

# Focus on the finish line: does high-impact practice participation influence career plans and early job attainment?

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**Abstract** High-impact practices (HIPs) are important co-curricular educational experiences in post-secondary education, as they promote learning, development, and persistence among students. The goal of this study was to extend the research on HIPs to explore potential connections with HIP participation and career outcomes. Using data from the National Survey of Student Engagement, this study explores whether HIP participation influences college seniors' post-graduation plans for career and further education and whether HIP participation has a positive impact on early job attainment for these students. Results suggest that even after controlling for a variety of demographic and institutional factors, HIP participation is a significant predictor of future career plans and early job attainment. HIP participation can give students a career-related advantage through transferable skill development, engaging in learning opportunities, and generating “stories” for potential employers.

**Keywords** High-impact practices · Career outcomes · Survey · Higher education

Although the US economy is slowly recovering from recession, funding for higher education continues to be cut in many states (Thomason 2015), and there is an increasing requirement that colleges and universities show evidence of their effectiveness (Kuh and Ewell 2010). Gathering post-graduation plans and career information from graduates is one important avenue of assessing institutional effectiveness (Cabrera et al. 2005). One of the primary goals of higher education is to prepare students to become contributing members of society, in

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particular the workforce, upon graduation. Therefore, a major claim of success for an institution involves the employment of its graduates. However, there are many aspects of the college experience that could potentially influence career plans and early job attainment for students, including student demographics and background, extra-curricular and co-curricular activities, academic major, and further education.

Recent research suggests that many college graduates, across a variety of institutional types, are not well prepared for entering the workforce, which is problematic for both higher education and potential employers (Polk-Lepson Research Group 2014). Institutions claim to prepare their students with a multitude of skills, ranging from effective communication practices to analytical and creative thinking skills, in addition to the pure content knowledge gained from a student's selected major (Stasz 2001; Tait and Godfrey 1999). If institutions are lacking in providing students with the appropriate skills and career training, the employability of their graduates will decrease (Evers et al. 1998). Furthermore, there are a variety of experiences that, while not necessarily part of course requirements for graduation, may be able to make a positive contribution in terms of a student's career readiness.

One such example of these positive educational experiences is participation in high-impact practices. Kuh (2008) recognized several co-curricular educational experiences as being remarkably effective in promoting learning, development, and persistence among college students. Programs such as learning communities, service learning, undergraduate research with faculty, internships, senior capstone projects or culminating experiences, and study abroad were recognized as "high-impact" practices (HIPs) due to their positive connection with key educational outcomes as well as the mutual qualities that influence their effectiveness. Although they may vary in their specific operations from one institution to another, generally HIPs require a considerable amount of students' time and effort, offer structured opportunities for reflection and integrative thinking, and provide substantive feedback from faculty, opportunities for learning outside of the classroom, meaningful contacts with faculty and peers, and interactions with diverse others (Kuh 2008; Kuh and O'Donnell 2013). Furthermore, college experiences like these can serve to "blur the boundaries between students' academic and out-of-class lives" (Terenzini et al. 1996, p. 158), making them more educationally compelling and increasing the social and cognitive impact of a student's overall experience at the institution.

A considerable amount of interest has been directed toward HIPs because participation in HIPs has been shown to have a positive relationship with student learning and development in college. For instance, participating in a learning community has been linked to higher GPAs, increases in collaborative learning, interactions with faculty, and self-reported learning gains (Rocconi 2011; Zhao and Kuh 2004), while living-learning programs are positively associated with studying and holding academic discussions with peers, interacting with faculty members, and feelings of social support regarding residence hall climate (Brower and Inkelas 2010). Service learning activities not only offer students the opportunity to solve problems in the community but have been shown to increase intrapersonal development and multicultural communication skills (Chesbrough 2011; Keen and Hall 2009). Research with faculty allows students to learn about their substantive area of research, gain technical skills, and enhance critical thinking while also giving students an understanding about graduate school research expectations (Craney et al. 2011; Lopatto 2007). Completing an internship provides students with practical applications and real-world experiences and also has been shown to increase students' leadership skills, professional development, and intercultural effectiveness (Coco 2000; Kilgo et al. 2014). Completing a senior capstone project has been linked with students' ability to think imaginatively and integrate, synthesize, and

apply course concepts to practice (Kinzie 2013). Participation in a study abroad program has been shown to enhance students' linguistic competency, intercultural competencies, and interpersonal accommodation (i.e., patience/flexibility) (Cisneros-Donahue et al. 2012; Stebleton et al. 2013).

It is also possible that students who participate in HIPs may integrate these experiences either directly or indirectly into their career readiness, although it is difficult to determine the precise directionality of the relationship. Perhaps internships can provide useful connections during a job search and develop a network of resources and references for the intern once he/she begins the job search in earnest. Certain internships may even result in an eventual job offer with the company once they have been successfully completed. Students may also build knowledge of some job search strategies through a senior capstone course or culminating experience. Some of these courses include elements that further develop practical employment skills, such as mock interviews and assistance with résumé creation. Students can utilize these skills and strategies not only in their search for a first job after college but also into the future when they may be making career transitions.

Many HIPs may influence the development of transferable skills that are desired by employers (Berger 2012; Kinzie 2013; Lopatto 2007; Sandeen 2012; Stebleton et al. 2013). For instance, a study abroad experience may increase cultural awareness and tolerance, a general competency that will attract employers conducting international business. The hands-on learning that can take place within service learning course requirements or participation in a learning community can promote the integration of abstract concepts with real-world experiences and activities, which is beneficial for many careers as well. Other HIPs may have an eventual career influence through their preparation of students to gain further knowledge in graduate school. Participating in research with a faculty member as an undergraduate may promote comprehension of data collection and interpretation in one's discipline, which will greatly assist students as they continue their education at the graduate level.

## Research question

Given the positive benefits of HIP participation in a variety of areas, one primary goal of the current study is to extend this exploration to the influence of HIPs on post-graduation plans (i.e., attend graduate school or seek employment) and early job attainment for graduating seniors. Does participation in high-impact practices, including learning communities, study abroad, research with faculty, internship, senior capstone experience, service learning, and a formal leadership role, have a positive impact on seniors' post-graduation plans, specifically their desire to seek employment or attend graduate school as well as obtaining a job to begin immediately following graduation? We focus on the potential benefits of these HIP opportunities concerning careers, while also taking into account a number of other influences that are simultaneously shaping these specific outcomes as well. Given this context, we are interested in whether HIP participation influences plans for career and further education for graduating seniors and whether HIP participation has a positive impact on early job attainment for these students, even after controlling for a variety of other student and institutional factors.

## Methods

### Data source

This study uses data from the 2015 Senior Transitions module of the National Survey of Student Engagement (NSSE). NSSE is an annual survey administered in the spring semester to first-year and senior students at 4-year colleges and universities across the USA to assess student exposure to and participation in effective educational practices (McCormick et al. 2013). Institutions can elect to append additional questions to the survey by selecting from several topical modules. The Senior Transitions module explores seniors' post-graduation plans, links between academic major and future plans, and confidence in skill development. We examined responses from over 31,000 seniors attending 126 baccalaureate-granting institutions. Approximately 63% of the seniors were female, 84% were enrolled full time, 68% were traditional age (i.e., less than 25 years old), and 44% were first-generation students (i.e., neither parent/guardian holds a bachelor's degree). About 65% of the respondents were white, 7% were Asian/Pacific-Islander, 7% were African-American/black, 8% were Hispanic/Latino, 7% identified as more than one race/ethnicity group, and 6% identified with another racial/ethnic group (e.g., Native American). These characteristics are fairly consistent with the overall patterns for NSSE respondents (National Survey of Student Engagement 2015).

### Measures

The dependent variables were two items on the survey that asked seniors about their plans after graduation. The first item asked "After graduation, what best describes your immediate plans?" with the following response options: full-time employment, part-time employment, graduate or professional school, military service, service or volunteer activity, internship, travel or gap year, no plans at this time, and other (with write-in response). Approximately 60% of respondents indicated that they plan on having full-time employment after graduation with another 4% indicating part-time employment. Additionally, 23% of respondents indicated that they plan to attend graduate or professional school after graduation, with the rest dispersed throughout the remaining response options (no other response option had more than 3.5% of respondents selecting that option). Given this distribution of responses, full-time and part-time employment categories were combined to create an "employed" category, and the employed and "graduate school" categories were used in subsequent analyses. If a respondent indicated that he/she anticipated full-time or part-time employment, a follow-up question asked: "Do you already have a job after graduation?" with the following response options: No; Yes, I will start a new job; and Yes, I will continue in my current job. Approximately 59% responded "No"; 15% responded "Yes, I will start a new job"; and 26% responded "Yes, I will continue in my current job."

Our key independent variables included seven questions on the core NSSE survey that ask students about their participation in various co-curricular activities. Specifically, items asked students if they have done or are in the progress of doing a learning community, study abroad, a research project with a faculty member, an internship, a senior capstone project or culminating experience, and held a formal leadership role on campus. Additionally, an item asked about how many courses included a community-based project or service learning project, with response options: none, some, most, and all. This item was then recoded into a dichotomous variable combining "all," "most," and "some." In our sample, approximately 65% of seniors

completed a service learning project, 53% completed an internship, 48% completed a senior capstone project, 38% held a leadership role on campus, 27% participated in a research project with a faculty member, 26% participated in a learning community, and 15% completed a study abroad program.

We also included several student and institutional control variables that have been shown to impact student development in college (see McCormick et al. 2013; Pascarella and Terenzini 2005). At the student level, gender, enrollment status, race/ethnicity (with white as the reference group), traditional age, first-generation status, earned college grades (with mostly As as the reference group), residence status (lived on-campus vs. off-campus), Greek affiliation, online learning status (some vs. no online courses), academic major (with Arts and Humanities as the reference group), time spent working, and graduate degree aspirations were collected from the demographic items on the survey. Institutional controls included basic Carnegie classification (with Baccalaureate as the reference group), sector (public vs. private), and admissions selectivity measured by *Barron's Profiles of American Colleges* (1 = non-competitive to 6 = most competitive) (Barron's Educational Services, Inc. 2014).

## Analyses

We addressed our research questions with two logistic regression models. Binary logistic regression was used to construct a model relating students' participation in high-impact practices with students' decision to seek employment or attend graduate school after graduation. To examine the relationship between participation in high-impact practices and whether students seeking employment had secured a job after graduation, we utilized multinomial logistic regression procedures in order to model the relationship across the three response categories (No; Yes, I will start a new job; and Yes, I will continue in my current job). In this analysis, one category has to serve as a reference group in which the other two categories will be compared. In order to examine all pairwise comparisons among the response options, we ran the model twice, changing the reference category. Categorical control variables in all of the logistic regression models were dummy-coded. Finally, given the nested structure of our data (students with institutions), we used random intercept multilevel models to provide more accurate statistical significance results (Hox 2010), and all independent variables were grand mean centered.

## Results

### Seek employment vs. attend graduate school

Results from the binary logistic regression analysis modeling students' propensity to seek employment or attend graduate school are provided in Table 1. These results indicate that seniors who participated in an internship had 25% greater odds of seeking employment after graduation than seniors who did not participate in an internship. Seniors who had performed a leadership role on campus had 23% greater odds of attending graduate school than their counterparts who had not held a leadership role. Students who had completed a culminating senior experience (i.e., capstone project) had about 22% greater odds of planning to seek employment after graduation. Participating in a study abroad opportunity increased the odds of

**Table 1** Logistic regression modeling students' post-graduation plans: seek employment (0) or attend graduate school (1)

	Coefficient	SE	Odds ratio <sup>a</sup>	95% CI for odds ratio		
				Lower	Upper	
HIPs						
Internship	-0.22	0.047	0.80 (1.25)	0.73	0.88	***
Leadership	0.20	0.046	1.23	1.12	1.34	***
Learning community	-0.05	0.053	0.95 (1.05)	0.86	1.06	
Study abroad	-0.11	0.056	0.89 (1.12)	0.80	1.00	*
Research with faculty	0.50	0.045	1.65	1.52	1.81	***
Capstone	-0.20	0.056	0.82 (1.22)	0.73	0.91	***
Service learning	-0.04	0.030	0.96 (1.04)	0.91	1.02	
Male	0.14	0.078	1.15	0.99	1.34	
Full time	0.37	0.064	1.44	1.27	1.63	***
Race						
Asian/Pacific Islander	0.25	0.075	1.29	1.11	1.49	***
Black/African-American	0.50	0.077	1.65	1.42	1.92	***
Hispanic/Latino	0.20	0.070	1.22	1.07	1.40	**
Multiracial	0.15	0.066	1.16	1.02	1.32	*
Other race/ethnicity	0.09	0.075	1.10	0.95	1.27	
International student	0.29	0.129	1.34	1.04	1.72	*
Traditional age	0.23	0.054	1.26	1.13	1.40	***
First generation	-0.08	0.035	0.92 (1.09)	0.86	0.99	*
Grades						
Mostly Bs	-0.42	0.045	0.66 (1.52)	0.60	0.72	***
Mostly Cs	-0.69	0.102	0.50 (1.99)	0.41	0.61	***
Living on-campus	0.17	0.048	1.18	1.08	1.30	***
Greek member	-0.07	0.057	0.93 (1.07)	0.83	1.04	
Some online courses	-0.01	0.050	0.99 (1.01)	0.90	1.09	
Major						
Biological Sciences	0.83	0.086	2.28	1.93	2.70	***
Business	-1.13	0.122	0.32 (3.10)	0.25	0.41	***
Communications	-0.91	0.136	0.40 (2.49)	0.31	0.53	***
Education	-1.52	0.156	0.22 (4.59)	0.16	0.30	***
Engineering	-0.92	0.120	0.40 (2.50)	0.32	0.51	***
Health Sciences	-0.21	0.134	0.81 (1.24)	0.62	1.05	
Other majors	-0.45	0.104	0.64 (1.57)	0.52	0.78	***
Physical Sciences	-0.03	0.076	0.97 (1.03)	0.84	1.13	
Social Sciences	0.28	0.073	1.33	1.15	1.53	***
Social Services	0.15	0.091	1.16	0.97	1.39	
Time spent working	-0.01	0.002	0.99 (1.01)	0.99	0.99	***
Graduate degree aspirations	2.11	0.093	8.24	6.87	9.89	***
Carnegie						
Doctoral	0.19	0.124	1.21	0.94	1.55	
Masters	0.15	0.105	1.16	0.94	1.43	
Other	-0.61	0.347	0.54 (1.84)	0.27	1.08	
Private institution	-0.04	0.086	0.96 (1.04)	0.81	1.14	
Barron's selectivity index	-0.04	0.036	0.96 (1.04)	0.89	1.03	
Constant	-1.50	0.047				***

Cox and Snell pseudo *R*-squared 0.22; Nagelkerke pseudo *R*-squared 0.32; 78.6% correctly classified

<sup>a</sup> Parentheses indicate inverse odds ratios for negative coefficients

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

seeking employment by a factor of 1.12. Students who participated in research with a faculty member had 65% greater odds of planning to attend graduate school. Participation in a

learning community and service learning did not have a statistically significant effect on students' plans to attend graduate school or seek employment.

With regard to the control variables in the model, full-time students and traditional age students had greater odds of attending graduate school than their part-time and nontraditional counterparts. Seniors who lived on-campus had greater odds of attending graduate school than those who lived off-campus. Students who identified as Asian/Pacific Islander, black/African-American, or Hispanic/Latino were more likely to report planning to attend graduate school than their white counterparts. Similarly, international students were more likely to report planning to attend graduate school than their domestic counterparts. Not surprisingly, students who reported grades of mostly As were nearly twice as likely as those who reported earning grades of mostly Bs or Cs to plan to attend graduate school. Students majoring in the fields of Business, Communications, Education, and Engineering had more than two times greater odds of planning to seek employment than similar students majoring in Arts and Humanities, while students majoring in Biological Sciences and Social Sciences had greater odds of planning to attend graduate school. Also as expected, students who reported having an aspiration for eventually obtaining a graduate degree were over eight times as likely to plan on attending graduate school, making this an important control variable in the model. It should further be noted that when checking for multicollinearity, all VIF values were below 3, suggesting that multicollinearity was not an issue in any of our analyses (Field 2009).

### **Do not have a job vs. starting a new job**

Results from the multinomial logistic regression modeling the job status of students seeking employment after graduation can be found in Tables 2, 3, and 4. We first present the results modeling the relationship between those who did not have a job after graduation and those who will start a new job (Table 2). Seniors who had done an internship had almost two and a half times greater odds of starting a new job than those who did not do an internship. Students whose courses included a service learning component and those who completed a capstone course had between 16 and 49% greater odds, respectively, of starting a new job. None of the other high-impact practices were statistically significant when modeling the relationship between those who did not have a job and those who will start a new job. Again, earning higher grades and academic major were statistically significant contributors to whether students reported starting a new job after graduation. Specifically, students majoring in Business, Engineering, and Physical Sciences were more likely than students majoring in Arts and Humanities to start a new job after graduation. On the other hand, students majoring in Communications and Education were less likely to report starting a new job after graduation than students majoring in Arts and Humanities. Male students and those attending school part time were more likely to report starting a new job after graduation than their female and full-time counterparts. Additionally, the more time students spent working during the current school year, the greater their odds of starting a new job.

### **Do not have a job vs. continuing in current job**

Modeling the relationship between those who did not have a job after graduation and those who will continue in their current job (Table 3), we find that students who completed an internship and students who completed a senior capstone project had between 24 and 30%

**Table 2** Multinomial regression modeling job status of students seeking employment after graduation: No (0) vs. Yes, I will start a new job (1)

	Coefficient	SE	Odds ratio <sup>a</sup>	95% CI for odds ratio		
				Lower	Upper	
HIPs						
Internship	0.87	0.082	2.38	2.03	2.79	***
Leadership	0.09	0.060	1.10	0.97	1.23	
Learning community	0.11	0.056	1.12	1.00	1.25	
Study abroad	-0.06	0.070	0.94 (1.06)	0.82	1.08	
Research with faculty	0.09	0.054	1.09	0.98	1.21	
Capstone	0.40	0.076	1.49	1.29	1.73	***
Service learning	0.15	0.048	1.16	1.05	1.27	**
Male	0.39	0.064	1.47	1.30	1.67	***
Full time	-0.21	0.083	0.81 (1.24)	0.69	0.95	*
Race						
Asian/Pacific Islander	0.05	0.088	1.05	0.88	1.25	
Black/African-American	-0.05	0.112	0.95 (1.05)	0.76	1.18	
Hispanic/Latino	0.05	0.085	1.05	0.89	1.24	
Multiracial	-0.10	0.084	0.90 (1.11)	0.77	1.07	
Other race/ethnicity	-0.01	0.122	0.99 (1.01)	0.78	1.26	
International student	0.16	0.182	1.17	0.82	1.67	
Traditional age	0.15	0.089	1.16	0.98	1.38	
First generation	0.01	0.050	1.01	0.92	1.12	
Grades						
Mostly Bs	-0.15	0.061	0.86 (1.17)	0.76	0.97	*
Mostly Cs	-0.46	0.125	0.63 (1.59)	0.49	0.80	***
Living on-campus	-0.09	0.068	0.91 (1.10)	0.80	1.04	
Greek member	0.16	0.074	1.17	1.02	1.36	*
Some online courses	0.21	0.062	1.24	1.10	1.40	***
Major						
Biological Sciences	0.16	0.160	1.18	0.86	1.61	
Business	0.71	0.159	2.02	1.48	2.77	***
Communications	-0.35	0.160	0.71 (1.41)	0.52	0.97	*
Education	-0.74	0.135	0.48 (2.10)	0.37	0.62	***
Engineering	0.42	0.151	1.52	1.13	2.04	**
Health Sciences	0.09	0.129	1.10	0.85	1.41	
Other majors	0.39	0.213	1.47	0.97	2.23	
Physical Sciences	0.34	0.162	1.40	1.02	1.92	*
Social Sciences	0.12	0.115	1.13	0.90	1.42	
Social Services	-0.23	0.168	0.79 (1.26)	0.57	1.10	
Time spent working	0.02	0.003	1.02	1.02	1.03	***
Graduate degree aspirations	0.04	0.053	1.04	0.94	1.15	
Carnegie						
Doctoral	-0.36	0.114	0.70 (1.43)	0.56	0.87	**
Masters	-0.34	0.095	0.71 (1.40)	0.59	0.86	***
Other	0.52	0.424	1.68	0.72	3.88	
Private institution	-0.26	0.092	0.77 (1.30)	0.64	0.92	**
Barron's selectivity index	0.15	0.039	1.16	1.07	1.25	***
Constant	-1.56	0.052				***

Cox and Snell pseudo *R*-squared 0.33; Nagelkerke pseudo *R*-squared 0.39; 69.1% correctly classified

<sup>a</sup> Parentheses indicate inverse odds ratios for negative coefficients

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

greater odds, respectively, of continuing in their current job than those who did not complete these activities. On the other hand, students who held a formal leadership position, participated



**Table 3** Multinomial regression modeling job status of students seeking employment after graduation: No (0) vs. Yes, I will continue in my current job (1)

	Coefficient	SE	Odds ratio <sup>a</sup>	95% CI for odds ratio		
				Lower	Upper	
<b>HIPs</b>						
Internship	0.21	0.076	1.24	1.07	1.43	**
Leadership	-0.29	0.076	0.75 (1.33)	0.65	0.87	***
Learning community	-0.18	0.089	0.83 (1.20)	0.70	0.99	*
Study abroad	-0.20	0.077	0.82 (1.22)	0.70	0.95	**
Research with faculty	-0.03	0.065	0.97 (1.03)	0.85	1.10	
Capstone	0.26	0.057	1.30	1.17	1.46	***
Service learning	-0.21	0.046	0.81 (1.23)	0.74	0.89	***
<b>Male</b>						
Full time	-0.05	0.047	0.95 (1.05)	0.87	1.04	
	-0.89	0.102	0.41 (2.43)	0.34	0.50	***
<b>Race</b>						
Asian/Pacific Islander	-0.35	0.087	0.71 (1.41)	0.60	0.84	***
Black/African-American	-0.12	0.078	0.89 (1.12)	0.77	1.04	
Hispanic/Latino	-0.05	0.086	0.95 (1.05)	0.80	1.13	
Multiracial	0.06	0.102	1.06	0.87	1.29	
Other race/ethnicity	-0.12	0.095	0.88 (1.13)	0.73	1.07	
International student	-0.79	0.184	0.45 (2.21)	0.32	0.65	***
Traditional age	-0.51	0.091	0.60 (1.67)	0.50	0.71	***
First generation	0.07	0.048	1.07	0.98	1.18	
<b>Grades</b>						
Mostly Bs	-0.19	0.057	0.82 (1.21)	0.74	0.92	***
Mostly Cs	-0.37	0.089	0.69 (1.45)	0.58	0.82	***
Living on-campus	-0.32	0.085	0.73 (1.37)	0.62	0.86	***
Greek member	-0.05	0.082	0.95 (1.05)	0.81	1.12	
Some online courses	0.46	0.084	1.58	1.34	1.86	***
<b>Major</b>						
Biological Sciences	-0.08	0.141	0.92 (1.09)	0.70	1.21	
Business	0.22	0.098	1.25	1.03	1.51	*
Communications	-0.26	0.150	0.77 (1.30)	0.58	1.03	
Education	-1.25	0.132	0.29 (3.49)	0.22	0.37	***
Engineering	-0.59	0.151	0.56 (1.80)	0.41	0.75	***
Health Sciences	-0.23	0.205	0.79 (1.26)	0.53	1.19	
Other majors	-0.22	0.118	0.81 (1.24)	0.64	1.02	
Physical Sciences	-0.33	0.138	0.72 (1.39)	0.55	0.94	*
Social Sciences	-0.06	0.132	0.94 (1.07)	0.72	1.22	
Social Services	-0.43	0.162	0.65 (1.54)	0.47	0.89	**
Time spent working	0.08	0.003	1.08	1.07	1.09	***
Graduate degree aspirations	-0.15	0.055	0.86 (1.16)	0.77	0.96	**
<b>Carnegie</b>						
Doctoral	0.02	0.183	1.02	0.71	1.46	
Masters	0.04	0.111	1.04	0.84	1.30	
Other	-0.37	0.322	0.69 (1.45)	0.36	1.30	
Private institution	0.21	0.110	1.23	0.99	1.53	
Barron's selectivity index	0.01	0.039	1.01	0.93	1.09	
Constant	-1.42	0.055				***

Cox and Snell pseudo *R*-squared 0.33; Nagelkerke pseudo *R*-squared 0.39; 69.1% correctly classified

<sup>a</sup> Parentheses indicate inverse odds ratios for negative coefficients

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

in a learning community, participated in study abroad, or completed a service learning project had between 20 and 30% greater odds of reporting that they did not have a job after

**Table 4** Multinomial regression modeling job status of students seeking employment after graduation: Yes, I will continue in my current job (0) vs. Yes, I will start a new job (1)

	Coefficient	SE	Odds ratio <sup>a</sup>	95% CI for odds ratio		
				Lower	Upper	
HIPs						
Internship	0.66	0.065	1.93	1.70	2.19	***
Leadership	0.38	0.083	1.46	1.24	1.72	***
Learning community	0.29	0.077	1.34	1.15	1.56	***
Study abroad	0.14	0.097	1.15	0.95	1.39	
Research with faculty	0.12	0.062	1.13	1.00	1.28	*
Capstone	0.14	0.069	1.14	1.00	1.31	
Service learning	0.36	0.059	1.43	1.27	1.60	***
Male	0.44	0.065	1.55	1.36	1.76	***
Full time	0.68	0.137	1.97	1.51	2.57	***
Race						
Asian/Pacific Islander	0.39	0.102	1.48	1.21	1.81	***
Black/African-American	0.06	0.129	1.07	0.83	1.37	
Hispanic/Latino	0.10	0.114	1.10	0.88	1.38	
Multiracial	-0.16	0.125	0.85 (1.17)	0.67	1.09	
Other race/ethnicity	0.12	0.114	1.12	0.90	1.41	
International student	0.95	0.205	2.59	1.73	3.87	***
Traditional age	0.66	0.089	1.94	1.63	2.32	***
First generation	-0.06	0.052	0.94 (1.06)	0.85	1.04	
Grades						
Mostly Bs	0.04	0.075	1.04	0.90	1.21	
Mostly Cs	-0.09	0.124	0.91 (1.10)	0.71	1.16	
Living on-campus	0.23	0.093	1.25	1.04	1.51	*
Greek member	0.21	0.098	1.23	1.02	1.49	*
Some online courses	-0.24	0.084	0.79 (1.27)	0.67	0.93	**
Major						
Biological Sciences	0.24	0.164	1.28	0.93	1.76	
Business	0.48	0.169	1.62	1.17	2.26	**
Communications	-0.09	0.186	0.91 (1.09)	0.64	1.32	
Education	0.51	0.167	1.67	1.20	2.31	**
Engineering	1.01	0.170	2.73	1.96	3.82	***
Health Sciences	0.32	0.200	1.38	0.94	2.05	
Other majors	0.60	0.244	1.83	1.13	2.95	*
Physical Sciences	0.67	0.195	1.95	1.33	2.86	***
Social Sciences	0.19	0.158	1.20	0.88	1.64	
Social Services	0.20	0.220	1.22	0.80	1.88	
Time spent working	-0.05	0.004	0.95 (1.05)	0.94	0.96	***
Graduate degree aspirations	0.19	0.074	1.20	1.04	1.39	*
Carnegie						
Doctoral	-0.38	0.180	0.68 (1.46)	0.48	0.98	*
Masters	-0.38	0.134	0.68 (1.46)	0.52	0.89	**
Other	0.89	0.361	2.43	1.19	4.98	*
Private institution	-0.47	0.129	0.63 (1.60)	0.48	0.81	***
Barron's selectivity index	0.14	0.044	1.15	1.05	1.26	**
Constant	-0.15	0.059				*

Cox and Snell pseudo *R*-squared 0.33; Nagelkerke pseudo *R*-squared 0.39; 69.1% correctly classified

<sup>a</sup> Parentheses indicate inverse odds ratios for negative coefficients

\**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001

graduation, compared with continuing in their current job. Part-time students were over twice as likely to report continuing in their current job compared with full-time students. Student

over 25 years old had 67% greater odds of continuing in their current job compared with traditional age students. Additionally, students who lived off-campus and who took some of their coursework online were more likely to continue in their current job. Arts and Humanities majors were more likely to continue in their current job than otherwise similar Physical Science, Education, Engineering, or Social Service majors. On the other hand, Business majors were more likely than Arts and Humanities majors to continue in their current job.

### **Continuing in current job vs. starting a new job**

Comparing the relationship between those who will continue in their current job and those who will start a new job (Table 4), we find that completing an internship was associated with increasing the odds of starting a new job after graduation by a factor of 1.93. Holding a formal leadership position increased the odds of starting a new job by a factor of 1.46. Additionally, completing a service learning project and participating in a learning community increased the odds of starting a new job by over 30%. Completing a research project with a faculty member increased the odds of starting a new job by 13%. Male students and seniors attending school full time were more likely to report starting a new job after graduation. Traditional age students were about twice as likely to report starting a new job after graduation, compared with otherwise similar older students. Those students who lived on-campus, were members of a Greek organization, or held eventual graduate degree aspirations had around 20% greater odds of starting a new job after graduation. Students majoring in Physical Sciences, Business, Education, and Engineering were more likely than students majoring in Arts and Humanities to report starting a new job after graduation. On the other hand, those who spent more time working were more likely to report continuing in their current job.

## **Discussion**

When examining the results from this study, as the previous literature has suggested, we find that certain high-impact practices appear to have positive effects on educational outcomes (Kuh 2008; Kuh and O'Donnell 2013). In this case, the educational outcomes are employment or graduate school attendance after graduation. Of particular interest is that the results from this study suggest that which HIPs students choose may depend on the desired post-graduation pathway, or vice versa. In particular, participation in internships, capstones, or service learning was positively associated with a students' likelihood of having a job when graduating. Conversely, leadership experiences or research with faculty has a positive effect in the model on students' plans to continue their education by going to graduate school. While some of these results may seem self-evident (e.g., participating in an internship is related to students' desire to seek employment after graduation or conducting research with a faculty member is related to students' plans to attend graduate school), empirical confirmation of expectations is an important part of the scientific process. It should further be noted that our findings are correlational and not causal and should be interpreted in such a manner.

### **Research with faculty**

Not surprisingly, the findings indicate that students who wish to go on to graduate school may want to consider doing research with faculty. Gaining valuable research skills prior to entering

graduate school can be a real benefit. In addition, it may also be the case that students who plan on going to graduate school are more likely to have an interest in doing research. Indeed, more research opportunities are available in certain disciplines. These fields, such as biological sciences and certain social sciences like psychology, are also the fields that are more likely to encourage students to go to graduate school. Yet even after controlling for the differences by major, the relationship between research with faculty and graduate school attendance is strong. Academic advisors could inform students of this potential advantage and help them incorporate plans to assist faculty with research projects when arranging future course schedules. Academic departments, especially those not traditionally associated with research, could also coordinate opportunities to match undergraduate students seeking to conduct research with faculty to those with similar interests.

### **Formal leadership**

Students with leadership experiences on campus also seem to be headed on the path to graduate school. Leadership on campus might be tied to general success on campus, such as good grades, which we also see is related to plans for graduate school enrollment. Those students who are getting involved with campus activities in profound ways seem to want to continue their educational experiences. Students who are having these positive experiences on campus may have more confidence in their potential performance in graduate school and thus could be more likely to enroll. Therefore, institutional support of co-curricular activities has important implications. Student organizations that provide these leadership experiences should be allocated appropriate resources from the institution, and students interested in such activities should be encouraged to participate and also provided with strategies for managing these commitments in their schedules. Academic advisors can be given this information to assist students in their time management, emphasizing that such participation may have long-term benefits as well. Activity fairs can be promoted to expose students to a variety of organizations, noting that not only are these fun ways to meet people and spend time but can also help to develop skills that may benefit them in the future, particularly if they plan on graduate school attendance.

### **Internships**

Perhaps intuitively, participation in an internship increases the likelihood that a student will have plans to start a new job after graduation more than any other HIP and more than most of the control variables in the models. This finding coincides with previous studies that connect internships with increased chances of getting career-oriented jobs upon graduation (Callanan and Benzing 2004; Coco 2000). Internships give students real-life experiences in their field, which increase their marketable skills and the stature of their résumé. Internships also provide students with direct connections in their field and opportunities for networking. Internship proponents emphasize the substantial importance of such experiences, calling them “inarguably, the most valuable experience of today’s college student” (Berger 2012, p. 5). Knowing the importance of internships is valuable even for beginning students, and academic advisors could help to include this in long-term planning of courses. Since internships often require taking fewer courses during the internship period in order to accommodate the necessary working hours, students must plan far in advance to verify that they will have time in their schedules and not fall behind in graduation requirements. Institutions, academic departments,

and career advising centers could also do their part to encourage internships for interested students by developing resources such as websites for students to search for openings, internship fairs, and coordinate for-credit policies.

In addition to all of the administrative and programmatic implications at higher education institutions, national, state, and local policymakers might want to consider these findings as well. Since the vast majority (95%) of jobs that were created in the last few years have gone to college-educated workers, policymakers are increasingly interested in the role that higher education institutions play in the preparation of the workforce (Carnevale et al. 2016). The findings from this study suggest that internships might ease the transition for college graduates into the workforce. Students cannot always afford to do internships because many of them are unpaid. Thus, policymakers might consider setting aside funding for students with unpaid internships to offset their living expenses while participating in these internships. Policy officials might also consider granting money to support programs at the institutional level (such as those mentioned previously) that place students in both unpaid and paid internships. Finally, public programs to support companies to offer paid internships to college students in the local, state, or national community could create opportunities for college students to participate in these internships that may simplify their transition to the workforce.

### Senior capstones

In addition to internships, senior capstones often result in real-world experiences for the graduating student and are also related to a higher likelihood for employment. Many senior capstones are courses where actual companies, local government agencies, or local organizations come into the classroom and give students authentic problems to discuss and solve. For example, a company might come into the classroom and have student groups give them possible design campaigns for a new product, or a local government agency might have students help develop ideas for a new green space. These projects are typically tied to the discipline and thus give some hands-on experience in their chosen field. These courses can also be networking experiences on some occasions, as well as provide general job search information such as interviewing and résumé-writing tips. These courses can link what students have learned in their coursework to the skills and abilities that they will need for their future careers.

Many academic departments require capstone courses, but others either do not offer or do not require participation in this type of experience. At institutions where these are not required, academic and career advisors can encourage students to take these as electives as a way to potentially benefit their post-graduation job attainment, citing this and other research (e.g., Kinzie 2013; Kuh 2008) as evidence of the importance of such courses. At institutions that do not offer capstone courses, faculty could be given course release time to develop such courses, in coordination with institutional career advising centers to incorporate the most essential information. In addition, because of the interest in the transition to the workforce, local, state, or national policymakers could consider funding programs that encourage institutions that lack capstones to develop them. Perhaps grants for faculty, programs, or departments that design new capstone courses and add them to the required curriculum could motivate their implementation.

### Service learning

Participation in service learning, which also links the educational experience with hands-on practices, had a higher probability for employment after graduation in the models. Service

learning projects have been shown to improve students' abilities to apply what they have learned in college to situations in the real world (Cohen and Kinsey 1994; Eyster and Giles 1999; Eyster et al. 2001). Thus, this association between their coursework and the application of the coursework in the real world is related to a higher likelihood of employment for students who participate in service learning as part of one of their courses. Academic advisors could encourage students to take courses with known service learning components, and institutional support could allow faculty to integrate more of these experiences into their curriculum. Assistance from career advising centers and other philanthropic organizations on campus might help faculty who are reluctant to develop service learning activities in their courses by connecting them to businesses and groups in the community that could provide relevant learning experiences for students across a multitude of disciplines.

Furthermore, National Campus Compact and other advocates of service learning often argue that service learning encourages students to be engaged on campus and in their local community, develops civic learning, and promotes college success (Campus Compact 2016). The findings from this study suggest another benefit that would be of interest to policymakers. Service learning might also bridge the transition for college graduates into the workforce. Thus, civic educators could use this as evidence when advocating for their programs and encourage policymakers to invest in programs that promote faculty to implementation of service learning, such as grants to redesign a course to incorporate work in the local community. Not only would the invested money strengthen students' ties to their community but also ease the transition into the economic workforce.

### Further implications

Participation in HIPs and the associated skills that result from these experiences are linked to several career-related benefits. An internship with a particular company might seem horizontal because the student is unpaid and only fulfilling a course credit, but it might lead to opportunities through a later job offer from a contact at the internship site. Study abroad, leadership roles, and service learning could develop desired transferable skills, such as cultural awareness, interpersonal skills, and relational empathy that will be greatly valued by future employers (Sandeen 2012). A student might generate several "stories" to share in their search for a job or application to graduate school, explaining how their passion for a certain topic was ignited through a theme-based learning community or the process and results of conducting research under the guidance of a faculty member. Career advising centers can emphasize the importance of these experiences, highlighting them on résumés and coaching students to talk about them (in the context of developed skills) during interviews. Furthermore, it is critical that this information on the benefits of HIPs be shared with students as early as possible in their academic careers. If they wait to visit their institution's career advising center until they are seniors, it may be too late to incorporate many of the HIPs that involve longer term planning (i.e., internships, study abroad, and research with faculty). Therefore, sharing these results with academic advisors, faculty, and academic departments as a means of encouraging HIP participation is an essential step in promoting these valuable educational experiences for students.

Although these suggestions are included as a means of encouraging institutional leaders to provide more opportunities and encourage students to participate in HIPs, it is also important to note that in reality, institutions face many obstacles in implementing HIPs due to limited resources. Consequently, administrators and faculty may need to select certain HIPs on which

to focus. This choice may depend on the institutional goals. If an institutional goal is increasing the number of seniors who go on to graduate school, then institutional leaders should correspondingly focus on leadership opportunities and encourage participation in research with faculty across all disciplines. On the other hand, if an institutional goal is to show that graduating seniors are using their education to obtain employment, other HIPs should receive the attention. Although internships are potentially the most costly to coordinate and difficult to implement, this HIP had the highest odds ratios across all of the employment models. Capstone courses also had relatively higher odds ratios for two of the three employment models, indicating that this might also be an HIP on which to focus in order to get the most return on investment when it comes to HIP resource allocation.

As institutions plan for resource allocation in the development of HIPs on their respective campuses, they should also take notice of which students may be more in need of programs to assist in their educational journey. While it was encouraging to see few differences by race/ethnicity in the employment prediction models, other patterns were somewhat more concerning when it comes to populations that are traditionally disadvantaged within higher education. Some of the models showed that males were more likely to have obtained employment, as well as an advantage for traditionally aged students. Given these disparities, institutions may wish to consider providing additional resources for certain groups of students as they are planning changes to HIP and other programming.

## Limitations

There are several limitations to this study that must be considered when interpreting the results and generalizing the findings. First, although the sample is comprised of a wide range of students attending multiple institutions, it is not representative of all students at 4-year colleges and universities in the USA. Individual colleges and universities elect to participate in NSSE for a variety of reasons, mainly for institutional improvement, which may impact the context of the student experience. While all seniors at participating institutions were invited to participate, students self-select to participate in the study as well as in the HIPs of interest. Given that students self-selected into HIPs, quasi-experimental designs would have been preferred; however, we lacked the data needed to meet the assumptions for propensity score designs or a proper instrument to use in an instrumental variable analysis.

Self-selection into HIPs also raises the concern that students chose to participate in a HIP given their post-graduation plans. For instance, students interested in working in a particular sector might seek out an internship in that field, or students interested in attending graduate school might seek out research with a faculty member to boost their graduate school vita. Including students' pre-college or first-year HIP intentions in the model would have been ideal. Unfortunately, NSSE is not designed as a longitudinal instrument meant to track particular students throughout college. While there is some overlap between institutions that participated in 2015 and in 2012 (when the seniors in 2015 would have most likely been first-year students), there were extensive changes made to the survey, including edits to the HIP items, in 2013 which makes the HIP items not directly comparable between 2012 and 2015. Given that post-graduation plans and HIP participation were collected at the same time, it is difficult to discern the directionality of the relationship. As such, the relationships discussed should be viewed as correlational, not causal. Additional research is needed to more fully explore these relationships.

This study also relied on students to self-report which programs and activities they had participated in, which may not be completely objective. However, most studies looking at student self-reports in higher education suggest that self-reports and actual abilities are positively related (Anaya 1999; Hayek et al. 2002; Laing et al. 1989; Pace 1985; Pike 1995). Furthermore, previous research suggests that social desirability bias does not play a major role in the responses of students for self-report surveys of basic academic behaviors (Miller 2012). We are also unaware of the specific details of the HIPs seniors reported doing, and our data did not allow us to account for implementation fidelity or the degree to which the HIP is delivered as intended. Well and poorly structured programs may have vastly different impacts on participants. We also did not know whether the HIP participation was voluntary on the part of the student or whether it was required by the institution. Despite these limitations, we believe that this study still provides valuable insight into the influence that participation in HIPs might have on seniors' post-graduation plans.

## Conclusions and future directions

This study adds to the already copious research studies (e.g., Callanan and Benzing 2004; Coco 2000; Cohen and Kinsey 1994; Eyer et al. 2001; Lopatto 2007; Kilgo et al. 2014; Keen and Hall 2009; Kinzie 2013; Kuh 2008; Kuh and O'Donnell 2013; Rocconi 2011; Sandeen 2012; Stebleton et al. 2013) that support the need to encourage students to participate in high-impact practices. These results are promising for institutions seeking to show evidence of their effectiveness, particularly as it relates to the offering of HIPs for students. These associations between HIPs and positive career-related outcomes can help to justify devoting financial and personnel resources to ensure that all students have options for HIP participation. In addition, these findings add nuance to the relationships between particular HIPs and students' career and educational aspirations. If students participate in certain HIPs, such as internships, senior capstones, and service learning, our data show that this is positively related to job attainment prior to graduation. Alternately, other HIPs, such as leadership experiences and research with faculty, are linked to plans for continuing education via graduate school. Greater understanding of these differences gives faculty, advisors, and administrators support for encouraging student HIP participation for those that most closely align with their future career and educational goals. Furthermore, these findings provide local, state, and national policymakers some evidence of the potential impact that HIPs have on graduates' transition to work and encourage them to consider funding programs that persuade students to participate in these HIPs.

The findings from this study stimulate several new avenues for researchers to explore in the future. Although it was beyond the scope of this exploratory study, future researchers may wish to focus on potential interaction effects between HIP participation and other demographic variables. The effects of HIP participation are not necessarily summative, and there may be differential effects by certain student characteristics. Additionally, more information concerning the acquired skills and developmental benefits may be gleaned from a deeper investigation of HIP implementation, in terms of the quality of these experiences for a variety of students. Moreover, it would be interesting to link this information to alumni data, supplementing the information from graduating students with career and other outcomes after several years of work experience. This could also open the door for explanatory path models that incorporate longitudinal data. Furthermore, future research might enhance the findings by triangulating the data with HIP supervisor evaluations of student performance or integrating



policy-level data from the institution, such as degree of resources and support for particular HIP programs. Continued research in the area of high-impact practices and outcomes, from a variety of perspectives, can expand the results and generate numerous applications to improve the educational experiences of all students in higher education.

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