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UNDERSTANDING STUDENTS' INTENTIONS AND MOTIVATIONS TO PURSUE A MASTER IN INFORMATION SYSTEMS – A PLANNED BEHAVIOR APPROACH

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ABSTRACT

Despite the growing demand for Information System professionals, student enrollment in Master of Science in Information Systems (MSIS) programs has not risen proportionately. One fundamental reason is our inadequate understanding of the actual motivations and goals of the aspiring graduate students – a topic that we attempt to delve into in this research in progress. We utilize the Theory of Planned Behavior as the theoretical underpinning and create a survey instrument to assess factors that influence students' motivations and propensity to pursue a Master in IS. Our research design further attempts to subdivide and compare the differentiated motivations of students with or without an academic background in IS. In this current report, we present the background of our research, our hypotheses, some initial insights from the on-going data collection process, and our research plans moving forward.

Keywords

Motivation to pursue MSIS, Graduate Study in Information Systems, Theory of Planned Behavior

INTRODUCTION

The propensity and motivation to earn a college degree has steadily increased over time, with one third of our 25- to 29-year-olds now having a bachelor or higher degree ("American adults," 2013). Higher job growth and the increasing gap between available jobs and graduates have made Information Systems an attractive major among fields of study (STEM: Good jobs, n.d.). Post-secondary education in Information Systems is relevant for the growing needs of the business sector and a professional Master in Information Systems is a qualification in demand. The employment opportunities for computer and information systems managers are expected to grow 15 percent from 2012 to 2022, faster than the average for all occupations (Bureau of Labor Statistics, 2015). Hence, a Master in IS is considered a professional degree that is likely to prepare its graduates for long-term career success (Topi, Conboy, Donnellan, Ramesh, Van Toorn and Wright, 2014). However, with the field of Information Systems being extremely diverse, there is no consistency as to what it means to be an IS professional (May & Lending, 2015), and a comprehensive identity for a degree in Information Systems is still lacking (Topi, Helfert, Ramesh and Wigand, 2011). Topi (2014) has suggested positioning the Master in IS programs in the broader space of computing and business programs. Accordingly, educating students in the information systems discipline is challenging due to the need of such diverse specialization (Lee and Mirchandani, 2010). In addition, students graduating from any undergraduate degree are currently able to enroll in most Master in IS programs (MSIS 2006, p. 132), so students with no previous academic background in Information Systems have joined the ranks of the undergraduates pursuing a Master in IS.

In many fields, employers are increasingly requiring a Masters degree as the educational qualification for leadership roles and correspondingly the financial rewards offered by the employer are on the rise. Gallagher (2015) noted that over the past ten years, the highest growth in the wage premium for college education has resulted from the students that have attained graduate and professional degrees. All these general considerations have not been enough to attract students to pursue a Master in IS, since the specialized master's degree in Information Systems still does not have the same recognition as certain other professional master's degrees, notably the MBA (Topi et al., 2014). In addition, many employers do not have a clear understanding of the capabilities learnt in MSIS, which dampens employer demand for graduates from MSIS programs and reflectively, prospective students' motivation to pursue the degree (Topi et al., 2014). Our current research is motivated by the observation that MSIS needs a strong, well-defined identity that both prospective students and employers understand and value

(Topi et al., 2014). We specifically delve into a two-fold research question here. First, we attempt to assess the factors that influence students' motivations, goals and propensity to pursue MSIS. Second, we further attempt to subdivide and compare the differentiated motivational factors of students who come from IS and non-IS academic backgrounds. In what follows, we first provide the theoretical underpinning of our research and develop the research hypotheses. Next, we describe the survey instrument and our current pilot data collection efforts. Having done so, we briefly describe some initial insights. Finally, we provide a roadmap of our research going forward, create a set of expected pathways for analyzing the stated hypotheses, and conclude the paper.

THEORETICAL BACKGROUND

We created a research framework and applied Azjen's Theory of Planned Behavior (TPB) (Azjen, 1985) to investigate the factors that influence a student's motivation to pursue a Master in IS. According to Azjen's theory (Azjen, 1985), an individual forms intentions to perform a specific behavior to achieve certain goals or outcomes. The theory suggests that intentions are not only indicative of the motivational factors that influence the behavior but also indicative of the likelihood that performing a certain behavior will lead to the desired outcome. TPB includes three conceptually independent antecedents leading to behavioral intention; Attitude Toward the Behavior, Subjective Norms and Perceived Behavioral Control (Azjen, 2006). The Theory of Planned Behavior was expanded to include the three belief-based measures for the determinants of intention; Behavioral Beliefs, Normative Beliefs and Control Beliefs.

RESEARCH HYPOTHESES

We tested students' intentions and behaviors in pursuing a Master of IS in relation to their attitudes towards pursuing the degree, the perceived beliefs held by the people important to them regarding pursuing a Master in IS and their level of control over the behavior necessary to complete the Master in IS. A combination of these three determinants of intention, Attitude Toward the Behavior, Subjective Norm and Perceived Behavioral Control, is expected to influence the student's intention to pursue a Master in IS, which is depicted in the model below.

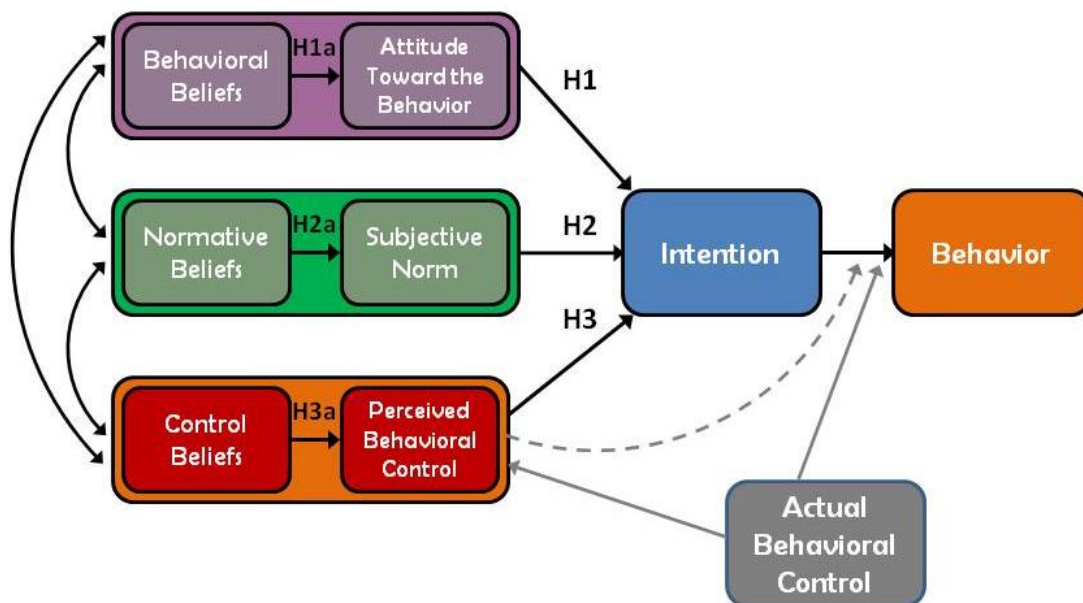


Figure 1. Conceptual Diagram of the Theory of Planned Behavior with Hypotheses.

Retrieved from <http://people.umass.edu/aizen/tpb.diag.html>

Attitude Toward the Behavior is one of the three determinants of intention included in the model and it is used to test students' attitudes towards pursuing a Master in IS. Attitude Toward the Behavior is determined by the individual's beliefs about whether a behavior will lead to a valued outcome (Ajzen, 1985) and indicates the student's personal evaluation of the behavior.

Hypothesis 1 (H1): The student's positive attitude toward pursuing a Master in IS positively impacts their Behavioral Intention to do so.

Behavioral Belief is the belief-based measure for the determination of the intentions influencing the Attitude Toward the Behavior (Ajzen, 2006). Behavioral Beliefs relate to the likely short- and long-term consequences of the student's behavior.

Hypothesis 1a (H1a): Behavioral Beliefs about positive outcomes when pursuing a Master in IS positively influence the student's Attitude toward the Behavior.

Subjective Norms, according to Ajzen, are indicative of the expected mode of conduct (Ajzen, 1991, p. 199). Subjective Norms refer to what individuals believe other key people in their lives think about whether or not the individual should perform the behavior or their beliefs about how people they care about will view the behavior in question. The perceived opinions of these key people help determine whether the individual will actually perform the behavior. The students' Subjective Norms indicate the students' perceived social pressure to pursue a Master in IS according to the expectations of family, friends and acquaintances.

Hypothesis 2 (H2): Positive Subjective Norms positively affect the student's Behavioral Intention to pursue a Master in IS.

Subjective Norms are determined by Normative Beliefs, which are a measure of the normative expectations of others. For the students, the perceived expectations are those expectations of family, friends and acquaintances from the students to pursue a Master in IS.

Hypothesis 2a (H2a): Positive Normative Beliefs in students pursuing a Master in IS positively impact the student's Subjective Norms.

Perceived Behavioral Control refers to the individual's perceptions of whether or not they can perform a specific behavior and how easy it is to perform. Perceived Behavior Control indicates the degree to which the student believes that the opportunities and necessary resources are available to complete a Master in IS, based both on past experiences as well as the expected impediments and obstacles that the student anticipates will be in his path.

Hypothesis 3 (H3): A greater Perceived Behavior Control over completing a Master in IS positively facilitates the student's Behavioral Intention to do so.

In the Theory of Planned Behavior, Control Beliefs give rise to Perceived Behavioral Control. Control Beliefs are the considerations that relate to the beliefs in the presence of factors that could facilitate or impede performance of the behavior (Ajzen, 2006).

Hypothesis 3a (H3a): Positive Control Beliefs about the factors influencing the completion of a Master in IS will positively affect students' Perceived Behavioral Control.

SURVEY INSTRUMENT

The construction and use of survey instruments designed in accordance with the Theory of Planned Behavior and used to test student intentions about pursuing graduate study have been described in some prior studies. Amongst these, was a study conducted by a research team from University of Oregon and East Carolina University that tested the intentions of sixty upper division students to apply to continue their studies in graduate school. The study used Ajzen's Theory of Planned Behavior to predict the students' intentions and attitudes, by distributing a survey containing 76 items to the student population at the university, in an effort to increase the understanding of the factors that affect the behavior of students when applying to graduate school (Ingram, Cope, Harju & Wuensch, 2000). Later, Chen (2007) utilized the Theory of Planned Behavior to investigate the intentions of Taiwanese kindergarten teachers to join a graduate level academic program. Two hundred and eighty valid

completed questionnaires were collected and the results analyzed to identify the most influential factors influencing the teachers' decision to join such a program.

An initial pilot study using a questionnaire survey constructed for the study in accordance with Azjen's *Constructing a Theory of Planned Behavior Questionnaire* (Azjen, 2006), was conducted in Dec 2015. The pilot study was distributed online to a convenience sample of the population, which were students currently enrolled in a Master in IS at a university in southeastern US. The study entailed the use of a web-based survey questionnaire specifically developed to collect data about the factors motivating a student to pursue a Master in IS. Data collected at the start of the survey will enable the differentiation between the respondents according to their previous undergraduate study track. This differentiation will be based on students that had not previously taken an IS course or completed an undergraduate degree in IS and those that had. An extension of the study will enable, at a later stage, the use of the data to conduct a comparison between the motivations of students who completed an undergraduate course of study in IS to those that did not, prior to their pursuing the Master in IS. The expansion of the study by utilizing the survey instrument to collect data from students in MSIS programs at multiple universities is the ultimate goal of the study. The questionnaire used in the study has been designed around the main constructs of the Theory of Planned Behavior (Azjen, 1985), which include the Attitude toward Act, Perceived Behavioral Control, Subjective Norms and Intention and their associated Beliefs (Behavioral Beliefs, Normative Beliefs & Control Beliefs). For each of the constructs several suitable question items were created.

In the questionnaire, Behavioral Intentions were tested through the use of three questionnaire items focused on the students' intent. For example; "I intend to complete a Master in IS – agree/disagree" was followed up with "I am determined to complete a Master in IS- agree/disagree."

Attitude Toward the Behavior was tested by assessing to what degree the performance of the act is valued by the student. For example, one of the eight questionnaire items was "My completing a Master in IS will be: valuable/worthless."

The testing of Subjective Norms related to the expectations from the student of the key people who are likely to influence the student. This group of people included the student's family, friends and acquaintances. Two questionnaire items were used, with one of them being "It is important for my family that I pursue a Master in IS – agree/disagree."

Perceived Behavioral Control tested the students' perceptions of whether they can perform the specific behavior using three questionnaire items. Question items that were used included "If I want to, I can complete a Master in IS – agree/disagree" and "I am confident that I can pursue a Master in IS – agree/disagree" to test student's perceptions.

Using the seven-point Likert scale, respondents were required to rank their opinion on all the statements included in the questionnaire. By quantifying the measures of the questionnaire items, data collected from the questionnaire can be aggregated, compared and summarized. Analysis of the questionnaire results will provide a greater understanding of the motivations and intentions driving a student to pursue a Master in IS. This study is still in progress. Further research and analysis is planned to determine if students with no previous background in IS differ from students with undergraduate experience in IS education in the relative impact of each of the determinants on their intentions and motivations to pursue a Master in IS.

PILOT DATA AND SOME VALUABLE INSIGHTS

Twenty-eight students responded to the questionnaire survey, from which we discarded 8 because of incompleteness. Out of the 20 fully completed responses, twelve were male (60% of the respondents) and eight were female (40% of the respondents), a ratio not far from the typical gender ratio in STEM graduate programs in business schools. Of the respondents, Business and IS/computing undergrad majors each constituted 30% of the students, Engineering undergrad majors were 15% and the remaining 25% were a diversified mixture of undergraduates from humanities, health, natural and social sciences streams. Furthermore, in total only 35 % of the respondents had taken one or more course in Information Systems in a university before their current graduate studies in IS, essentially meaning that other than the IS/computing undergrad majors barely anyone else had experienced any IS coursework before their current graduate work in IS. Unlike the IS/computing majors, for whom MSIS is a natural selection, the large percentage of respondents that completed a business undergrad major prior to pursuing the MSIS is a likely indicator of an increasing importance of (and the necessity for dialogues around the issues of) IS in the business arena (Stikeleather, 2013).

This currently small dataset provides us great insights into the motivation of the students to pursue MSIS. Overall 75% of all the respondents felt that the effect of the MSIS on their current employment will be *valuable* or *very valuable*. Similarly, 80% of the students felt that the MSIS will have a positive impact on their likelihood of receiving new, meaningful employment in the future. 95% of all the respondents felt that MSIS will likely have a positive impact on their chances of getting a promotion in their current employment status – a likely measure of one immediate benefit to look forward to when pursuing a MSIS. 90% of the respondents expected that completion of MSIS will improve their financial state and the degree would prove to be financially valuable in the future.

Using the MSIS degree as a means to achieve measures of professional success also appears to be one overall accepted belief of the students. 80% of the respondents felt that pursuing MSIS for career growth is an appropriate (viable) plan of action. Each and every respondent, i.e., 100% of the students felt that being successfully able to complete MSIS would be professionally valuable or very valuable. That not all of them felt that pursuing MSIS for career growth is a viable plan alludes to barriers and predicaments that some of these students may have on their mind, and we have looked into the data that provides some explanations as we delineate below.

Graduate students typically face more responsibilities in comparison to undergrad students (work, family etc.). We asked respondents whether work and life aspects can impact their ability to successfully pursue MSIS – a thought process that they would have gone through before beginning the program and likely revisit every now and then as their work and family lives evolve with time. 100% of the respondents felt that work demand on their time is high and 90% of them agreed (with varying degrees) that time pressure from work is hard for them to avoid. Similarly 90% of the respondents felt that unanticipated demand on their time from family is a definite likelihood and here, all 100% agreed that avoiding time demand from family is not likely possible. Between these two life and work pressures it appears that some respondents may begin to doubt their ability to complete an MSIS program.

We have also attempted to look into whether social influences play a role in the students' choice of pursuing an MSIS. Only 10% of the respondents were ambivalent towards whether most people who are important to them approve of their pursuing MSIS, for all the remaining respondents it was an easy agreement. We also asked whether the respondents have friends and acquaintances who have already completed a MSIS degree or are pursuing it, to which only 40% agreed, indicating that hopes around fundamental and objective measures of professional and pecuniary values are bigger drivers of a student's decision to pursue MSIS.

FUTURE RESEARCH AND CONCLUDING REMARKS

In this current report we have discussed some initial insights from the pilot data. At this point in time, we are using the experiences garnered at this stage to fine tune the instrument and engage ourselves in contacting other universities and programs where we would like to collect data. It is envisioned that the actual data collection phase would be concluded early in the spring semester and a more detailed study of the behavioral motivations and influences on students' decision to pursue MSIS will emerge in the summer of 2016. Comprehensive analysis of the results of this study based on the Theory of Planned Behavior will increase the understanding of the factors that influence students' motivation to pursue a Master in IS. The factors to be tested will comprehensively include the respondents attitudes towards pursuing a Master in IS, the perceived beliefs of family, friends and acquaintances towards them pursuing a Master in IS and their level of control over behaviors related to pursuing a Master in IS that could predict their intentions in pursuing a Master in IS. We hope to find support and validation of TPB in this context predicting that the more favorable the Attitude, the stronger the Subjective Norm, and the greater the Perceived Behavioral Control, the higher an individual's intention to conduct the behavior under consideration (Ajzen, 1991).

Research conducted by Ingram, K., Cope, J., Harju, B., & Wuensch, K. (2000) indicated that the single best predictor of intentions of upper division students to apply to graduate school was the students' attitudes about graduate school and their perspective about the influence graduate school could have on their future careers. Similarly in this study, we do expect to show - and we do have indications of that in the pilot study – that students with positive attitudes towards the Master in IS, who received support from the people close to them and who have perceived behavioral control over their behaviors, are expected to be the students with stronger intentions and motivations to pursue a Master in IS. This is a research in progress and we hope to bring a more detailed view of our instrument as well as the results from a wider dataset when we meet in SAIS and take the feedback from the attendees to improve our final data analysis and inference stages.

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