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RECRUITING MAJORS: DECISION FACTORS AND THE IMPACT OF AN INTRODUCTORY INFORMATION SYSTEMS COURSE

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ABSTRACT

Although the demand for Information Systems (IS) professionals continues to grow, the number of students choosing to major in the discipline has not kept pace. Clearly more majors need to be recruited. Unfortunately, the interaction between students and the IS discipline is often limited to just one introductory course. In order to make the introductory IS course a more effective recruiting tool, a field study was conducted to determine what factors students consider when choosing a major. Interestingly, many of the factors that were identified as most important when choosing a major (job availability and salary prospects) are also strengths of the current IS job market. The study also examines the impact of an introductory IS course on a student's knowledge and view of the IS profession. The results show that the course can improve a student's view of the profession but the overall impact on recruitment is still limited.

Keywords

Recruiting Information Systems majors, choosing a major, introductory Information Systems course

INTRODUCTION

Any Information Systems (IS) faculty member who has ever tried to recruit majors knows that IS can be a hard sell with students. Given that many high school students are not even aware that IS exists as a business discipline (Downey, McGaughey, and Roach, 2009, 2011), the issues related to promoting the major are easy to understand. When students are considering majors in business, Information Systems is clearly at a disadvantage as compared with more well-known disciplines such as Accounting, Marketing, and Management. While the difficulty in recruiting majors may not be surprising, it comes at a time when IS professionals are actually in high demand in the business world. According to U.S. Bureau of Labor Statistics projections, IS-related jobs are expected to grow by 22% through 2020, making it one of the top growth areas in the economy (Lockard and Wolf, 2012). This disparity between the growing demand for IS professionals and the undersized pool of IS majors, poses a problem that clearly requires further investigation.

This paper will contribute to the investigation by focusing on how recruiting can be impacted by an introductory IS course. Given that most business college curriculums require an introductory IS course, it has become the primary, and sometimes only, contact that business students have with the discipline. As such, it has long been considered an excellent recruiting tool by IS departments. In order to make the most of this recruiting opportunity, it is necessary to understand the factors that influence a student's choice of major. Through a better understanding of these factors, the introductory IS course can be designed to inform students and address their relevant concerns about the discipline.

A review of the literature was performed to evaluate how students choose a major, especially as it relates to Information Systems. In addition to the literature review, a field study was also conducted, in which students in an introductory IS course were asked about their major choice and the factors that affected their decision. The results of this study will be discussed along with how they can be used to improve recruiting efforts in an introductory IS course.

CHOOSING A MAJOR

How students choose a major is a topic that has received a considerable amount of research attention. Researchers have investigated general factors relevant in the major choice decision, as well as, factors relevant to the choice of a specific major. Galotti and Kozberg (1987) identified four general factors as being most important in selecting a major: "How much I care about the subject," "Something I do well in," "Something with good career opportunities," and "What I want to do with this major after college." Lowe and Simons (1997) found that future earnings, career options, initial earnings, and ability/aptitude were the most important factors influencing the choice of a business major.

Information Systems researchers have also investigated factors related to major selection. This was especially true following the significant decline in IS enrollments after the dot-com bust. Multiple researchers have found that personal interest in the

subject matter is the primary factor in choosing an IS, or IT, major (Walstrom et al., 2008; Akbulut and Looney, 2009; Downey, McGaughey, and Roach, 2011). This finding is not, however, universal. Researchers like Hogan and Li (2011) have found that the most important factors relevant in the choice of an IS major had more to do with career-related issues than they did with personal interest. Specifically, they found the desire for a well-paid job and the prospect of finding a job in the discipline following graduation to be the most important factors.

Given that the IS research has produced conflicting results, more study is needed to better understand the underlying major selection phenomenon. In the end, there may not be one factor that is always the most important. Even so, more research should be able to identify a consistent set of factors applicable for most students.

RESEARCH METHOD

In order to investigate the factors related to choosing a major, a field study was conducted to collect data directly from students in an introductory IS course. The course covers both productivity applications (i.e., spreadsheets and databases) and core IS concepts/terminology. Although the course is most commonly taught by adjunct faculty, there are also a small number of tenure-track instructors. Data for this study were drawn from sections taught by both adjunct and tenure-track faculty.

A paper-based survey was developed to collect demographic data along with questions about the student's choice of major and the factors affecting their choice. The factors used in the survey were drawn from the study conducted by Walstrom, et al. (2008). For each factor, the respondent was asked to rate how important the factor had been in his/her decision to choose a major. The respondent rated each factor on a four point Likert-type scale: not important (1), somewhat important (2), important (3), and very important (4). A four point scale was chosen to eliminate the possibility of the respondent taking a neutral position on a factor. Alwin and Krosnick (1991) also argue that scales without midpoints are more reliable.

After the students were asked about the factors they considered when choosing their major, they were presented with a series of questions to assess their perceived knowledge of the IS profession. The questions asked the students to rate their knowledge using a four point Likert-type scale: no knowledge (1), somewhat knowledgeable (2), knowledgeable (3), and very knowledgeable (4). This portion of the survey was administered during the first week of the semester and again during the final week to capture any changes in perceptions over the period of the course.

Also during the final week, the students were asked if the course had improved their view of the IS field. This set of questions used a six point Likert-type scale anchored by strongly disagree (1) and strongly agree (6). The students were also asked how likely they were to sign an IS major or an IS minor using four point Likert-type scales: not likely (1), somewhat likely (2), likely (3), and very likely (4).

The study sample was compromised of undergraduate business students enrolled in an introductory IS course at a large university in the Midwest United States. A total of 303 usable responses were collected. The demographic breakdown of respondents is given in Table 1.

Gender	n	%
Male	195	64.4%
Female	108	35.6%
Classification	n	%
Freshman	149	49.2%
Sophomore	50	16.5%
Junior	80	26.4%
Senior	24	7.9%

Table 1. Gender and Classification

RESULTS

A review of the survey results (see Table 2) confirms that students consider a number of factors when they choose their majors. In terms of importance, however, a few factors really stand out. According to the results, the six most important

factors are, in order: probability of working in the field after graduation (3.618); personal interest in the subject matter (3.450); long term salary prospects (3.441); job security of related occupations (3.422); job growth forecasts (3.313); and opportunities for ongoing professional development (3.247).

Factor	Mean	Std. Deviation
Probability of working in field after graduation	3.618	0.584
Personal interest in subject matter	3.450	0.696
Long term salary prospects	3.441	0.660
Job security of related occupations	3.422	0.664
Job growth forecasts	3.313	0.742
Opportunities for ongoing professional development	3.247	0.692
Starting salary	3.094	0.766
Reputation of program at university	3.020	0.793
Prestige of profession	2.906	0.802
Reputation of program faculty	2.857	0.859
Flexibility of work schedule	2.646	0.903
Family members	2.640	1.076
Professors at university	2.444	0.983
Probability of graduating with honors in major	2.430	0.929
Performance in high school subject matter courses	2.408	0.937
Ease of subject matter (subject is easy for me)	2.403	0.782
Friends	2.375	1.055
University Career Services	2.264	0.981
University advisers	2.261	0.978
High school teachers	1.882	0.907
High school guidance counselors	1.585	0.752

Table 2. Factors Influencing Choice of Major

When the mean responses were compared by gender, there were three factors where the responses provided by females were statistically different (p -value < 0.05) from their male counterparts. Specifically, female respondents rated personal interest in the subject matter; job security of related occupations; and opportunities for ongoing professional development as more important than males.

Of the 303 usable responses, 31 were undecided about a major. Interestingly, when the mean responses were compared between those with a major and those who were still undecided, there were no statistically significant differences in the responses. This implies that students who have not chosen a major will ultimately make their decision considering a similar set of factors as the students with majors.

Along with questions about major choice factors, the students were also asked to assess their perceived knowledge of the IS profession. This part of the survey was administered during the first and final week of the semester. The mean scores (based on a 4 point scale) from the two administrations, along with a comparison of the means are given in Table 3.

Classification	Initial Mean	Final Mean	Difference of Means	p-value
Job titles for IS professionals	1.693	2.176	0.483	0.000
Job responsibilities	2.182	2.315	0.134	0.040
Starting salaries	1.987	2.532	0.545	0.000
Job growth forecasts	2.007	2.644	0.638	0.000
Career satisfaction	2.125	2.590	0.464	0.000

Table 3. IS Profession Knowledge

A review of the results in Table 3 shows that students perceived their knowledge of the IS profession to be very low at the beginning of the semester. This is particularly true in the areas of job titles and starting salaries where the mean response was less than two. By the end of the semester, the mean response had increased for every question. In fact, the comparison of means shows that the increases were all statistically significant.

During the final week of the semester, the students were asked if the course had improved their view of the IS field and how likely they were to sign an IS major or minor. The mean scores and correlation matrix for those students who were undecided are given in Table 4.

	Mean	Course improved view of IS field	Likely to sign a major	Likely to sign a minor
Course improved view of IS field	4.588		-0.112	-0.243
Likely to sign a major	1.848	-0.243		0.603**
Likely to sign a minor	2.118	-0.112	0.603**	

Table 4. Respondents without a chosen major or minor

Although the respondents somewhat agree (at least) that the course improved their view of the IS profession, there was no statistically significant relationship between this view and the likelihood of signing an IS major or minor. Further analysis did find a significant positive relationship (0.193, p-value = 0.003) between the course's perceived ability to improve student views of IS and their likelihood to choose IS as a minor – when responses from all students currently without a minor were considered.

DISCUSSION

It is clear from the results of this field study that students consider a number of factors when choosing a major. Of the 21 factors listed in the survey, students rated eight as important and eleven as somewhat important to their decision. Only two factors were rated as unimportant and they both dealt with high school influences (teachers and guidance counselors). Of the eight factors rated as important, all but two (personal interest in the subject matter and reputation of the program at the university) related directly to occupation issues. This implies that business students are driven by the need to find secure employment with good salaries and growth potential. Given the current demand for IS professional and the high salaries (Lockard and Wolf, 2012), a major in Information Systems would appear to address many of the factors that students consider to be most important.

While the importance of job prospects and pay found in the results supports the findings of researchers such as Hogan and Li (2011), the results are notably different from some previously published studies. For example, Walstrom et al. (2008), Akbulut and Looney (2009), and Downey et al. (2011) found that personal interest in the subject matter was the most important factor when choosing a major. In this study, personal interest was considered important, but it ranked second

overall. This may be a result of the lingering economic downturn. Even though the economy has strengthened in recent years, students may still feel pressure, both internal and external, to secure a job first and consider personal interests second. It will be interesting to see if personal interests regain their previous position in the future, given a stable economy and a more vigorous job market.

Interestingly, Walstrom et al. (2008) also found that the prestige of the profession ranked high (5th) in the factors considered when picking a major. In the current study, prestige ranked 9th with a mean score (2.906) making it only somewhat important.

The results show that student perceptions of their IS job knowledge increased significantly over the course of the semester. Students clearly believe that they have a better understanding of jobs in IS field after having taken the course. The students also reported that the course had somewhat improved their view of the IS field. Unfortunately, this improved view did not significantly relate to the likelihood of signing an IS major or minor, for those students who were undecided. This result was unexpected but, given the fact that many students entering the course had no knowledge of the IS discipline, it should not be particularly surprising. It may be too much to ask of one course to both inform and change so many minds.

Not only were the relationships between an improved view of the field and the likelihood of signing an IS major or minor not significant, they were also negative. These results were both unexpected and hard to understand. While more research into these results is warranted, it is possible that the students differentiated between the importance of the IS field and their desire for an IS-related career. For example, the course may have given students a better understanding of how important IS is to business, causing them to report that the course improved their view of the IS field. Essentially, students who knew little to nothing about IS before the course, now see it as an important business function following the course. This better understanding of IS's impact on business does not, however, mean that more students will automatically pick the discipline for a major or minor. In fact, a better understanding of IS and its technical aspects might work to drive some students away since many students are turned off by technical topics like hardware, programming, etc. Said another way, students appear to be able to understand that the technology is important without having any interest in a technical major or minor.

CONCLUSION

The field study presented in this paper has shown that students consider a number of factors when selecting a major. Of these factors, students rated the probability of working in the field after graduation to be most important. Given the current demand for IS professionals, if students are really concerned about finding jobs after graduation, then an IS major should be a much easier sell. Since many students in an introductory IS course are still not sure about the major they have chosen, if they have chosen a major at all, the course presents a perfect recruiting opportunity. To make the most of this opportunity IS faculty will need to stress the availability of jobs, the good salaries, and the opportunity for ongoing professional development. Although one IS course may not be enough to sway every undecided student, if done correctly, the introductory IS course still has tremendous potential to inform students about the IS field. If some of those informed students then choose to sign an IS major or minor, so much the better.

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