https://doi.org/10.48009/2_iis_2012_96-103
Issues in Information Systems
Volume 13, Issue 2, pp. 96-103, 2012

THE EFFECT OF ATTENDING PROFESSIONAL IT MEETINGS ON PERCEPTIONS OF WORKPLACE SKILLS FOR CIS STUDENTS

Barbara Jo White, Western Carolina University, whiteb@email.wcu.edu
Shannon Tufts, UNC School of Government, tufts@unc.edu
Angela Johnson Grube, Western Carolina University, agrube@email.wcu.edu
Michael D. Taylor, Western Carolina University, mdtaylor@email.wcu.edu

ABSTRACT

Workplace skills are critical for student success following graduation. Students gain a great many of these workplace skills from college experiences. Classroom projects and guest speakers, interactions with professors and advisors, networking, and belonging to student clubs can all help students gain the workplace skills they will need to succeed. Meetings and conferences are another way to gain valuable workplace skills. While research-based conferences for students, both graduate and undergraduate, are relatively common, it is quite rare for students to attend meetings or conferences designed principally for audiences of industry professionals. This pilot study aims to better understand the specific workplace skills that students learn and observe during the professional meetings and conferences they attend.

Keywords: IT Conferences, Professional Skills

INTRODUCTION

> *I learned the importance of morals in a business environment; or any setting where professionalism is the basis of succeeding in the modern day workforce.*
> *Student attending on-campus IT Governance meeting*

> *I never really thought that professionals in my field would need to have the ability to self learn so many new skills needed for their job. I guess I just thought that your employer would always provide those resources.*
> *Student attending off-campus Conference of IT Professionals*

To be successful in the workplace, students need both core knowledge and a variety of skills such as: learning, technology, life, and career skills [12]. Students gain a great many of these workplace skills from college experiences. Classroom projects, interactions with professors and advisors, internships and co-operative experiences [9], internet searches, and networking with family and friends can all help students gain the workplace skills they will need to succeed after graduation. Often, guest speakers spend time with students by visiting the class on-site or via emails and phone calls [5]. Extracurricular activities provide an opportunity for students to observe and learn about the skills professionals in their field need. Student interactions with working professionals brought in to speak to clubs and organizations help to develop student networking skills [8]. The networking benefit provided when guest speakers attend class or club meetings are amplified by direct student participation in meetings of professional organizations or conferences where many professionals are present. Meetings and conferences are common experiences for IT professionals. A Microsoft survey of 38,000 workers in over 200 countries reported that IT workers spend an average of 5.5 hours spent per week in meetings [7]. Gartner also recommends sending IT workers, such as analysts, to conferences and workshops in order to retain and train them in both technical and soft skills [16]. There is a need to acculturate IT students to conferences and meetings attended by IT professionals and to understand the specific workplace skills students observe and learn by attending these technical conferences and meetings with their future IT professional colleagues.

LITERATURE REVIEW

It is well documented that undergraduate and graduate students alike participate in various meetings designed to impart valuable workplace skills [1, 2, 3, 4, 10, 11]. In these studies, factors such as the level of students, type of professional meetings, and the inclusion of student chapters have been considered. Further, the acquisition of both hard and soft skills has been examined [9].

Student Attendance at Meetings and Conferences

Meetings may be specifically geared to student participation, such as a campus-based society or association related to their field of study, or the meetings may be geared toward working professionals, in which the students are more likely to be observers or seeking internship and employment opportunities. Both graduate and undergraduate students have participated in local, regional and national research-based conferences, which are attended principally by other students and advisors [10]. Often, conferences serve either the graduate or undergraduate population, such as the annual national conference sponsored by National Council on Undergraduate Research. Even when a conference serves only the undergraduate population, students from freshmen to seniors attend. One benefit of having a wide range of students is that upperclassmen get to practice management and leadership skills while underclassmen had the opportunity to develop working relationships with upperclassmen and work with a variety of students they had not previously met [10]. One of the most common types of professional meetings for graduate students to attend also involves research presentations. The professional academic conference has been particularly welcoming to students over the years. Typically, graduate students and doctoral candidates, in particular, attend academic meetings in order to become acculturated to their future profession [1, 13, 14] and spend time honing presentation skills and sharing research with other faculty. On occasion, undergraduate students have also had the opportunity to attend professional conferences. Like the academic conferences that graduate students attend, undergraduates can also attend professional academic conferences and present research. Often, this occurs in fields, such as Psychology [4], where further graduate school is often expected. Lastly, undergraduate students can also attend conferences for professionals that are not chiefly academic in nature. Many students' participation in conferences has provided a valuable opportunity to network with working professionals in the students' chosen field of study [3]. Some of these organizations cater somewhat to college students through student chapter memberships [3]. It is interesting to note that most of the published examples of students attending professional conferences (not designed for students) occurred in the IT industry with students attending a variety of security conferences [2] as well as conferences for industry professionals with student chapters (Grant). This study aims to explore student attendance and skill attainment at IT meetings and conferences for IT professionals where no student chapters are involved.

Workplace Skills

In order to develop well-rounded, work-ready students, universities typically seek to instill workplace competencies and skills that the current industry professionals, recent graduates, and advisory boards believe that students need to master. Two well-known categories of skills for information systems students include hard skills and soft skills. Hard skills often include the more technical skills such as computer and technical expertise while soft skills typically include interpersonal and team-oriented skills. Students who are in school compared to recently-graduated students may view these skills differently. Rainsbury and colleagues [9] found that graduates place more importance on soft skills, such as the ability to seek information, teamwork, and relationship-building, as compared to undergraduate students. Rainsbury suggested that cooperative education programs may help develop business students' awareness of the importance of graduate competencies in the workplace. Another way to promote student awareness of necessary workplace competencies is through networking, which frequently occurs at meetings and conferences.

RESEARCH METHODOLOGY

Two specific meetings/conferences were selected for inclusion in this pilot study. The first series of conferences is offered twice a year by the North Carolina Local Government Information System Association (NCLGISA). The North Carolina Local Government Information System Association (NCLGISA) is an association of municipal, county and state IT directors and IT staff [11]. Its mission is:

> *to improve the efforts of local governments in North Carolina to plan, design, program, implement, and operate information systems. Specific areas of interest are:*
> - *The sharing of practical experience and ideas related to the development of information systems.*
> - *The education and enlightenment of local government personnel involved in the development of information systems.*
> - *Dialogues with local government administrators served by information systems.*
> - *The co-development and transfer of information system modules.*
> - *The influencing of state laws and regulations affecting information systems.*
> - *The establishment of positions on areas of national interest affecting information systems.*
>
> *NCLGISA works closely with the UNC School of Government's Center for Public Technology to provide collaborative educational opportunities for government IT officials, with the common goal of strengthening North Carolina communities through the appropriate use of information technology [11]*

To help achieve its mission, NCLGISA holds two well-attended conferences each year in the Fall and the Spring. At these conferences, IT directors and staff attend concurrent sessions in tracks such as Management, Security, Technical and other tracks. These sessions are delivered by statewide IT personnel as well as by technology vendors. In addition, vendors also have booths set up in an exhibition area where participants can browse during the conference, particularly during breaks [11].

The second meeting structure selected for this study is the Western Carolina IT Governance Committee. The university governance process, first approved in 2010, has three committees that meet regularly to set priorities for IT-related projects [15]. These three committees include the following: the Academic Technology Advisory Committee; the Administrative Technology Advisory Committee; and the Infrastructure Advisory Committee. Once these committees have met to discuss and prioritize projects, the results from all three committees flow to the Information Technology Council, chaired by the university CIO, with membership comprised of deans from each college and other faculty and staff. Following meetings and recommendations by the IT Council, projects are ultimately approved by the Executive Council of the university [15].

Student participation was encouraged in both of the WCU IT Governance and NCLGISA events, by faculty and industry professionals who serve in leadership positions within each organization. For example, NCLGISA provided eight scholarships to attend the conference for one day. An email invitation that contained conference information (past and current program, vendor information and exhibit layout, NCLGISA website) was sent to all CIS major. Students were asked to indicate interest and respond with a current resume; the first eight students to submit completed materials were selected to attend. In addition, for the WCU IT Governance meetings, all 18 students enrolled in the Systems Analysis and Design course were offered the opportunity to attend a meeting. There were no females enrolled in the course. The focus and purpose of attending these meetings and conferences was to hone workplace skills, which are often notably weak in recent college graduates.

To better understand what workplace skills students were able to observe and learn about through their meeting attendance, a survey, based on the 21st Century Workplace Skills [12] was created and administered to the students attending a meeting or conference, as noted previously. These skills cover four general categories [12]: Core Knowledge and 21st Century Themes, such as globalization and civic literacy; Learning and Innovation Skills; Information, Media and Technology Skills; and Life and Career Skills. The survey was administered to students at a regional comprehensive university in the Southeast. In order to participate, students had to have attended one of two types of meeting/conference events. While it was not intentional, all students attending both events were male. However, it should be noted that women have historically been underrepresented in the profession. In 1997-1998,

the proportion of women earning bachelor's degrees in computer science in the United States was only 16.4%. [6]. A total of 11 students attended one of two different types of meeting/conference events that differed in location and length (see Table 1 below).

Table 1

Type of Meeting/Conference	Number of Students Attending	Length of Meeting or Conference
Western Carolina University IT Governance Meeting (On-Campus)	3	1.5 hours
North Carolina Local Government Information Systems Association (Off-Campus)	8	10 hours

RESULTS

Eight surveys were completed by the students attending the IT meetings or IT conference. For each of the thirty workplace skills, students were asked to identify how much they agreed or disagreed that they observed or learned about that skill at their professional event. Students rated each skill using a 5-point Likert scale with "1" = "Strongly Disagree that I Observed or Learned About this Skill" to "5" = "Strongly Agree that I Observed or Learned About this Skill" (See Figure 1).

Differences Between Students Attending Short Meetings On-Campus vs. Longer Off-Campus Conferences

In order to determine whether the students attending the on-campus IT Governance meeting observed or learned about similar skills to the students at the off-campus professional conference, t-tests were not used due to the clear violation of the assumption of normality due to the small sample size. For each of the four workplace skill categories, a non-parametric Mann-Whitney U test was used to determine if there were differences in perceptions of workplace skills between the students attending the on-campus and off-campus conference. Results showed that for three of the four categories of workplace skill perceptions, students attending the on-campus IT meeting did not differ significantly from students attending the IT conference. These categories including the following: Learning and Innovation Skills $U = 8.5$, $Z = .30$, $P > .78$, two-tailed; Information, Media and Technology Skills $U = 11.0$, $Z = 1.04$, $P > .39$, two-tailed; and Life and Career Skills $U = 9.0$, $Z = .45$, $P > .78$, two-tailed. However, for the Core Knowledge and 21st Century Themes category, students from the two groups differed significantly $U = 15.0$, $Z = 2.24$, $P < .04$, two-tailed. Students who attended the conference for IT professionals tended to rate they learned or observed core knowledge and 21 century themes to a greater extent than did the students who attended the on-campus IT governance meeting. Within the core knowledge category, while the two student groups did not differ in the areas of health literacy ($U = 11.5$, $Z = 1.19$, $P = .25$, two-tailed), environmental literacy ($U = 13.0$, $Z = 1.64$, $P > .14$, two-tailed), or business knowledge ($U = 11.5$, $Z = 1.19$, $P = .25$, two-tailed), the two groups did differ on global awareness and civic literacy. Students attending the NCLGISA IT conference rated that they observed or learned more about global awareness ($U = 15.0$, $Z = 2.24$, $P < .04$, two-tailed), and civic literacy ($U = 14.0$, $Z = 1.94$, $P < .08$, two-tailed)compared to students who attended the on-campus IT Governance meeting. Perhaps this occurred because university campuses are often viewed as insulated entities apart from their community whereas the students attending the IT conference were more clearly able to see how the work of the IT professionals affected the larger community.

	1=SD	2=D	3	4=A	5=SA	
Global Awareness	2 (25%)	1 (12.5%)	3 (37.5%)	2 (25%)	0 (0%)	
Financial, Economic, Business & Entrepreneurial Literacy	0 (0%)	0 (0%)	2 (25%)	3 (37.5%)	3 (37.5%)	
Civic Literacy	1 (12.5%)	3 (37.5%)	0 (0%)	3 (37.5%)	1 (12.5%)	
Health Literacy	2 (25%)	3 (37.5%)	1 (12.5%)	1 (12.5%)	1 (12.5%)	
Environmental Literacy	3 (37.5%)	1 (12.5%)	1 (12.5%)	1 (12.5%)	2 (25%)	
Think Creatively	0 (0%)	0 (0%)	1 (12.5%)	4 (50%)	3 (37.5%)	
Work Creatively with Others	0 (0%)	0 (0%)	2 (25%)	3 (37.5%)	3 (37.5%)	
Implement Innovations	0 (0%)	1 (12.5%)	0 (0%)	5 (62.5%)	2 (25%)	
Reason Effectively	0 (0%)	0 (0%)	2 (25%)	3 (37.5%)	3 (37.5%)	
Use Systems Thinking	0 (0%)	0 (0%)	1 (12.5%)	3 (37.5%)	4 (50%)	
Make Judgments and Decision	0 (0%)	0 (0%)	1 (12.5%)	5 (62.5%)	2 (25%)	
Solve Problems	0 (0%)	0 (0%)	1 (12.5%)	5 (62.5%)	2 (25%)	
Communicate Clearly	0 (0%)	0 (0%)	1 (12.5%)	5 (62.5%)	2 (25%)	
Collaborate with Others	0 (0%)	0 (0%)	1 (12.5%)	3 (37.5%)	4 (50%)	
Access and Evaluate Information	0 (0%)	0 (0%)	0 (0%)	5 (62.5%)	3 (37.5%)	
Use and Manage Information	0 (0%)	0 (0%)	0 (0%)	6 (75%)	2 (25%)	
Analyze Media	0 (0%)	3 (37.5%)	1 (12.5%)	3 (37.5%)	1 (12.5%)	
Create Media Products	0 (0%)	3 (37.5%)	2 (25%)	1 (12.5%)	2 (25%)	
Apply Technology Effectively	0 (0%)	1 (12.5%)	0 (0%)	4 (50%)	2 (25%)	
Adapt to Change	0 (0%)	0 (0%)	1 (12.5%)	6 (75%)	1 (12.5%)	
Be Flexible	0 (0%)	0 (0%)	2 (25%)	5 (62.5%)	1 (12.5%)	
Manage Goals and Time	0 (0%)	0 (0%)	0 (0%)	5 (62.5%)	3 (37.5%)	
Work Independently	0 (0%)	0 (0%)	2 (25%)	3 (37.5%)	2 (25%)	
Be Self-Directed Learners	0 (0%)	1 (12.5%)	2 (25%)	2 (25%)	3 (37.5%)	
Interact Effectively with Others	0 (0%)	0 (0%)	0 (0%)	4 (50%)	4 (50%)	
Work Effectively in Diverse Teams	1 (12.5%)	2 (25%)	1 (12.5%)	2 (25%)	2 (25%)	
Manage Projects	0 (0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)	
Produce Results	0 (0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)	
Guide and Lead Others	0 (0%)	2 (25%)	0 (0%)	5 (62.5%)	1 (12.5%)	
Be Responsible to Others	0 (0%)	1 (12.5%)	1 (12.5%)	2 (25%)	4 (50%)	

Figure 1. Frequency of Responses for Survey of 30 Workplace Skills

CONCLUSIONS

Meetings and conferences offer students a good opportunity to network with others and learn by observing and interacting with meeting and conference participants. All too often, students attend meetings and conferences that are specifically designed for student participants. While these experiences still serve students well, students who

attend meetings and conferences designed for industry professionals are able to learn about their profession in very different ways. Students who attended IT Governance meetings on-campus and students who attended a statewide conference of IT professionals both learned about many of the same skills. It is very interesting to note that only the students who attended the professional conference off-campus felt they had observed or learned a great deal about global awareness, civic and environmental literacy, though conference content may have played a role. More needs to be done to understand the skills students learn and can learn both in off-campus settings with IT professionals and in on-campus settings, where students come in contact with professional IT staff working with the university.

REFERENCES

1. Arnold, S., Miller, J., & Igo, C. (2011) Adding Value to AAAE Professional Conferences for Agricultural Education Graduate Students. *NACTA Journal*, 14-20.
2. Conti, G., Hill, J., Lathrop, S., Alford, K., Ragsdale, D. (2003) A Comprehensive Undergraduate Information Assurance Program. West Point, NY: Department of Electrical Engineering and Computer Science, United States Military Academy.
3. Grant, D., Malloy, A., Murphy, M., Foreman, J., & Robinson, R. (2010) Real World Project: Integrating the Classroom, External Business Partnerships and Professional Organizations. *Journal of Information Technology Education: Innovations in Practice, 9*, 167-196.
4. Haines, C., and Landrum, R. (2008) Faculty Perceptions of Undergraduate Students' Participation in Regional Psychology Conferences. *Psychological Reports, 2008* (103), 426-430.
5. Kryder, L. (1999). Mentors, Models, and Clients: Using the Professional Engineering Community to Identify and Teach Engineering Genres. *IEEE Transactions on Professional Communication, 42*(1), 3-11.
6. Li, S., Records, H., & Fougere, K., "An Exploratory Investigation of Gender Difference in Student Selection of a CIS Minor," Issues in Information Systems 5(2), 2004, 598-604.
7. Microsoft PressPass. March 15, 2005. Survey Finds Workers Average Only Three Productive Days Per Week. Available: http://www.microsoft.com/presspass/press/2005/mar05/03-15ThreeProductiveDaysPr.mspx
8. Nuhfer, E. (1999). Motivation in Interdisciplinary Programs. *New Directions for Teaching and Learning, 1999*(78), 79-86.
9. Rainsbury, E., Lay, M. (2002) Ranking Workplace Competencies: Student and Graduate Perceptions. *Asia-Pacific Journal of Cooperative Education, 3*(2), 8-18.
10. Silverstein, D. (2005) Making Student Conference Trips an Assessable Learning Opportunity. *Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition.*
11. North Carolina Local Government Information System Association. (2009) NCLGISA-North Carolina Local Government Information Systems Association. Available: www.nclgisa.org/HOME/tabid/134/Default.aspx
12. Partnership for 21st Century Skills. (December, 2009) P21 Framework Definitions. Available: www.p21.org/storage/documents/P21_Framework_Definitions.pdf
13. Wade, G., & Hayes, E. Challenges and Opportunities Associated with Preceptored Community Health Clinical Experiences. *Public Health Nursing, 27*(5), 459-467.
14. Weidman, J., & Stein, E. (2003) Socialization of Doctoral Students to Academic Norms. *Research in Higher Education 44*(6), 641-656.
15. University.(2012). University IT Governance and Prioritization. Available: www.wcu.edu/10598.asp.
16. Yuen, D. (January 30, 2012). How To Find, Develop and Retain Your Analytical Talent. Gartner, Inc., Available: http://www.gartner.com/id=1908515.

APPENDIX

Table 3. 21st Century Skill Survey

WORKPLACE SKILLS	**IMPORTANCE**				
Core Knowledge and 21st Century Themes	**1=Strongly Disagree that I Observed or Learned About this Skill**				**5=Strongly Agree that I Observed or Learned About this Skill**
Global Awareness Comprehension of global cultures and working with people from these cultures.	1	2	3	4	5
Financial, Economic, Business & Entrepreneurial Literacy Knowledge of economy's impact on society and ways to increase productivity in a work setting.	1	2	3	4	5
Civic Literacy Understanding the relationship of civic engagement to improved societies.	1	2	3	4	5
Health Literacy Awareness of the importance of maintaining good physical and mental health.	1	2	3	4	5
Environmental Literacy Awareness of the impact of society on the global environment.	1	2	3	4	5
Learning and Innovation Skills					
Think Creatively Ability to develop new ways of approaching problems.	1	2	3	4	5
Work Creatively with Others Ability to encourage and facilitate creative approaches from others.	1	2	3	4	5
Implement Innovations Communicate and follow through on creative ideas, resulting in a new product or service.	1	2	3	4	5
Reason Effectively Demonstrate appropriate reasoning skills as appropriate to a particular situation.	1	2	3	4	5
Use Systems Thinking Understand the relationship of smaller parts to a whole, complex operation.	1	2	3	4	5
Make Judgments and Decision Use ideas and previous experiences to make sound, objective decisions.	1	2	3	4	5
Solve Problems Understand elements of a problem and develop appropriate solutions.	1	2	3	4	5
Communicate Clearly Utilize multiple avenues of communication to most effectively articulate ideas.	1	2	3	4	5
Collaborate with Others Work with diverse groups in a flexible, collaborative manner.	1	2	3	4	5

Continued

WORKPLACE SKILLS	IMPORTANCE				
Information, Media and Technology Skills	1=Strongly Disagree that I Observed or Learned About this Skill				5=Strongly Agree that I Observed or Learned About this Skill
Access and Evaluate Information Competent evaluation of data and/or information in a timely, efficient manner.	1	2	3	4	5
Use and Manage Information Demonstrate appropriate use of information, considering possible legal /ethical issues.	1	2	3	4	5
Analyze Media	1	2	3	4	5
Create Media Products Implement communication using the most appropriate venue/tool.	1	2	3	4	5
Apply Technology Effectively Ability to utilize current technology to assist with solution of problems or improve work efficiency.	1	2	3	4	5
Life and Career Skills					
Adapt to Change	1	2	3	4	5
Be Flexible Positively collaborate to accommodate the changing needs of an organization or group.	1	2	3	4	5
Manage Goals and Time Use time wisely to most efficiently meet short-term and long-term goals.	1	2	3	4	5
Work Independently Accomplish tasks without direct supervision.	1	2	3	4	5
Be Self-directed Learners Demonstrate motivation to learn new skills, take on new initiatives, and use past experiences to guide new ideas.	1	2	3	4	5
Interact Effectively with Others Demonstrate professional conduct.	1	2	3	4	5
Work Effectively in Diverse Teams Respect opinions of all group members while working to create new ideas.	1	2	3	4	5
Manage Projects Prioritize tasks and goals to meet deadlines.	1	2	3	4	5
Produce Results Communicate finished product in a timely, professional manner.	1	2	3	4	5
Guide and Lead Others Use interpersonal and leadership skills to get a group to efficiently complete a particular project or task.	1	2	3	4	5
Be Responsible to Others Choose courses of action based on the best interest of the team or the project.	1	2	3	4	5