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Role of IS Job Shadows on Post-Secondary Student Major Selection and Career-Related Self-Efficacy

Emergent Research Forum (ERF)

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Abstract

The Information Systems (IS) Job Shadow program allows undergraduate students to engage in an experiential learning opportunity with IS professionals. The job shadow includes a half-day visit with a local business to learn about IS, how IS supports the business, and careers within IS. This research examines the role of the IS job shadow on post-secondary undergraduate student self-efficacy and behavior intentions by measuring student intent on pursuing the IS major and IS career both before and after the IS job shadow.

Keywords

Job Shadow, IS Enrollment, Self-Efficacy, IS Education, Experiential Learning, Mixed-methods Research.

Introduction

Demand for information technology (IT) talent is growing rapidly, and recruiting, hiring, and retaining IT talent continues to challenge many companies. According to the Wall Street Journal, there are now nearly 1 million open IT jobs in the United States alone (Loten 2019). Robert Half reports that 67% of IT managers want to expand their technology teams but 89% report challenges in finding IT talent (Robert Half 2019). By 2021, the demand for just cybersecurity professionals will exceed 3 million worldwide (Perhach 2018) and over a half million of these openings coming from within the United states (Morgan 2016).

As this need for IT talent continues to expand, growing the talent pool by producing graduates from IS programs has become a critical concern to many universities. Enrollment in IS programs are still hampered by lack of student interest (Burns et al. 2014). There have been many different approaches to minimize and close this talent gap. First, IS programs have attempted to grow their programs with new degrees, minors, emphasis area, or certificates in the newest trends, such as cybersecurity or analytics. Second, IS programs have moved to blended, hybrid and entirely online offerings. Finally, IS programs have explored various sustainability framework approaches (Buck 2015; Case and Tabatabaei 2019).

Career choice is an important decision that can directly affect students' motivation and attitude in their study and selection of academic programs. Many students are not exposed to the entire spectrum of career options during their secondary education. Job shadow programs, an intervention that has been used to influence student choice, involve briefly exposing the student to the workplace so they may understand certain occupations (Paris and Mason 1995). Compared to internships and other similar offerings, a job shadow program involves lower commitment to all parties involved, is less costly, is immersive to some degree, and has been shown to be seen by students as a beneficial and engaging component to their business education (McCarthy and McCarthy 2006). Although the need for effective interventions in IS programs is clear, theory and evidence related to effectiveness of job shadow programs both in general and specific to IS programs is lacking in the literature.

The purpose of this research is to examine the effect of IS job shadow programs on business undergraduate students' career related self-efficacy and their major and career choice. Specifically, the research aims to address the following questions: 1) *Does participation in an IS job shadow increase a student's belief that they can perform well in an IS career?* 2) *Does participation in an IS job shadow increase a student's intention to pursue an IS major?* and 3) *Does participation in an IS job shadow increase a student's intention in pursuing an IS career?* This paper will proceed as follows. First, we will review the related literature. Second, the research methodology will be described. Finally, this paper will conclude with a discussion on next steps and intended theoretical contributions.

Literature Review

Previous research has explored how post-secondary students make decisions on selecting a major as well as career. Google Scholar indicates minimal articles have been published since 2015 that contain the concepts of "Information Systems" and career-related decision making. While many high school students and post-secondary students are aware of majors such as accounting, finance, marketing, and computer science, Information Systems is not visible to students. Many of these students first encounter information systems as a required course in business school. The IS Job Shadow Program was started to allow students to learn about this high-demand role.

Self-Efficacy

Self-efficacy is chosen here because it is a widely accepted predictor of future behaviour related to career choice (Conklin, Daling and Garcia 2013; Pulliam, Ieva and Burlew 2017). Self-efficacy refers to the individual's belief that they are capable of performing a defined task, to a specific performance level (Bandura 1977, 1986, 1997). Self-efficacy is an immensely popular theory and has been widely applied in related areas such as computer use (Compeau and Higgins 1995), academics (Honicke and Broadbent 2016), as well as skills pertaining to medical professionals (Ammentorp et al. 2007), for a few examples. Its presence influences the individual's confidence and motivation when exerting effort to control one's situation, environment or state, and is linked to emotional well-being (Seggelen-Damen and Dam 2016), persistence in students (Baier, Markman and Pernice-Duca 2016), as well as past and future actual performance (Talsmaa et al. 2018).

Pertaining to post-secondary education, self efficacy in students has been linked to a variety of important behaviours and outcomes related to student life (Putwain, Sander and Larkin 2013). Most relevant here is the application of the self-efficacy concept to the individual pursuit of academic choice (Pulliam, Ieva and Burlew 2017; Conklin, Daling and Garcia 2013; Zimmerman 1995), such as a university major (Elias and Loomis 2000) in particular, at a time when students are expressing their academic agency. A related concept pertains to understanding efforts related to career development related activities, referred to as career self efficacy (Hackett and Betz 1981). Finally, the notion of applying an intervention intended to influence attitudes related to career self efficacy (Hackett and Betz 1981). Success for various interventions for the purpose of influencing career and program choice has been demonstrated in the research, most notably in the science, technology, engineering, and mathematics (STEM) area (eg. Falco and Summers 2019).

Gaps in Research

This research specifically seeks to explore two research gaps. First, clearly defined concepts of both academic and career self-efficacy specific to IS are not known to exist in the literature. The concept of self-efficacy is reliant upon the domain (Zimmerman 1995), that is, self-efficacy for one type of task does not necessarily translate to self-efficacy in another task. It is true self-efficacy concepts exist in other areas, and it will be a goal of this research to validate the concepts in IS-specific settings. Second, although job shadow programs as interventions designed to influence both academic and career choice have been studied in other domains, nothing is known as to the impact of information systems oriented job shadow programs on the intention to choose information systems courses, majors and careers. This presents a unique opportunity to develop post-secondary IS offerings, due to a slow recovery rate of IS enrollments since the decline in the first decade of the 2000s (Annabi and McGann 2019).

Methodology

This research follows a mixed-methods approach to gathering data, and is depicted in Figure 1 (below). Students who are enrolled in an Introduction to Information Systems course are offered the opportunity to take part in an IS job shadow program. Students can earn either professional development points or a co-curricular record for taking part in the program. As part of the program, students are asked to take a survey both before and after the IS job shadow. Students are asked both quantitative and qualitative questions before and again after the IS job shadow. In addition, students are administered a short qualitative questionnaire about the experience after the IS job shadow.

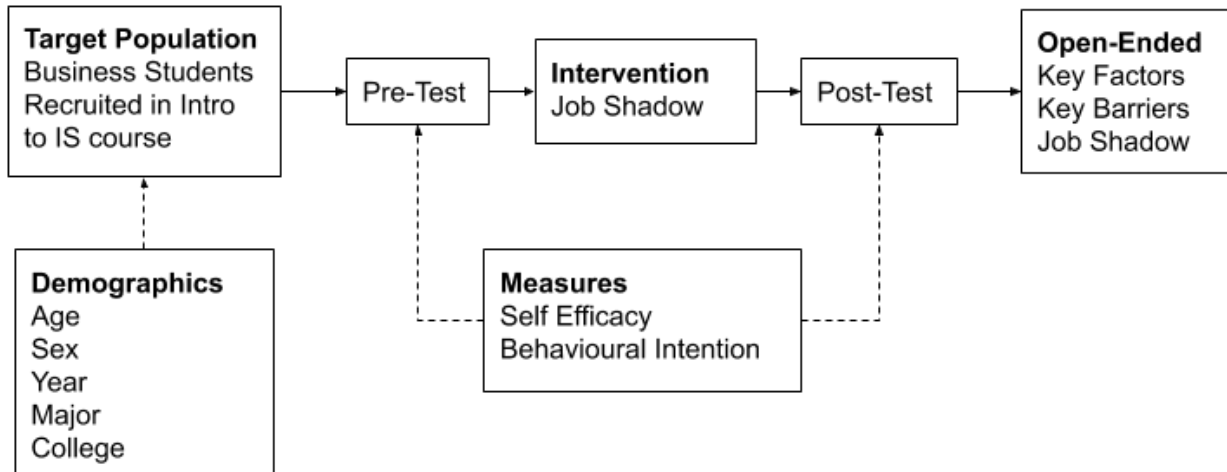


Figure 1: Methodology for this research.

Instruments and Questionnaires

Students will be asked demographic information include, age, sex, year (freshman, sophomore, etc.), and intended major (if selected). Students are then asked about their self-efficacy and behavior intentions for both selecting the IS-related major and the IS-related career. These questions are adopted from Taylor and Todd (1995). After the job shadow placement, they will also be asked three open ended questions about any key factors or barriers that influence them to choose IS offerings and careers (See Appendix A for the Instrument).

Discussion and Conclusion

This research-in-progress hopes to offer insight into influencers on student intentions and efficacy relating to selecting IS-related majors and IS-related careers. Data collection is currently under way at one American campus and the job shadow program is currently being set up at one Canadian campus, after which those researchers will apply for ethics approval. After this year, datasets will be analyzed and publication will be sought in relevant journals, conference and trade publications. There are several expected contributions to research that will result from this research. First, this is the only study known that will have produced any evidence related to IS Job Shadow programs. Specifically, this research will validate measures of self-efficacy and behavioural intention for IS-career and program selection related scenarios. Second, the qualitative data will serve to inform the researchers of any important constructs that should be investigated in future research endeavours, as well as any conceptual augmentations for self-efficacy in this domain.

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Appendix A - Instrument

Self-efficacy for choosing an Information Systems-related Major:

1. I would feel comfortable in the Information Systems major.
2. I would be able to perform reasonably well in the Information Systems major without assistance.
3. I would be able to choose the Information Systems major even if there was no one around to help me.

Self-efficacy for choosing an Information Systems-related Career:

1. I would feel comfortable in an Information Systems related career on my own.
2. I would be able to perform reasonably well in an Information Systems related career on my own.
3. I would be able to choose an Information Systems related career even if there was no one to help me.

Behavioral intention to choose an Information Systems-related Major:

1. I intend to choose the Information Systems Major offered in my program.
2. I intend to choose Information Systems for my major.
3. I plan to choose the Information Systems Major in the future.
4. I expect to enroll in the Information Systems Major in the future.

Behavioral intention to choose an Information Systems-related Career:

1. I intend to pursue an Information Systems related career after I graduate.
2. I intend to choose a career related to Information Systems.
3. I plan to choose an Information Systems related career in the future.
4. I expect to pursue an Information Systems related career

Pre/Post Qualitative

In addition to the quantitative data collect, students are asked the following qualitative questions:

1. What prevents you in deciding/choosing an information systems-related major? career?
2. What motivates you in deciding/choosing an information systems-related major? career?
3. What are your major considerations when choosing a major? career?