universities' initiatives in this arena—requires clarification.

Conclusion

In our analysis, institutions utilized messages and images of structures, processes, and pipelines to recruit prospective students into industry-academe links. Together, themes suggest universities offer academic training to prepare and certify entrepreneurs and blur boundaries between academe and environments for students to leverage for economic benefit. Structures, processes, and pipelines magnify and reinforce one another, constituting integrative ways that universities in our study encourage students' self-movement to industry and markets. Our study may thus contribute to the research literature on academic marketing by moving beyond broad considerations of higher education as a private or public good and focusing on specific pathways from academe to industry. In addition, this study provides initial evidence of the importance of disaggregation in analyses of academic marketing and branding. We perceive issues of equity in institutions' text and visuals that differentiate which students, industries, and geographic regions appear to benefit the most in this arena. The extent to which this differentiation becomes stratification, especially within the context of academic capitalism, could become a focal point in future work that addresses emerging student-institution dynamics.

Whether students are benefiting in the ways marketed to them is unclear, but their institutions' *appearances* of success in this arena are resonant. Institutions can succeed when stakeholders perceive them as

legitimate, even when the efficacy of their practices is difficult to assess (Scott and Davis 2006). Academic marketing may reify agreed upon truth-claims (Metcalfe 2012), yet institutional leaders and administrators should consider carefully how these beliefs shape campus realities. Moving forward, institutional leaders and administrators could consider shifting some of the focus in their academic marketing—and opportunities and outlets for students on campuses—to matters of equity, distinctiveness, and balance in institutional purpose and values. These messages may include emphasizing and actively portraying preparation and careers in public service, nonprofit leadership, and public health, for example. The strong influences of academic capitalism could, however, be difficult for institutional leaders and administrators to resist, engraining market mentalities and industry orientations in official representations of and sanctioned opportunities on campuses. With mission, enrollment, status, and resources on the line, signs of resistance to the political economy may be hard to imagine.

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