Interns and Mentors' Evaluation of Workforce Knowledge and Skills and the Perceived Importance of these Skills in Engineering and Science Careers

Kimberly Brush, Cathy Hall, Thomas Pinelli, and Jeannine Perry

Abstract - Participants in this study were 249 student interns and 199 mentors taking part in a 10-week internship during the summer of 2013. The students in the NASA Langley Aerospace Research Student Scholars (LARSS) summer internship program were chosen from around the country based upon their applications and mentoring opportunities. The primary focus of the internship was engineering, but research in mathematics, science and technology were also open to select interns. This study examined mentors and student interns' evaluation of the interns' preparedness with respect to 16 basic knowledge and skill sets at the end of the internship. Interns and mentors were also asked to rank these basic knowledge and skill sets in terms of perceived importance to professional success in today's workplace. Workplace knowledge and skills assessed included: written and oral communication, judgment/decision making, collaboration/working with others, creativity/innovation, flexibility/adaptability, working independently, time management skills, demonstrating professional behavior, working as part of a team, computational skills, computer skills, technical skills, critical thinking/problem solving, and analytical thinking.

Keywords: internships, 21st Century Skills, professional role confidence, industry perspectives

Introduction

New entrants (graduates) into business and industry are often perceived as insufficiently prepared for the workforce in regard to basic knowledge (i.e., oral and written communication skills, reading comprehension, and math) and applied skills (often considered to be more social or behavioral)[1-3]. Business and industry expect the entrant to bring not only knowledge relevant to his/her field to the workplace but also to demonstrate proficiency in applied skills [2-4]. Applied skills refer to those skills that enable new entrants to use the basic knowledge they have acquired in school to perform in the workplace.

A recent survey conducted by Northeastern University [1] found both business leaders and the public value broadly applicable skills such as communication and problem solving. The survey also found that integrating practical experiences (i.e., practicums, internships) into the higher education curriculum was highly beneficial, and these types of experiences were considered to contribute significantly to career success. With almost 3 in 4 Americans stating that a college degree is more important today than it was for their parents' generation and because higher education was perceived as being valuable in preparing students for the workforce, roughly half of the respondents felt that colleges are not always in tune with job markets and fail to adequately prepare their graduates to enter the labor market. Business leaders indicated that it was important for graduates to possess specific skills (i.e., applied training and industry-specific capabilities), but it was more important for graduates to have broadly applicable skills

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(i.e., oral and written communication and problem solving). Integrating professional work experience, such as internships, into educational programs was thought to be a key component in preparing graduates. The findings supported a shared responsibility for skill development among employees/graduates, colleges/universities, and companies/employers.

A report by the Society for Resource Management [2] found students ready to enter the workforce were far too likely to be inadequately prepared in key areas, and that the United States was "not doing enough, fast enough, to prepare for a vibrant economic future for our children and our nation" (p. 7). These findings have been echoed by others [2-5]. A common theme posited in consideration of what steps would be necessary in order for the U.S. to remain competitive in the global marketplace included the need to promote academic rigor in developing important skills from graduates and to establish a strong link between academia and industry.

Boeing announced in the fall of 2008 that their company would compile data from past hires to determine which universities were producing well-prepared students and focus recruitment on those select institutions considered to be producing the best prepared students [6]. Boeing chose not to make the results of their data analysis public, but they stated the results would be shared privately with each institution. While Boeing was one of the first to adopt such a policy, it is unlikely to be the last.

A recent report by the *Wall Street Journal* [7] noted the disillusionment of business and industry with recent hires and their distrust of college GPAs as a "true" reflection of preparedness. Because of this disillusionment approximately 200 colleges will administer a new, SAT-like exam (Collegiate Learning Assessment) in the spring of 2014 to assess "students' real value to employers". This exam will focus on basic workforce skills including communication skills and critical thinking. The impact is far reaching, and it sends a strong message that certain skills should reside in all college graduates regardless of their chosen discipline or field [8]. Academia is beginning to address many of these concerns and emphasis is being placed on devising curricula to assist students in developing more in-depth knowledge and the skills necessary for the 21st century [9-11].

In May of 2013, ASEE [12] with support from NSF brought representatives of business and industry together with representatives from academia to discuss the need to foster knowledge, skills, and abilities necessary for the engineers of tomorrow. While certain core competencies remained the same (i.e., math, science, analytical thinking, written and oral communication), others reflected skills more in tune with the global marketplace (i.e., diversity, foreign language). The internship experience was considered to be an important component in preparing students for the workforce. One executive noted, "We interview students for 10-weeks" (p. 6). What emerged through these discussions was the perception of a disconnection between industry and academia. Industry took the position that academia should be primarily responsible for certain key skills (i.e., physical science and engineering science fundamentals, communication, critical thinking), but they also stepped forward and acknowledged their role as a partner in promoting certain skills (i.e., systems integration, economics and business acumen, willingness to take calculated risks, project management). While this was just the first of a series of planned meetings, two key elements emerged: the need for a commitment to change and for a partnership between industry and academia to insure the United States' a continued place in the global economy. One way to strengthen the skills of new entrants and to promote a shared partnership is a well-designed internship. The internship can play a key role in providing a feedback system to all stakeholders (students, academia, and industry) [13-15].

The current study examines mentors and student interns' ratings of the interns' preparedness in basic knowledge/skills. In addition, the study assesses how mentors and interns rank these same areas with respect to their importance in career success. The study focused on two primary questions. How would mentors and a select group of interns rate the interns' basic knowledge and skill sets at the end of the internship? Would mentors and interns rank these basic knowledge and skill sets in a similar fashion in regard to their importance in career success?

Method

Student Interns. Participants in this study were student interns taking part in the 2013, 10-week Langley Aerospace Research Student Scholars (LARSS) summer internship program at NASA Langley Research Center in Hampton, Virginia. Two hundred and forty-nine (156 men, 93 women) were selected to participate in the summer internship program. Of those selected to participate in the summer internship, 190 (77.2%) were Caucasian, 16

(6.5%) African American/Black, 25 (10.2%) Asian, 14 (5.7%) Hispanic/Latino, and 1 (0.4%) indicated other. Classification of student interns was as follows: 11 (4.4%) high school; 17 (6.8) college freshmen; 25 (10.0%) college sophomores; 58 (23.3%) college juniors; 78 (31.3%) college seniors; 16 (6.4%) first year masters' level; 20 (8.0%) second year masters' level; and 24 (9.6%) doctoral students. Forty-five percent of the interns indicated that this was their first internship experience, and 70.3% indicated that this was their first NASA internship participant. Student interns were told at the beginning of the internship experience that the end-of-program evaluation was a requirement of their internship. All 249 student interns completed the survey.

Mentors. Two hundred and ten professionals (52 women and 158 men) served as mentors for the 2013 LARSS program. Of those, 199 mentors completed 247 surveys. Of those completing the survey, 161 supervised one intern and 38 supervised multiple interns. The classifications of the mentors were as follows: 61.7% indicated their classification as engineer, 20.8% as scientist, 5.0% as information technology (IT), 10.4% as administration, and 2.1% as education. In terms of "years of professional work experience," the two largest groupings of mentors were 47 (19.3%) indicating 21 to 24 and 42 (17.2%) indicating 26 to 30 total years of professional work experience.

LARSS Program. Students are chosen from around the country based upon their applications and mentoring opportunities to participate in the 10-week NASA LARSS summer internship program. While the primary focus of LARSS is engineering, other areas in science and technology are also open to select interns. The application for the internship is open to U.S. citizens and focuses on college/university students, although a small number of talented high school students are also selected. Engineers and scientists, the future mentors, then select individuals from the pool of applicants to work on specific projects. As part of the internship, interns are required to write a technical report and present the results of their work. Their presentation may be conducted within their sponsoring organization or by participating in a poster session that is open to the entire center research community.

Goals of the internship experience focus primarily on providing future professionals with opportunities to apply engineering and science concepts and principles to developing research-based solutions. Interns apply research methods, experimental designs and techniques, data analyses, and interpretation to research-based solutions. They also gain proficiency in presenting scientific and technical information via oral and written communication to peers and colleagues. The internship provides an opportunity for student interns to develop an appreciation for and the skills necessary to engage in life-long learning and to continually refine and update their knowledge base.

Surveys. Upon completion of the summer internship, mentors and interns are surveyed. In addition to basic demographic information and perceptions of effectiveness of the internship, student interns and mentors also rate the interns' knowledge and skill sets. These basic knowledge areas and skill sets were developed through input from individuals who had served as mentors to student interns, a report from Partnerships for 21st Century Skills [16], the National Academy of Engineering (NAE) [17] report on educating the engineer of 2020, and a review of areas assessed by other internship programs in aerospace industry. These workplace skills are representative of key areas cited as critical for U.S. students to be competitive in the global marketplace [2,18]. Workplace skills assessed by mentors and students with respect to interns' preparedness included: written and oral communication, critical thinking/problem solving, collaboration/working with others, judgment/decision making, time management, computer skills, creativity/innovation, flexibility/adaptability, analytical thinking, computational skills, and technical skills. These skills were rated using a four-point Likert scale.

To guarantee anonymity, the questionnaires were prepared and hosted by an outside marketing research firm. The surveys were presented online, and each potential respondent was sent an email invitation to respond. A one-time-use password token had to be entered to access the survey. While a person could participate in the survey over several sessions, once it was "submitted," the token became invalid. Completion rates were monitored daily so personalized reminders could be sent as needed.

Results

Mentors and interns' ratings of the interns' level of performance in workforce skills during the internship were examined. The format of the questions for the interns was stated as "After the internship, I think I am good at ….." The mentors' format was "After this internship, I think my intern was good at ……" A four-point Likert scale was

used with 4 indicating agree, 3 somewhat agree, 2 somewhat disagree and 1 disagree. Results are presented in Table 1.

Table 1
Mentors and Interns' Ratings of Their Respective Interns' Performance in Workforce Skills

	Mentors		Interns	
	Means	%Agree	Means	%Agree
Ability to communicate in writing	3.69	73.1%	3.67	69.4%
Ability to communicate orally/verbally	3.74	77.3%	3.66	69.6%
Ability to think critically	**3.74**	**78.4**%	**3.88**	**88.2**%
Ability to exercise judgment and make sound decisions	3.76	79.7%	3.80	81.3%
Ability to collaborate/work with others	**3.85**	**87.8**%	**3.75**	**77.6**%
Ability to create and innovate	3.69	74.6%	3.65	69.2%
Ability to think analytically	**3.77**	**81.7**%	**3.85**	**85.9**%
Ability to be flexible and adaptive	3.87	89.3%	3.88	89.3%
Computational skills	3.79	81.0%	3.72	73.6%
Computer skills	**3.84**	**86.1**%	**3.75**	**78.2**%
Technical skills	3.79	82.7%	3.75	78.4%
Working independently	3.82	88.1%	3.89	89.8%
Working as part of a team	**3.84**	**87.1**%	**3.70**	**73.7**%
Ability to demonstrate professional behavior	3.88	91.8%	3.89	90.6%
Ability to solve problems	**3.77**	**80.3**%	**3.86**	**86.5**%
Time management skills	3.73	78.0%	3.65	70.6%

%Agree = those indicating agree only and not including somewhat agree; those highlighted in bold indicate areas where there were statistically significant differences (based on t-tests) between the mean ratings.

Next, mentors and interns ranked nine general skills in terms of how important they considered these skills were for professional success in today's workplace (1 = the MOST important and 9 = the LEAST important). Due to limited variation among the average rankings, the average ranking for the skill as well as the percentage of interns and mentors ranking the skill as first, second and third are presented. A comparison of these rankings is presented below in Table 2.

Table 2
Mentor and Student Interns' Rankings of the Importance of Nine Applied Workforce Skills for Professional Success with 1= most important to 9 = least important

	Mentors		Interns	
	Average	% Top Three	Average	% Top Three
Critical thinking	3.01	67.9%	4.05	55.0%
Ability to exercise judgment and make sound decisions	3.79	49.6%	4.20	51.0%
Ability to collaborate/work with others	4.28	43.1%	4.64	41.0%
Ability to create and innovate	4.65	35.0%	5.03	34.5%
Ability to be flexible and adaptive	5.33	29.7%	4.91	32.9%
Working independently	5.52	22.8%	5.30	28.5%
Working as part of a team	5.83	26.4%	5.34	24.5%
Ability to demonstrate professional behavior	6.05	17.5%	5.65	18.9%
Time management skills	6.54	8.1%	5.88	13.7%

Last, mentors and interns were asked to rank order seven skills more specific to engineering and science with 1 being the most important and 7 being the least important. Results are presented in Table 3.

Table 3
Mentor and Student Interns' Rankings of the Importance of Seven Basic Knowledge Skills for Professional Success with 1= most important to 7 = least important

	Mentors		Interns	
	Average	% Top Three	Average	% Top Three
Written communication	3.01	69.8%	2.99	69.5%
Oral/verbal communication	2.79	75.6%	3.08	69.1%
Analytical thinking	3.67	56.6%	3.24	64.3%
Problem solving skills	4.43	37.2%	4.00	43.4%
Technical skills	4.72	28.5%	4.45	27.7%
Computer skills	4.53	18.6%	4.94	15.3%
Computational skills	4.85	13.6%	5.31	10.8%

Student interns were also asked about applying knowledge gained in the classroom to their internship. The majority of interns agreed or somewhat agreed (91.8%) that they had been able to apply knowledge gained in the classroom to their internship assignment or project. The percentages were: agreed - 65.2% and somewhat agreed - 26.6%.

Discussion

Results indicate that mentors and interns were quite consistent in how they rated interns' knowledge and skill sets. Mentors and interns' ratings of the interns' performance were very similar in terms of written communication, oral communication, exercising judgment and making sound decisions, ability to create and innovate, demonstrating flexibility and ability to adapt, time management, working independently, technical skills, computational skills, and demonstrating professional behavior. However, some areas were more discrepant. Mentors rated interns' abilities in thinking critically, ability to solve problems, and thinking analytically significantly lower than the interns. Collaborating with others, computer skills, and working as part of a team were rated significantly higher by mentors than by interns. This may be due in part to the internship and requirements of a work environment. For many of the interns this was an opportunity to actively apply some of these skills, and they may have been more hesitant to rate these areas as high as their mentors. It is likely that this new environment challenged students in ways not typically associated with an academic setting, and students may have been less confident in their knowledge and skills in these areas.

It was also interesting that the interns rated their own computer skills lower than their mentors. In an academic environment with their STEM (science, technology, engineering, and mathematics) peers, these particular skills are likely to be at a higher level and may have influenced the interns' ratings. Interns did rate "ability to think critically" higher than did their mentors. The internship provided interns with the opportunity to work on applied research projects under the supervision of workforce professionals. While the interns may have been confident in their critical thinking skills in a controlled setting, the mentors may have perceived this as one of the first steps in building these skills that would eventually be applied in a much broader and less structured context in the workforce.

It should be noted that Table 1 provides the mean ratings as well as the percentage of mentors and interns 'agreeing' with the statement that the intern demonstrated good abilities in these areas. If the ratings of both 'agree' and 'somewhat agree' were combined, all areas assessed are at 90% and above. Overall, the student interns demonstrated a strong knowledge base and skill sets in these areas at the end of the internship.

Results also support the benefits of a well-developed internship experience in providing future professionals with the opportunities to develop key skills and apply knowledge in their area of study [19-21]. Interns were very positive

about the internship experience with 94.3% agreeing or somewhat agreeing with the statement, "I would describe my internship to other students as excellent". Interns were also able to provide written comments at the end of the survey, and the majority of the interns' comments centered on the benefits of being able to engage in hands-on experiences in a business setting. Four comments (two from interns, two from mentors) are presented below:

> This summer was truly a remarkable experience. Usually I am stuck behind a laptop or computer all day, reading and researching. However, I am not a "desk person." I am very hands-on, and this summer I experienced real hands-on engineering and prototyping. It was JUST what I needed to give myself a well-rounded perspective of engineering. (Intern)
>
> There are no words that can explain the magnitude of how this internship has enhanced my career. I gained real-world work experience, such as teleconferencing and communicating with others to meet goals and deadlines. I was able to practice the skills I learned in my major and I developed my critical thinking. I was given the opportunity to network with many other similar-minded peers and make many friends. Most importantly, I was provided with a first internship experience that, overall, possessed everything I could have asked. (Intern)
>
> These programs are EXCELLENT and essential to the future workforce. (Mentor)
>
> The intern was initially reluctant to take individual initiative. After being told that out in the real world there sometimes are no right answers and that he would have to find them himself, he was able to take initiative, research possible solutions to problems, and implement solutions without having the details handed to him. It was very much a learning experience and produced a noticeable positive change for the student. (Mentor)

Mentors and interns were also asked to rank nine skill sets and seven basic knowledge areas with respect to their importance for career success. The mentors and interns' rankings of the nine skill sets demonstrated similar viewpoints on their importance in career success. While there were variations within each group, the top three that were consistently rated the highest were: critical thinking, ability to exercise judgment and make sound decisions, and ability to collaborate/work with others. The same consistency was also found when mentors and interns ranked seven basic knowledge areas. The top three for both mentors and interns were: written communication, oral/verbal communication and analytical thinking. The rankings of these skill sets and areas of basic knowledge were also consistent with prior research with the needs of business/industry [1,2,6,7,12]. A survey of the general public as well as business and industry by Northwestern University [1] noted the importance of internships in helping build well-rounded skill sets necessary for career success with 79% agreeing that integrating educational programs with professional work experience were key for preparing graduates.

It was somewhat surprising to note that computational skills were ranked the least important by both mentors and interns, especially given that the majority of both mentors and interns were engineers and scientists or future engineers and scientists. Interestingly a report by ASEE [12] found that while business and industry considered math/computational skills as important, they were viewed as becoming less critical in the workplace of tomorrow due to developing technologies. One of the important skills cited in the ASEE study as critical was systems integration, and this was viewed as a joint responsibility of both academia and business/industry. Interns were asked about applying knowledge gained in the classroom to the internship, and 65.2% indicated agree and 26.6% indicated agree somewhat. While the overall response was positive, we would hope the percentage choosing "agree" would increase with stronger university-industry collaboration.

In summary, the responses of interns and mentors were consistent in citing key areas as important for career success. Internships can provide students the opportunities to apply knowledge and skill sets and offer opportunities to engage with professionals in the workplace. It further supports the need to develop a strong feedback system among industry/business, academia and the future professionals of tomorrow.

References

[1] Northeastern University, *Innovation Imperative: Enhancing Higher Education Outcomes, Public Opinion Survey Results*, FTI Consulting, September 17, 2013. Retrieved from: http://www.northeastern.edu/innovationsurvey/pdfs/Northeastern_University_Innovation_Imperative_Higher_Ed_Outcomes_Poll_Deck_FINAL_Delivered.pdf

[2] Casner-Lotto, Jill and Linda Barrington, *Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U. S. Workforce*, The Conference Board, Inc., the Partnership for 21st Century Skills, Corporate Voices for Working Families, and the Society for Human Resources Management, 2006.

[3] Crawley, Edward, Johan Malmqvist, Sören Ostlund, and Doris Brodeur, *Rethinking Engineering Education: The CDIO Approach*, New York, NY: Springer Science, 2007.

[4] Crawford, Pat, Suzanne Lang, Windy Fink, Robert Dalton, and Laura Fielitz, *Comparative Analysis of Soft Skills: What is Important for New Graduates? Perceptions of Employers, Alum, Faculty, and Students*, Association of Public and Land-grant Universities (APLU) and University Industry Consortium (UIC), 2011, pg.1-24. Retrieved from: www.aplu.org/document.doc?id=3414

[5] Morton, John, "Engineering Skills: The Threat from China and India?" Paper presented at the meeting of *European Engineers Forum*, Hanover, England. April, 2007.

[6] Basken, Paul, "Boeing to Rank Colleges by Measuring Graduates' Job Success," *The Chronicle of Higher Education*, September 19, 2008, *LV*(4), pg. A1, A14-16.

[7] Belkin, Douglas, "Are You Ready for the Post-College SAT?" New York, NY: Wall Street Journal, August 25, 2013. Retrieved from: http://online.wsj.com/news/articles/SB10001424127887323980604579029143959843818

[8] Bok, Derek, *Our Underachieving Colleges: A Candid Look at How Much Students Learn and Why They Should be Learning More*, Princeton University Press, 2006.

[9] Ellis, Glenn W. and Yanning Yu, "Using Knowledge Building to Support Deep Learning and the Development of 21st Century Skills," Proceedings of the *American Society of Engineering Education Annual Conference*, Atlanta, Georgia June 23-26, 2013.

[10] ABET, *Criteria for Accrediting Engineering Programs, 2013–2014*. Baltimore, MD, 2012. Retrieved from: http://www.abet.org/uploadedFiles/Accreditation/Accreditation_Step_by_Step/Accreditation_Documents/Current/2013_-_2014/eac-criteria-2013-2014.pdf

[11] Rosefsky Saavedra, Anna and V. Darleen Opfer, "Learning 21ST Century Skills Requires 21st Century Teaching," *Phi Delta Kappan*, 94, October, 2012, pg. 8-13.

[12] American Society for Engineering Education. *Transforming Undergraduate Education in Engineering: Phase 1*, Washington, DC: ASEE, 2013. Retrieved from: http://www.asee.org/TUEE_PhaseI_WorkshopReport.pdf

[13] Gault, Jack, Evan Leach, and Marc Duey, "Effects of Business Internships on Job Marketability: The Employers' Perspective," *Education + Training*, 52, 2010, pg. 76–88.

[14] Pilon, Matt, "Internships Provide Benefits for Students and Employers," *Worchester Business Journal*, February 20, 2012. Retrieved from: http://www.wbjournal.com/news50790.html

[15] Pinelli, Thomas E., Cathy W. Hall, and Kimberly M. Brush, "Using Assessments to Determine the Quality and Effectiveness of a Collaborative Internship Program in Research," *Quality Approaches in Higher Education*, 4, 2013, pg. 5-12.

[16] Partnerships for 21st Century Skills, *The Road to 21st Century Learning: A Policymakers' Guide to 21st Century Skills*, Washington, D.C.: Author, 2004.

[17] National Academy of Engineering (NAE), *Educating the Engineer of 2020: Adapting Engineering Education to the New Century*, Washington, D.C.: The National Academies Press, 2005. Retrieved from: http://www.nap.edu/catalog.php?record_id=11338#toc

[18] Engineering Accreditation Commission, *Criteria for Accrediting Engineering Programs: 2013-2014 Accreditation Cycle*, Baltimore, MD: ABET. 2012. Retrieved from: www.abet.org

[19] Pinelli, Thomas E. and Cathy W. Hall, "Collaborative Educational Experiences though Higher Education-Business Partnerships," Paper presented at *2012 ASQ Advancing STEM Agenda in Education, the Workplace and Society Conference*, July 16-17, Menominie, WI., 2012. Retrieved from: http://rube.asq.org/edu/2012/06/career-development/collaborative-educational-experiences-through-higher-education-industry-partnerships.pdf

[20] Schuurman, Mieke K., Robert N. Pangborn, and Rick D. McClintic, "Assessing the Impact of Engineering Undergraduate Work Experience: Factoring in Pre-work Academic Performance," *Journal of Engineering Education*, 97, 2008, pg. 207-212.

[21] National Survey of Student Engagement, *NSSE 2004*, Bloomington, IN: NSSE, 2013. Retrieved from: http://nsse.iub.edu/NSSE_2013_Results/index.cfm

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