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ABSTRACT

Research conducted by the National Association of Colleges and Employers (NACE) indicates that employers across industries seek similar skills in job applicants; yet employers often report finding these desired skills lacking in new hires. This study closes the gap in understanding between employer expectations and student perceptions regarding necesses ary on-the-job skills. To accomplish this understanding, students' perceptions of the skills employers seek in new hires were measured and then compared against the NACE research of employers. Students' perceptions of their preparedness for these skills were also analyzed. Findings indicated potential implications for on-campus curricula and programs to help support studetns prepare for successful careers.

Introduction

Students equate the value of their postsecondary education with the level to which that education prepares them for their future careers, and traditionally aged college freshmen consider the quality of a career services office and the overall job placement rate critical when evaluating a college (Farrell, 2007). Indeed, 85 percent of students report entering college with a career in mind, and 37 percent of students admit that they would drop out of college if they thought their attendance would not help their job chances (Levine & Cureton, 1998). This connection between education and employment is exemplified in today's depressed job market, where there are more applicants for fewer jobs.

For 2010, the National Center for Education Statistics estimated that about 2.4 million graduates entered the competition for job (Petrecca, 2010), yet the Congressional Budget Office projected the unemployment rate hovered around 10 percent during the same time period (Sunshine, 2010). These 2.4 million graduates are also competing with the 15 million Americans are already looking for work, including unemployed graduates from previous years, laid-off workers, and struggling retirees (Simon, 2010; Rampell & Hernandez, 2010; Petrecca, 2010). Given this dire employment situation, the need to understand students' perceptions of employer expectations, while they are still in college and can still seek opportunities to acquire such skills, is significant. This need guided the inquiry behind this study, which asks two main questions: What are undergraduate students' perceptions of skills employers seek in new hires? And, based on their curricular and extracurricular activities, how prepared do students feel they are to demonstrate these skills after college?

Research Findings: Employer Desires and Student Perception

Researchers from the National Association of Colleges and Employers (NACE) found that high grade point averages are still necessary in job candidates, though high grades alone are not enough to secure a job (Koc & Koncz, 2009). Non-technical skills are required in today's jobs, though, given how articulate employers appear to be with colleges about what they want in college graduates, vocational researchers are surprised by existing gaps between what employers want and what graduates possess (Hannerman & Gardner, 2010; Koc & Koncz, 2009; Koc, 2010; Occupational Outlook Handbook, 2010). For example, employers are clear in wanting college graduates who can demonstrate "relevant work experience" (Koc, 2010; "Occupational Outlook Handbook," 2010, p. 22); yet, even given students' expressed understanding of the importance of real-world skills, academics and researchers repeatedly illustrate the lack of realworld skills in freshly minted graduates. There also exists a well-documented gap between desired non-technical skills and the non-technical skills college graduates possess, including effective interpersonal skills (Garber, 2003). Across industries, employers also place high value on potential employees who graduate from collegiate institutions that teach beyond simple knowledge transmission into preparing graduates to be "successful and contributing members of today's global economy" (Hart, 2006, p.1).

According to employers, and as reported through NACE research, the most effective way for graduates to stand out among the crowd is to prove they possess outstanding credentials in a number of non-industry specific desired skill areas. The 2010 Job Outlook, an annual NACE publication, listed these desired characteristics as, in order of importance, communication skills, analytical skills, teamwork skills, technical skills (as related to major), and a strong work ethic (Koc & Koncz, 2009). These skill areas are referenced frequently in this study as the *top five desired skills*. NACE did not define each term for participants; therefore, in this study's data collection tool assessing student perceptions, these terms are also not defined. Whether students and employers have similar understandings of these terms is an assumption that could be examined in future research.

In the 2010 Job Outlook, the National Association of Colleges and Employers surveyed 219 United States employers to find that 49.7 percent list *communication skills* as the most sought skill in employees, while at the same time list *communication skills* as the most lacking skill found in new college graduates. Of the other highly sought skills, 28.9 percent found *initiative* lacking, 27.2 percent found *teamwork skills* lacking, 20.8 percent found *strong work ethic* lacking, 11 percent found *analytical skills* lacking, and 8.7 percent *found technical skills* lacking (Koc & Koncz, 2009). Researchers have also found that workers show a "persistent gap between the skills needed and the skills possessed" in the use of technology (Morgeson, Campion, & Levashina, 2009, p. 203), and that the effectiveness of written communication skills taught to business students is "questionable" (Pittenger, Miller, & Allison, 2006, p. 257).

Identification of Variables to Study

For this study, NACE research outlining the top five desired skills was used to craft survey questions asking students their perceptions of the level to which employers valued each skill. These were also the skills listed when asking students to rate the level to which students felt prepared to demonstrate these skills in the workplace. A review of literature, as outlined in the following paragraphs, identified two areas highly credited for providing students with necessary growth: extracurricular and academic programs. Based on the campus of study, numerous extracurricular and academic programs were listed for students to select as having participated in and to then evaluate if they felt such programs impacted their abilities to demonstrate the top five desired skills.

Literature on Extracurricular and Academic Programs

Little empirical research exists on the impact of participation in extracurricular activities on career choice (Pascarella & Terenzini, 2005), yet a considerable amount of career-related skills are developed in non-instructional settings (Heckman, 1999). In his seminal work, Chickering (1969) included career development under the "establishing purpose" vector in his analysis of how students develop in college. Student affairs scholars argue the value of extracurricular involvement in "improving the quality of the undergraduate learning experience" (Pomerantz, 2006, p. 177), noting that when students become actively involved in campus activities, they benefit from greater "student learning and personal development" (Pascarella & Terenzini, 1991, p. 36).

Regarding overall academic experiences, Pascarella and Terenzini's review of research conducted in the 1990s discovered a small yet consistent body of research "suggesting that the quality of effort or involvement students make in meeting the requirements of their formal academic program has an impact on their self-ratings of growth in career-related competencies and skills" (2005, p. 522). Tagg (2003) identified similar relevance of hands-on experience in obtaining a job by arguing for the value of students taking an active role in their education and continually connecting what they learn to the world around them. This learning paradigm puts high responsibility on the student, viewing education as something one engages in rather than something one obtains. Learning therefore becomes a process in which students rely on their personal perspectives when deciding what to believe while they "simultaneously share responsibility with others to construct knowledge" (Baxter Magolda and King, 2004, p. xviii), as would be accomplished in a team setting on the job.

Many researchers identify the internship as the activity that offers the greatest impact on students' career preparation, pointing to positive outcomes including growth in academic performance (Dundes & Marx, 2006/2007), obtaining job-related skills (Pascarella & Terenzini, 2005; Kim & Alvarez, 1995), making professional contacts (Bottner, 2010), and developing soft skills such as professional etiquette and communication (Walgran, 2010). Having an internship is also a factor in many companies' hiring practices; over the past years, employers report growing importance placed on hiring graduates with internship experience (Koc, 2010).

Conceptual Justification for Study

A vast body of literature assesses only what employers seek in potential employees or what employers see in their job applicants and new-hires. The focus of such research lies with the employer and what skills they desire and/or observe. Another body of research investigating students and future employment centers on the concept of "vocational self-concept," regarding the connection one's self concept has to one's vocational development (Super, 1963, p. 20). The importance of self concept on career development is an idea long recognized in the field of vocational psychology (Betz & Hackett, 2006), with a person's self concept even dictating career selection (Holland, 1997). Self-efficacy has also played a central role in understanding how a person's self concept impacts career preparation. More specifically, self-efficacy assumes that a student's level of self confidence to perform a task impacts the level of effort expended, perseverance in the face of adversity, and the belief that one could successfully execute a desired course of action (Bandura, 1997).

Literature like that highlighted above does not, however, address the gap between what employers seek in potential employees and what students perceive as important skills to obtain. In order to best prepare students for a competitive workplace, this gap must be addressed. The current study differs from past research by investigating student perceptions of the skills they think employers desire and the level to which they feel they are working toward obtaining these skills before college graduation. The focus is on perceptions of importance and participation in activities that help build skills. This data begins to address the gap between employer desires and student perceptions, as well as activities students perceive as fostering growth in skills that support their career preparation.

Method

Institutional Location and Participants

Undergraduate student percerptions were analyzed at apublic, four-year institution in the Southeastern United States. This location is particularly relevant to the study of career preparedness as the most optomistic views of hiring projections for the class of 2010 still predict that the Southeast will report a 10 percent decrease in hiring (Koc, 2010). Participants were recruited from general education courses with the intent of recruiting students who represented diverse academic backgrounds. The participants, all of whom were at least 18 years of age, represented varying demographics, years in school from freshman to senior, and pursuit of various degrees offered by the research instituion. More specifically, of the 125 participants, 58 percent were female and 42 percent were male. Regarding ethnicity, 82 percent of the sample were White, very near the 81.72 percent of the institution's undergraduate population that reports being White. The participants were at various stages of their undergraduate degree: 26 percent were first-year students, 33 percent were sophomores, 26 percent were juniors, and 14 percent were seniors. Although more participants studied business and the behavioral sciences (39 percent), all of the academic colleges were substantially represented, with 13 percent studying agriculture, 13 percent engineering and science, 15 percent liberal arts, and 20 percent health and education.

Research Instrument

A voluntary paper-and-pencil survey was distributed during class to obtain participant perceptions of how employers value the top five desired skills most sought by employers: analytical skills, communications skills, major (technical) skills, teamwork skills, and work ethic. They were then asked about thier perceptions of how participation in institution-related experiences prepared them for their careers. Students were asked which of six common extracurricular activies they completed and their perceptions of how those activities prepared them in the top five desired skills most sought by employers. Next, students indicated their participation in 14 common academic programs and their perceptions of how those activities prepared them regarding the same five skills. The activities listed in the survey were derived from the American College Professionals Association initiatives (1996), as well as a comparison to which activities were offered at the institution of study. Demographic information was also collected, including gender, ethnicity, class year, college in which degree is sought, and plans for the first year after graduation.

Results

Ranked Importance of and Perceived Preparedness of Top Five Skills

First, undergraduate students' perceptions of skills employers seek in new hires were analyzed. Students perceived work ethic (m=3.81, 37%) as most important. This was followed, in ranked order, by: communication (m=3.69, 29%); teamwork (m=2.84, 31%); analytical skills (m=2.58, 37%); and technical skills (m= 2.09, 56%). Second, participants were asked to rate how prepared they felt to use the top five desired skills in the workplace. Students were most confident of their work ethic (M=4.46, SD=.82) and teamwork skills (M=4.34, SD=.79) followed by communication skills (M=4.22, SD=.71). They were less sure of their analytical skills (M=4.02, SD=.77) and major skills (M=3.85, SD=.93). These perceptions did not significantly differ by gender or ethnicity, although they did significantly differ by class year, with juniors and seniors reporting greater perceptions of preparations than freshmen (see Table 1). In addition, students studying health and education felt significantly more prepared to use major skills than students studying business and behavioral sciences (mean difference=.48, p<.05). There were no differences between the other academic colleges in students' perceptions of preparedness.

Perceived Preparedness to Demonstrate Skills

Undergraduate students were presented with a list of 19 skills employers seek in new hires to analyze their self concept of preparedness related to using those skills on the job. This longer list, which encompasses the top five desired skills, includes many of the skills noted in vocational research, largely by NACE, to gain a more total picture of students' vocational self concepts (Koc, 2010; *Occupational Outlook Handbook*, 2010). Two of the students' perceived top three preparedness skills are also highly desired by employers: work ethic and teamwork. (The third skill with which students perceived a high level of preparedness was friendly/outgoing.) However, another two of the employers' top five desired skills fall in the bottom third of the students' perceptions, analytical skills and technical skills, illustrating a gap in the expectations between the two parties. (See Table 2 for the full results.)

The students' ratings of the remaining 13 skills were significantly different than the employers' ratings of importance, again illustrating a potential gap in expectations. It is important to note the direction in which the students' perceptions of their skills differ from the skills desired by employers; students' perceptions of their skills were significantly lower than the employers' ratings of importance for communication, analytical, technical, and computer skills, among others.

Impact of Extracurricular and Academic Involvement

This study also sought to identify relationships between extracurricular and academic activities and students' perception of how those activities contributed to their growth in the desired skill. To obtain meaningful correlations, both variables needed to show adequate variance in scores. Therefore, the activities that were either universally endorsed (participation in speech classes, writing classes, and major and non-major classes), or that had limited participation (varsity athletics, study abroad, and electronic portfolio completion), were eliminated from these analyses.

Of particular interest regarding the relationship between students' perceptions of their skills and the activities they completed was the significant positive correlation between analytical thinking skills and student participation in undergraduate research (r=.27, p<.01), study abroad (r=.21, p<.05), and internships (r=.19, p<.05). Significant positive correlations were found between communication skills and tutoring other students (r=.21, p<.05) and non-major courses (r=.18, p<.05). Students' skills in their academic major had significant positive correlations with taking major courses (r=.29, p<.01), undergraduate research (r=.24, p<.01), completing their university-required electronic academic portfolio (r=.22, p<.05), and participating in an internship (r=.19, p<.05). Interestingly, a significant positive correlation with skills in the major also emerged for non-major courses (r=.19, p<.05) and participation in student organizations (r=.18, p<.05). A significant positive correlation emerged between work ethic and participation in student organizations (r=.21, p<.05). Finally, a significant negative correlation was found for teamwork skills and Greek life participation (r= -.24, p<.01) and varsity sports (r= -.22, p<.01).

It is important to note that these correlations do not demonstrate causation; we cannot be sure if the participation in an activity increased related skills or if higher skills lead to participation in the related activity. However, this data indicates students' self concepts of what activities impacted their perceived abilities in desired on-the-job skills, which connects this research to a greater body of research exploring the role of student perceptions and self concept in preparing for job readiness.

Discussion

A primary goal of this study was to identify perceptions college undergraduate students hold about top skills desired in the workplace. National Association of College and Employers Job Outlook 2010 informed us that employers most heavily value communication skills, analytical skills, teamwork skills, technical skills, and work ethic, in that order. Students rated their work ethic and teamwork skills among their highest abilities, which is good news for the employers. Unfortunately, employers also seek analytical skills and technical skills, which students rated in the lower range of their abilities. These findings help identify a gap in the skills employers seek and students' perceptions of their abilities in those areas.

On a positive note, students were more in line with employers about perceptions of the importance of communication skills in the workplace. Perhaps initiatives at this specific university to infuse writing requirements into a wide variety of disciplines have convinced students that these skills are valuable. Ratings of the importance of communication skills did not

differ between gender, class year, or academic discipline, supporting the possibility that a holistic academic approach to communication might be a factor in these results. On the other hand, this data was collected within a general education communications course, in which communications is obviously central to course success; if the data were collected in a different setting, these findings could dissipate.

It appears that academic involvement that requires what one might classify as active and on-going participation and effort on the part of the student (undergraduate research, internship/coops, and tutoring) are related to perceived desired skills. More passive types of academic involvement (faculty advising, receiving tutoring, and attending workshops) do not appear to have a relationship with key skills analyzed in this study. These results highlight the importance of active learning opportunities in which students construct new knowledge through the discovery of new ideas and participation in challenges that allow them to build upon previously gained skills (Bruner, 1960).

Also of interest was the relationship between undergraduate research and both analytic and major-specific skills. The university at which this study was conducted supports undergraduate participation in scholarly research with faculty mentors by providing both financial resources to faculty and academic credit to undergraduates. Though this program has been recognized as a national best practice in undergraduate research from a faculty perspective (O'Shaughnessy, 2008), this current study begins to fill the lack of research conducted to measure student perceptions of the program's value as related to students' futures. Overall, the data from this study demonstrates the effectiveness of such hands-on research at the undergraduate level, which can serve as encouragement for other universities to adopt similar programs.

Limitations

One of the primary limitations of this study is the correlational nature of the data. The survey is a cross-section of students' perceptions and does not follow changes in students' perceptions over time. In addition, we cannot make claims about the causal direction of these relationships. For example, the relationship between undergraduate research participation and analytical skills could exist because students who conducted research became more confident of their analytical skills. On the other hand, students who felt confident in their analytical skills might have decided to join undergraduate research teams. Even with this single-method bias, the relationships demonstrated here still provide valuable information about students' perceptions of their skills and the types of extracurricular and academic programs in which these students participate.

Because the data was collected within a communications course, the curriculum presumably included the importance of communication within the context of this course. Future research should determine if the results would be replicated in a different course, such as a general education mathematics course that would also include diversity of participants yet balance out any course-specific biases. While the participants here did represent a cross-section of colleges, years in school, and personal demographics, a larger sample size would support greater generalizablility. It is also important to remember that this study looked at the

perceptions of traditional aged students in a four-year institution. Many other student populations exist and warrant their own investigations, including community college, non-traditional aged, minority (Teng, Morgan, & Anderson, 2001), and first-generation students (Moss, 2003).

Future Implications and Research

Considering that students graduating in 2009 faced up to 40 percent fewer job prospects than their counterparts faced the year before (Yousuf, 2009), the connection between college and career warrants continued study. For institutions struggling with attrition, the extra work needed to create and maintain programs and curriculum focused on career preparation might not be a top priority. Still, as students enter college seeking a career (Farrell, 2007), higher education cannot afford to ignore the issue of career preparation. In particular, the employer preference that appears to be unwavering no matter the economy or job market is the desire for "relevant work experience" (Koc & Koncz, 2009). Placing students in valuable, field-related work experiences (such as internships and co-operative learning placements) should be a high institutional goal.

Some educational critics, however, question such focus on career preparedness in college, stressing that focusing too heavily on career development comes at the expense of students' intellectual growth (Aronowitz, 2000; Moss, 2003). This view presents an institutional hurdle that must be cleared before campus-wide efforts can receive the financial and human resources needed to create and sustain initiatives for career preparation. In the end, however, the hope is that this research serves as a reminder to institutions of higher education to remember students' desire for career preparedness in their extracurricular and academic offerings, so these institutions can not only help students find jobs after graduation but to also prepare them—and help them see the value of career-related skills—so they might find long-term career success.

TABLE 1:

| | | Freshman | Sophomore | Junior | Senior | | |
|--------------------------------|---------------|----------|-----------|--------|--------|--|--|
| Perceptions | of Analytical | Skills | | | | | |
| - | Freshman | (3.73) † | 22 | 49* | 61* | | |
| | Sophomore | | (3.95) | 26 | 38 | | |
| | Junior | | | (4.21) | 12 | | |
| | Senior | | | | (4.02) | | |
| Perceptions of Major Skills | | | | | | | |
| - | Freshman | (3.33) | 47* | 84* | 94* | | |
| | Sophomore | | (3.80) | 38 | 47 | | |
| | Junior | | | (4.18) | 10 | | |
| | Senior | | | | (4.28) | | |
| Perceptions of Teamwork Skills | | | | | | | |
| - | Freshman | (4.00) | 49* | 39* | 50* | | |
| | Sophomore | | (4.49) | .09 | 01 | | |
| | Junior | | | (4.39) | 11 | | |
| | Senior | | | | (4.34) | | |

Significant mean difference in skills by class year

* Significant at the p<.05 level.

† Mean scores are listed on the diagonal

TABLE 2:

Mean self-efficacy ratings of student skills compared to mean importance ratings from employers.

| | Mean | Mean | | | |
|-----------------------------|--------------|--------------|------------|--------|-----|
| | Student | Employer | Mean | t | df |
| | ratings of | ratings of | Difference | ι | ц |
| | their skills | importance + | | | |
| Work ethic | 4.4 | 4.6 | -0.2* | -2.28 | 123 |
| Friendly/Outgoing | 4.4 | 3.7 | 0.7* | 9.80 | 123 |
| Teamwork | 4.4 | 4.5 | -0.1* | -2.29 | 123 |
| Problem solving | 4.1 | 4.5 | -0.4* | -5.73 | 123 |
| Flexibility/Adaptability | 4.1 | 4.3 | -0.2* | -2.92 | 122 |
| Sense of humor | 4.1 | 3.0 | 1.1* | 18.99 | 123 |
| Leadership | 4.1 | 4.1 | 0.0 | -0.37 | 122 |
| Self-confidence | 4.0 | 3.9 | 0.1 | 1.82 | 123 |
| Initiative | 4.0 | 4.5 | -0.5* | -6.71 | 123 |
| Organizational | 3.9 | 4.0 | -0.1 | -0.69 | 123 |
| Communication skills | 3.9 | 4.7 | -0.8* | -11.08 | 122 |
| Tactfulness | 3.9 | 3.8 | 0.1 | 1.88 | 123 |
| Detail oriented | 3.9 | 4.1 | -0.2* | -2.06 | 123 |
| Analytical skills | 3.8 | 4.4 | -0.6* | -7.53 | 123 |
| Creativity | 3.8 | 3.6 | 0.2 | 1.78 | 123 |
| Strategic planning | 3.8 | 3.3 | 0.5* | 5.93 | 123 |
| Computer skills | 3.6 | 4.2 | -0.6* | -6.55 | 123 |
| Technical skills | 3.5 | 4.1 | -0.6* | -7.53 | 123 |
| Entrepreneurial | 3.3 | 3.2 | 0.1 | 1.79 | 123 |

* The mean difference is significant at the 0.05 level.

† Ratings of importance provided by employers in NACE Job Outlook 2010.

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