A Comparison of Former Interns versus Non-interns in Critical Skills

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Abstract

Research suggests that employers today do not feel that recent college graduates entering the workforce are prepared for their new careers (Hart Research Associates, 2008; Hart Research Associates, 2009). One possible solution to this problem is widespread implementation of internships for college students which can help them to hone the skills they will need for their future careers. The aim of the current study was to investigate to what extent internships prepare students for the workforce. Specifically, this study examined whether former college interns perform better in the workplace as compared with their peers who did not have previous internship experience. It was hypothesized that former interns would outperform their peers in ratings of cognitive skills. To test this hypothesis, employers and advisors of recent college graduates were surveyed about participants' performance in the workplace or graduate school. The graduates were classified as "former interns" if they had held an internship or "non-interns" if they had not held an internship. No significant differences were found between interns and non-interns on composite measures of workplace performance. However, regarding individual skills, non-interns received a significantly higher mean rating on their writing effectiveness skills than former interns.

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Recent College Graduates Entering the Workforce

Given the rising cost of college tuition combined with high rates of unemployment and underemployment for recent college graduates, some have called into question the value of a college education. Prior research has shown that employers and college faculty alike do not think that recent college graduates entering the workforce are adequately prepared for their new careers (Hart Research Associates, 2008; Hart Research Associates, 2009). In addition to this perceived discrepancy between education credentials and actual career readiness, there is a mismatch between credentials and job type. Currently, many young people holding college degrees are unable to obtain jobs matching their level of education and consequently take jobs which, based on their educational background, they are overqualified for (Arum & Roksa, 2012). Furthermore, many of these jobs are part-time, rather than full-time positions, which negatively affect salary (Arum & Roksa, 2012).

There are many possible explanations for the disconnect between recent college graduates' educational attainment and their difficulty entering the work world. For example, Hanneman and Gardner (2006) reported that employers' expectations of entry-level employees are rising. The skill level that many employers seek in prospective employees who are entering the workforce for the first time would previously have been expected of employees who had already worked at least one job in the field. Other explanations relate to the education system. Arum and Roksa (2014) in particular have claimed that colleges are becoming less apt at promoting cognitive growth among students. In today's knowledge-based economy, employers are increasingly emphasizing cognitive skills, such as problem solving, critical thinking, and adaptability rather than solely job-specific technical skills (Bushnell, 2012; Hanneman &

Gardner, 2010; Hart Research Associates, 2008; Hart Research Associates, 2013; Levin, 2015). If students graduate from colleges without acquiring these skills to a great enough extent, then students' career paths may be negatively affected.

Extending the idea that deficits in the higher education system are to blame for the career-based difficulties faced by recent college graduates, Kamber and Briggs (2002) noted that grade inflation has made it difficult to differentiate students from one another and diminished the value of a college degree. Failing a course used to signify that a student had not shown a college-level mastery of the content and skills taught in that course. Today, failing grades are typically reserved for students who seldom show up to class and do not turn in their assignments. In other words, students will typically not fail a class as long as they show up and do the work, even if that work is not at college level. This process may ultimately lead to students earning a degree even if they are lacking in the cognitive skills needed to succeed in the workforce (Kamber & Briggs, 2002).

Recent College Graduates Entering Graduate School

Students who graduate from college on time and show better academic performance are more likely to enroll in graduate school after graduating than their peers who showed comparatively poorer academic performance (Arum & Roksa, 2014; Mattern & Radunzel, 2015; Mullen, Goyettem & Soares, 2003). Similarly, recent college graduates with higher scores on a test of cognitive skills are more likely to enroll in graduate school than their lower performing peers (Arum & Roksa, 2014). It is unclear whether the career preparedness problem for college graduates extends to graduate school preparedness. However, certain factors have been found to be associated with better self-reported graduate school preparedness, namely high quality interactions with faculty and research experience (Huss, Randall, Patry, Davis, & Hansen, 2002).

Internships: A Possible Solution

If higher education is partly responsible for students' lack of career preparedness, one possible solution would be to extend learning beyond the classroom—in other words, promoting extracurricular involvement (Gardner, Gross, & Steglitz, 2008; Kuh, 2002; Stuber, 2009). One particular out-of-class experience that has been shown to aid students' career outcomes is internship participation. In fact, Gallup Inc. (2014) listed having held an internship during college as one of the six factors most predictive of post-graduation success. These six factors were categorized into two groups: support and experiential. In addition to having an internship, the experiential factors also included having worked on a project that took a semester or more to complete and having been very involved in extracurricular activities. The support factors included having had at least one professor who made learning exciting, feeling that professors cared about each student as a person, and having an encouraging mentor (Gallup Inc., 2014). Other research has supported this notion, showing a variety of career benefits as well as cognitive benefits incurred by internships on students. For example, Gault, Redington, and Schlager (2000) found that the process of finding an internship helps students to develop certain job-hunting skills, such as interviewing and networking, which may enhance their success when entering the job market post-graduation. Internships also provide students with a set of professional contacts whom they can reach out to when later searching for a job and help students to build a base of job-relevant technical knowledge which will increase their employability (Arum & Roksa, 2014; Gault et al., 2000).

These benefits do in fact appear to help students in finding post-graduation employment, as graduates who held internships during college have shown faster job obtainment than those who did not hold internships (Arum & Roksa, 2014; Gault et al., 2000; Gault, Leach, & Duey,

2010; Ward & Yates, 2012) as well as a higher starting salary (Arum & Roksa, 2014; Gault et al., 2000; Gault et al., 2010; Ward & Yates, 2012) and higher levels of job satisfaction after they enter the workforce (Gault et al., 2000). Regarding graduate school success, no research to date has examined the relationship between internships and graduate school preparedness. However, since it has been found that graduate students felt their undergraduate research experiences were particularly helpful in preparing them for graduate school (Huss et al., 2002; Nnadozie, Ishiyama, & Chon, 2000), internships with a research component may be helpful to this group.

In addition to these more direct benefits, internships may also help students to develop and hone their cognitive skills through applying classroom concepts to real-world situations (Gault et al., 2000; Hergert, 2009; Karns, 2005). Hergert (2009) surveyed 114 undergraduate and graduate student interns about their internship experiences. Participants were asked both descriptive questions (e.g., how many hours they spent at their internship and to what extent their internship was integrated with course content) as well as evaluative questions (e.g., how they perceived the overall value of their internship). Findings showed that internships particularly benefit students when they mirror students' interests, are relevant to students' desired career fields, and are integrated with course material students are covering (Hergert, 2009).

In some cases, the benefits students receive from internships may even exceed their classroom learning; both Gault et al. (2000) and Karns et al. (2005) found that students rated their internship experiences as being more helpful than in-class experiences and other extracurricular experiences in the development of various skills, such as creative thinking and relationship-building. Still, these findings should be interpreted with some caution. Gault et al. (2000) warned that respondents may have attributed attainment of certain skills to their

internship when in reality they developed the skills in their university curricula but only had a chance to apply these newfound skills in the internship context.

The Present Study

Considering this prior research, the aim of the present study was to determine whether recent college graduates who had held internships would show higher levels of various cognitive skills than their peers who had not held internships, as rated by their employers or advisors. Based on previous findings showing that internships are effective in preparing students for their post-college career tracks, it was hypothesized that recent college graduates who had held internships would outperform their non-intern peers in an array of cognitive skills as rated by their employers and advisors.

Methods

Participants

Participants in the current study consist of a subsample of participants who participated in the Council for Aid in Education Longitudinal Tracking Project survey. The participants consisted of 75 recent college graduates (65% female) who were employed or in graduate school, as well as their employers or academic advisors (N =75), respectively.

Measures

Longitudinal Tracking Project student survey. Recent college graduates (i.e., less than 1.5 years out of college) completed this survey which assessed their undergraduate experience and current employment status. The survey asked questions about their post-graduation status (e.g. employed full-time, employed part-time, enrolled in graduate school, seeking employment), undergraduate education experiences, undergraduate education quality, skills they believe are important to success (i.e., analysis and problem solving skills, scientific

and quantitative reasoning skills, writing effectiveness, writing mechanics, creativity, and collaboration), and challenges they are facing with transitioning out of college life (i.e., finding a job, becoming financially independent, fulfilling family responsibilities).

Longitudinal Tracking Project employer survey. Targeted at employers and advisors of participants in the former survey, this survey asks respondents to rate the original participants on a variety of skills and attributes as well as identify the skills they find to be the most important for success in their workplace or program and how recent college graduates as a whole tend to perform in their workplace or program. The skills respondents were asked about included: analysis and problem solving, which refers to the ability to make logical decisions by analyzing relevant information; writing effectiveness, which refers to the ability to make logically cohesive arguments; writing mechanics, which refers' to the ability to adhere to the conventions of standard written English; scientific and quantitative reasoning skills, which refers to the ability to think analytically and draw conclusions from data; collaboration, which refers to the ability to work with other team members, and creativity, which refers to the ability to come up with and implement new and novel ideas. Ratings were given on a 5-point scale, with the options being 1 = "Unsatisfactory," 2 = "Needs improvement," 3 = "Satisfactory," 4 = "Good," and "5 = Outstanding."

Procedure

College graduates who had taken an examination of critical thinking, analytical reasoning, and problem solving, called the Collegiate Learning Assessment Plus (CLA+) in Spring 2014 completed the Longitudinal Tracking Project student survey three times over the course of a year. During the last administration of the survey, those who were employed or in graduate school were asked if they were willing to provide their employer's or graduate advisor's

contact information. Respondents who agreed were then emailed another survey asking for the email address of their employer or advisor, and if they completed the survey, they were entered into a raffle to win either one of four $250 gift cards or one $1,000 gift card. Employers and advisors were then contacted and asked to complete the employer survey, for which they were entered into a raffle to receive one of five $250 gift cards.

Results

It was hypothesized that employers and advisors would rate former interns as having stronger cognitive skills than non-interns; however, results did not support this hypothesis. An independent-samples *t*-test showed that students who had held internships did not receive a higher sum score on cognitive skill ratings (M = 28.13, SD = 4.56) than students who had not held internships (M = 29.70, SD = 4.62; $t(63) = 1.365$, $p = .177$). This overall cognitive skill rating score was obtained by summing the score given on each item asking the respondent to rate the participant's skill level. Former interns also did not receive higher comparative ratings ranking them against other recent college graduates (M = 4.12, SD = .75) than did non-interns (M = 4.10, SD = .80; $t(69) = -.118$, $p = .906$). This ranking was based on a 1 – 5 scale, with "1" indicating that the participant's performance was well below that of other recent college graduates and "5" indicating that the participant's performance was well above that of other recent college graduates. There were also no significant differences between interns and non-interns in many of the individual skills assessed in the survey. For example, there were no significant differences in supervisor/advisor-rated assessment of problem solving skills between former interns (M= 4.07, SD = .85) and non-interns (M= 4.19, SD = .88, $t(66) = .525$, $p = .601$). There was also no significant difference in supervisor/advisor-rated assessment of quantitative reasoning between former interns (M = 3.78, SD = .86) and non-interns (M = 3.96, SD = .90,

t(65) = .861, *p* = .392). Additionally, there were no significant differences in supervisor/advisor-rater assessments of critical thinking skills, with interns receiving a mean rating of 4.15 (*SD* = .86), and non-interns receiving a mean rating of 4.32 (*SD* = .77, *t*(66) = .841, *p* = .404). There was, however, a significant difference between former interns and non-interns in terms of ratings of writing effectiveness, with non-interns (*M* = 4.43, *SD* = .743) outperforming interns (*M* = 3.98, *SD* = .82; *t*(67) = 2.338, *p* = .022). The effect size is medium (*d* = .58). All mean scores are summarized in Table 1, and *t*-test results are shown in Table 2.

The correlations among the different skills are presented in Table 3. Although this was not a focus of the current study, it is worth nothing that all ratings of individual skills were positively correlated with one another.

Discussion

The results of this study did not support the hypotheses. Contrary to what was predicted, former interns did not outperform their non-intern peers in overall rating score or in their ranking score comparing them to other recent college graduates. Furthermore, graduates who had held internships did not outperform those who did not in any individual skill ratings, namely problem solving, critical thinking, quantitative reasoning, and writing effectiveness. In fact, former interns actually received a significantly lower average rating in writing effectiveness than non-interns. These findings were inconsistent with prior research that found internships to be beneficial in helping college students develop their cognitive skills or aiding employers in distinguishing highly skilled students from less skilled students (Arum & Roksa, 2014; Gallup Inc., 2014; Gault et al., 2000; Gault et al., 2010; Ward & Yates, 2012).

One possible explanation for the inconsistency between the present findings and previous findings is that the present study emphasized different skills from previous studies. For example,

the benefits described by Gault et al. (2000) included job-relevant technical skills (e.g., knowledge of computer applications), job-hunting skills, and interpersonal skills (e.g., relationship-building). Furthermore, most research on the benefits of internships for college students focused on outcomes, such length of time between graduation and job attainment, starting salary, and range of professional contacts rather than cognitive skills (Arum & Roksa, 2014; Gault et al., 2000; Gault et al., 2010; Ward & Yates, 2012). Thus, it may be that, while internships confer outcome-related benefits and help students gain technical knowledge, they are less beneficial in the domain of general cognitive skills.

Another possible reason why the current findings are not consistent with previous findings is that other studies investigating skill attainment for college interns used self-report scales to measure participants' skills (Gault et al., 2000; Karns, 2005) whereas participants in the current study received ratings from their supervisor or advisor. Self-appraisals may have poor validity and are influenced by administration techniques (Mabe & West, 1982). For this reason, the prior studies using self-evaluation as their criterion may not have fully captured the relationship between internship participation and cognitive skill attainment. While the present study did use a subjective technique, its use of supervisor ratings rather than self-ratings likely circumvented the biases and inconsistencies inherent in self-evaluation.

One particularly unexpected finding in this study was that graduates who had not held internships prior to graduating were rated higher in their writing effectiveness skills than graduates who had held internships. A possible reason why this occurred is that students obtaining internships may have been studying in less writing-intensive fields than students who did not obtain internships during college. For instance, many college business programs (which are generally less writing intensive) emphasize the importance of finding internships to students

more so than humanities-related programs. Interestingly, one study found that business students scored lower on a test of cognitive skills than students in most other fields of study (Steedle & Bradley, 2012). Thus, the lower scores in on writing effectiveness skills could be an artifact of the sample, if the intern group was disproportionately composed of students in less writing-intensive fields (such as business students). However, a post hoc comparison of mean ratings among different fields of study indicated that there was no main effect of field of study on ratings of writing effectiveness, indicating that field of study is unlikely to have impacted the current results.

This study was not without limitations. One limitation was that this study was subject to self-selection bias. First, there was bias in that only participants who agreed to provide their supervisor or advisor's contact information were included in the sample. From there, the final sample included only participants whose employers or advisors agreed to complete the survey. As a result, participants who felt they were performing well in their job or in graduate school were likely more inclined to allow the researchers to contact their employers and advisors. Furthermore, of the employers and advisors that were reached, those who felt their respective employee/student were performing well were also probably more inclined to respond. Even though measures were taken to ensure the security and confidentiality of the survey, some employers may have feared responding if they had only negative things to say about their employee. This also may have contributed to response bias, where those who did respond were likely to avoid saying anything negative about the participants.

Also limiting to this study was that there was a large amount of missing data. In order to minimize any perceived informational threat for supervisors and advisors, none of the survey questions were mandatory. This posed a problem because many respondents left several

questions blank. This made for an overall smaller sample in comparisons made on individual items and also left open the possibility for additional bias if respondents representing intern versus non-intern participants systematically differed in the questions they declined to answer. Another notable limitation to this study was that respondents were asked to rate participants on a variety of skills but were not given definitions as to what each skill entailed. This means that each respondent may have had a different interpretation of what he or she was assessing for some skills. For example, some may have interpreted "scientific and quantitative reasoning" to refer to knowledge of math and science, whereas others may have interpreted it to relate to how the participant processes and understands numerical information.

Given the many limitations of this study, the results should be interpreted with caution, for more research is needed to draw any definite conclusions about the role internships play in college students' career preparedness. There are many possible ways future researchers can improve upon the present study to determine whether and to what extent internships help college students to develop the generic cognitive skills most sought by today's employers. For example, one might wish to use another means rather than ratings solely from supervisors and advisors to measure college graduates' cognitive skills, such as an objective test or the 360 degree feedback technique, in which ratings from many sources are considered. Another possible idea would be to measure the skill sets of a number of recent college graduates in a single workplace who are under the same supervisor. This would reduce the bias that results from supervisors of competent employees being more likely to participate than supervisors of incompetent employees, as the supervisors would be rating all of their employees at a certain level.

In addition to correcting for the limitations of the present study, future researchers may also wish to build upon the findings of this study. For instance, future studies might investigate

possible interactions between internship participation and field of study or field of employment. This would help to determine whether any difference between former interns and non-interns that do emerge relate to differences among students in different fields. Also, to disentangle the relationship between internship participation and cognitive growth, future studies should compare students' general skills prior to, during, and after internship participation. Furthermore, since the present study did not show promising results regarding internships as a solution to the lack of career preparation among undergraduates, future research could examine ways to improve internships so that they benefit students' cognitive skill attainment to a greater extent.

In conclusion, this study has implications for colleges, career services centers, internship programs, and employers. While results should be interpreted in light of the limitations, they suggest that it is important not to over-emphasize the role that internships play in helping students develop their general cognitive skills. Furthermore, the findings suggest that there is much room for improvement for internship programs to better prepare students for their future careers.

References

Arum, R., & Roksa, J. (2014). *Aspiring adults adrift: Tentative transitions of college graduates*. University of Chicago Press.

Bushnell, E. (2012). Looking forward: New challenges and opportunities. *New Directions for Student Services, 138*, 91–103. doi:10.1002/ss.20008

Hanneman, L., and Gardner, P. (2010, February). *Under the Economic Turmoil a Skills Gap Simmers* (Michigan State University CERI Research Brief 1-2010). Retrieved from http://www.ceri.msu.edu/wp-content/uploads/2010/01/skillsabrief1-2010.pdf

Hart Research Associates. (2008). *How should colleges assess and improve student learning: Employers' views on the accountability challenge*. Washington, DC: American Association of Colleges and Universities. Retrieved from https://hssn.org/gened/documents/2008_business_leader_poll.pdf

Hart Research Associates. (2009). *Learning and assessment: Trends in undergraduate education - A survey among members of the association of American colleges and universities*. Washington, DC: American Association of Colleges and Universities. Retrieved from http://www.aacu.org/sites/default/files/files/LEAP/2009MemberSurvey_Part1.pdf

Hart Research Associates. (2013). *It takes more than a major: Employer priorities for college learning and student success*. Washington, DC: American Association of Colleges and Universities. Retrieved from https://www.aacu.org/sites/default/files/files/LEAP/2013_EmployerSurvey.pdf

Hergert, M. (2009). Student perceptions of the value of internships in business education. *American Journal of Business Education, 2*(8), 9-13. Retrieved from http://search.proquest.com/docview/195911331?accountid=10932

Huss, M. T., Randall, B. A., Patry, M., Davis, S. F., & Hansen, D. J. (2002). Factors influencing self-rated preparedness for graduate school: A survey of graduate students. *Teaching of Psychology*, *29*(4), 275-281. 10.1207/S15328023TOP2904_03

Gallup, Inc. 2014. Great jobs, great lives: *The 2014 Gallup-Purdue index inaugural national report*. Retrieved from http://products.gallup.com/168857/gallup-purdue-index-inaugural-national-report.aspx

Gardner, P., Gross, L., & Steglitz, I. (2008, March). *Unpacking your study abroad experience: Critical reflection for workplace competencies* (Michigan State University CERI Research Brief 1-2008). Retrieved from http://ceri.msu.edu/publications/pdf/brief1-2008final.pdf

Gault, J., Redington, J., & Schlager, T. (2000). Undergraduate business internships and career success: Are they related?. *Journal of Marketing Education*, *22*(1), 45-53. doi:10.1177/0273475300221006

Gault, J., Leach, E., & Duey, M. (2010). Effects of Business Internships on Job Marketability: The Employers' Perspective. *Education & Training*, *52*(1), 76-88. Retrieved from http://digitalcommons.wcupa.edu/mark_facpub/2

Kamber, R., & Biggs, M. (2002, April 12). Grade conflation: A question of credibility. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/article/Grade-Conflation-a-Question/23027

Karns, G. L. (2005). An update of marketing student perceptions of learning activities: Structure, preferences, and effectiveness. *Journal of Marketing Education*, *27*(2), 163-171. doi:10.1177/0273475305276641

Kuh, G. (1995). The other curriculum: Out-of-class experiences associated with student learning

and personal development. *The Journal of Higher Education, 66*(2), 123-155. doi:10.2307/2943909

Levin, H. M. (2015). The Importance of Adaptability for the 21st Century. *Society, 52*(2), 136-141. doi: 10.1007/s12115-015-9874-6

Mabe, P. A., & West, S. G. (1982). Validity of self-evaluation of ability: A review and meta-analysis. *Journal of applied Psychology, 67*(3), 280. doi:10.1037/0021-9010.67.3.280

Mattern, K., & Radunzel, J. (2015). Who Goes to Graduate School?. Retrieved from https://www.act.org/research/researchers/reports/pdf/ACT_RR2015-2.pdf

Mullen, A. L., Goyette, K. A., & Soares, J. A. (2003). Who goes to graduate school? Social and academic correlates of educational continuation after college. *Sociology of Education*, 143-169. doi:10.2307/3090274

Nnadozie, E., Ishiyama, J., & Chon, J. (2001). Undergraduate research internships and graduate school success. *Journal of College Student Development, 42*(2), 145. Retrieved from http://search.proquest.com/docview/195176102?accountid=10932

Steedle, J.T. & Bradley, M. (2012). *Majors matter:Differential performance on a test of general college outcomes*. Paper presented at 2012 Annual Meeting of the American Educational Research Association. Vancouver, CA. Retrieved from http://cae.org/images/uploads/pdf/Majors_Matter_Differential_Performance_on_a_Test_of_General_College_Outcomes.pdf

Ward, C., & Yates, D. (2012). Assisting students in gaining employable skills: Valuing and encouraging extracurricular activities. *Business Education Innovation Journal, 4*(1), 37-39. Retrieved from http://www.beijournal.com/v42012abstrtext/v4n1fulltext.html

Table 1

Intern versus Non-intern Mean Ratings

Variable	Internship group *M(SD)*	Non-internship group *M(SD)*
Total score	28.13 (4.55)	29.70 (4.61)
Rating	4.12 (.75)	4.10 (.80)
Analysis and problem solving	4.07 (.85)	4.19 (.88)
Scientific and/or quantitative reasoning	3.78 (.86)	3.96 (.90)
Critical thinking	4.15 (.86)	4.32 (.77)
Writing effectiveness	3.97 (.82)	4.43 (.74)

Table 2

Test Results for Mean Differences of Skill Ratings

Variable	Internship group *n*	Non-internship group *n*	*t*	*df*	*p*-value
Total score	38	27	0.180	63	0.18
Rating	40	31	-0.12	69	0.91
Analysis and problem solving	41	27	0.53	66	0.60
Scientific and/or quantitative reasoning	40	27	0.86	65	0.39
Critical thinking	40	28	0.84	66	0.40
Writing effectiveness	41	28	2.34	67	0.02

Table 3

Correlations among Skill Ratings

	1	2	3	4	5	6
1. Analysis and problem-solving	1					
2. Writing effectiveness	.45	1				
3. Writing mechanics	.51	.95	1			
4. Scientific and/or quantitative reasoning	.67	.56	.57	1		
5. Critical thinking	.84	.52	.51	.61	1	
6. Creativity	.51	.52	.53	.54	.64	1
7. Collaboration	.53	.37	.40	.44	.49	.52

Note. All correlation coefficients are significant at the $p < .01$ level.