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WHY DO STUDENTS NOT CHOOSE TO STUDY INFORMATION SYSTEMS? A SURVEY STUDY IN NORWAY

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ABSTRACT

Aim/Purpose	The aim of this study is to explore why students do not choose to study Information Systems.
Background	Demand for information technology (IT) and information systems (IS) employees and managers has been increased, with the widespread use of information technologies. IT skills shortage is a concern for industries and higher education institutions. The findings of this study can help understanding why students do not choose to study Information Systems.
Methodology	This study used an online survey for data collection. The survey link was emailed to 609 undergraduate students at the University of Agder in Kristiansand, Norway. 62 useable responses were used for analysis. Descriptive statistics, chi-square test, and t-test were used for data analysis.
Contribution	This study provides the results of a survey exploring why students do not choose to study Information Systems at a Norwegian university.
Findings	The most indicated reason by the respondents for not choosing to study Information Systems was "little or no knowledge about IS", followed by "lack of interest in the IS field." Job availability was identified as the most motivating factor for the participant students in choosing to study their programs at the university. The participants of this study did not consider Information Systems as easy to study.
Recommendations for Practitioners	Candidate students should be given sufficient information about Information Systems study program and how it differs from other IT-related study programs

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	should be explained well. There is a need to better promote Information Systems study programs to candidate students.
Future Research	Future studies should explore the factors impacting enrolment to Information Systems study programs with larger sample sizes and in different universities. Qualitative studies can help a deeper understanding of students' career decisions. Future studies can also consider comparative studies in different countries.

Keywords information systems, career, undergraduate students, Norway

INTRODUCTION

With the widespread use of information and communication technologies, the demand for information technology professionals has also increased drastically across the world. The employment of IT-related occupations is expected to increase (U.S. Bureau of Labor Statistics, 2021).

Choosing a study program is one of the important decisions in every student's life. This is by no means a simple decision and can be influenced by many different factors. The factors affecting students' decisions about enrolling their study programs and choosing careers have been the subject of various studies. Chipidza et al. (2019) reported that intrinsic motivators, such as interest and the potential for a rewarding and satisfying experience, were the strongest influencer of a students' attitude about majoring in Management Information Systems (MIS), followed by job-related aspects of MIS, such as competitive advantage, salary, support structure, and ease of finding a job that MIS careers offer. Li et al. (2014) grouped factors that may impact students' choice of major into three categories as career-related factors, personal interest factors, and social and referent factors. Downey et al. (2011) categorized influencing factors into internal and external. Internal factors include attitudes, beliefs, abilities, and personality, such as one's personal image, interest and aptitude in the field, and the influence of others. External factors include job characteristics, the prestige of employment, and the degree of difficulty and workload of the major (Downey et al., 2011). Some of factors influencing career choice are tangible such as financial rewards, others are intangible, like prestige or status (Downey et al., 2011). Using sample of undergraduate students from two UK universities, Skatova & Ferguson (2014) reported that people choose university degrees for four reasons: career concerns, intrinsic interest in the subject, an opportunity to help others and because they are looking for an easy option to get into higher education. Gender differences in study program enrolments and low application numbers in some studies are concerns to authorities and higher education institutions.

The Norwegian Universities and Colleges Admission Service (2021) reported that 4.8 percent of the applicants in 2020 listed study programs in the Information Technology and Informatics field of studies, including Information Systems study programs, as their first choice on their application to universities and colleges. 26.1 percent of the applicants in the same year listed health related studies as the first choice on their applications. This study explores why students do not choose to study Information Systems at a Norwegian university as a part of the larger study.

METHODOLOGY

In this study, an online survey was used for collecting data. A survey questionnaire was developed based on previous studies. The questionnaire includes items about demographic characteristics of the respondents, reasons of not choosing to study Information Systems, influencing factors in choosing their study programs, importance of information sources in choosing their study programs, and their perceptions of Information Systems. Bachelor in IT and Information Systems is a three-year degree program at the University of Agder. The program is offered under the Faculty of Social Sciences.

Survey questionnaire items were adapted from previous studies by Croasdell et al., (2011), Ferratt et al. (2010), Li et al. (2014), Papastergiou (2008), Snyder & Slauson (2014), Walstrom et al. (2008),

Walstrom & Schambach (2012) and Zhang (2007). The questionnaire was made available in Norwegian and English. The Norwegian Centre for Research Data (NSD) approved the questionnaire before we started the collection of data. This study is a part of a larger study. We implemented a similar survey with students in Information Systems study program (Acilar & Sæbø, 2021).

The online survey was implemented with the undergraduate students at the University of Agder in Kristiansand, Norway. The survey link was emailed to registered university email addresses of 609 undergraduate students enrolled in four different courses (ST 108 Introduction to Political Science, ORG 109 Organization Theory, SO 106 Diversity and Minority Perspectives in Social Work, and SV-143, Social Institutions). Organization Theory is offered at School of Business and Law, other three courses are offered at Faculty of Social Sciences to different majors.

A link to the online survey was sent to the participants via e-mail on October 12, 2021. The survey has been administered online through SurveyXact. Participation to the survey was voluntary. Four reminder e-mails were sent to the participant students and survey data collection was terminated on November 30, 2021. Data analysis was performed using IBM SPSS (version 25) software.

RESULTS

62 useable responses were received with 39 females (62.9%) and 23 males (37.1%). Sixty percent of the participants were between the ages of 18 and 21, 29 percent were between ages 22 and 35 years and the remaining were more than 35 years old. The majority of the respondents were from the following three study programs: Department of Economy and Finance (n=26, 41.9%), Department of Political Science and Management (n=18, 29.0%), and Department of Sociology and Social Work (n=14, 22.6%).

The respondents were asked to indicate what are the reasons they did not choose to study Information Systems (IS) from a list of options. The list consists of twelve reasons. The respondents could choose more than one reason for not choosing to study IS. The most indicated reason among both female and male students for not choosing to study IS was "little or no knowledge about IS," followed by "lack of interest in the IS field." Reasons for not choosing to study IS by the respondents are shown in Table 1. The results of Chi square test showed significant association between gender and the first item in the list "little or no knowledge about IS."

Table 1. Reasons for not choosing IS by gender (Frequencies)

Reasons	Total	Female	Male	p
I have little or no knowledge about IS.	36	27	9	0.020*
I have a lack of interest in the IS field.	23	17	6	0.168
I do not consider the information systems field to be a good career choice for me.	20	13	7	0.814
I want a profession with more social interaction than I can get with IS.	16	11	5	0.574
I'm not suited for IT-type work.	10	8	2	-
Information systems courses are too difficult for me.	9	7	2	-
Other	9	3	6	-
I want a profession that can to a greater extent contribute to helping others than I think I get by choosing IS.	8	5	3	-
There are better wage conditions in other fields.	8	4	4	-
My parents influenced my study choices.	4	1	3	-
My friends influenced my study choices.	3	1	2	-
I think there are few career opportunities in the IS field.	2	1	1	-

* Significant at the 0.05 level

Table 2 shows the mean values of the students' responses to the importance of each factor on the list in choosing their study programs and their standard deviations. The participants were asked to indicate the importance of the items listed in Table 2 for why they chose to study their programs at the university with a five-point scale 1= not important, 5= very important. The results indicated that the most motivating factors for students in choosing to study their programs was job availability, followed by interesting work assignments and career opportunities. Students rated the importance of the probability of working in field after graduation (job availability) higher than personal interest in subject matter in choosing their study programs.

Table 2. Motivating factors in choosing study program (1= not important, 5= very important)

	Total (n=53)		Female (n=32)		Male (n=21)		
Factors	**Mean**	**St Dev**	**Mean**	**St Dev**	**Mean**	**St Dev**	**p**
Job availability	4.28	0.89	4.38	0.79	4.14	1.01	0.355
Interesting work assignments	4.26	0.74	4.34	0.70	4.14	0.79	0.337
Career opportunities	4.25	0.78	4.28	0.77	4.19	0.81	0.684
Personal skills	4.09	0.84	4.19	0.78	3.95	0.92	0.323
Job security	4.06	0.84	4.06	0.72	4.05	1.02	0.951
Personal interest in subject matter	3.98	1.23	3.81	1.38	4.24	0.94	0.222
Geographical location of the university	3.87	1.21	4.00	1.16	3.67	1.28	0.331
Choose a study where I can get the opportunity to work with people	3.64	1.19	3.78	1.16	3.43	1.25	0.298
Long-term salary and benefits	3.57	1.18	3.56	1.22	3.57	1.16	0.979
Opportunity to be innovative	3.51	1.14	3.69	1.09	3.24	1.18	0.161
Choose a study that gives the opportunity to help others	3.47	1.30	3.75	1.27	3.05	1.24	0.053
Study topics are easy for me	3.42	0.93	3.47	0.92	3.33	0.97	0.608
Performance in high school subject matter courses	3.38	1.29	3.56	1.29	3.10	1.26	0.200
Prestige of profession	3.28	1.17	3.16	1.14	3.48	1.21	0.334
Starting salary and benefits	3.25	1.30	3.25	1.34	3.24	1.26	0.974
Reputation of university	3.17	1.17	3.31	1.12	2.95	1.24	0.278
Reputation of degree program at university	3.13	1.07	3.16	1.08	3.10	1.09	0.842
Influence of family member(s)	2.51	1.15	2.41	1.16	2.67	1.15	0.427
Influence of friend(s)	2.23	1.12	2.13	1.13	2.38	1.12	0.421
Influence of high school teacher(s)	1.87	1.13	1.84	1.14	1.90	1.14	0.849
The counseling service at your high school	1.85	1.10	1.81	1.12	1.90	1.09	0.768

According to the results, the least motivating factor on the list for students in choosing a study program was the counselling service at the high school, followed by the influence of the high school teacher(s), influence of friend(s), and influence of family member(s). The results show that the influence of others (friends and family members) does not play an important role in students' decisions about their study programs. T-test did not reveal significant difference between female and male students (Table 2).

Table 3 shows the importance of information sources for students in choosing their study programs on a five-point scale ranging from 1 (Not important) to 5 (Very important). Not applicable responses were coded as missing data. According to the results, the most important information source for the respondent students in choosing their study programs was the university/department website, followed by "media presentation of the field's reputation," and "information you received at career or job fairs arranged at the high school." The results of t-test revealed that there was only one significant difference between female and male students in the listed items. Female students rated the importance of information on the university/department website in choosing their study programs significantly higher than male students.

Table 3. Importance of information sources in choosing the study program (1= not important, 5= very important)

	Total		Female		Male		
	Mean	St Dev	Mean	St Dev	Mean	St Dev	p
Information on university/department website	3.98	1.06	4.27	0.87	3.55	1.19	0.017*
Media presentation of the field's reputation	3.04	1.18	3.00	1.16	3.11	1.24	0.767
Information you received at career or job fairs arranged for you at high school	3.00	1.43	3.22	1.37	2.68	1.49	0.213
Presentations by current students	2.95	1.23	2.84	1.28	3.11	1.18	0.484
Information and marketing via social media	2.72	1.19	2.71	1.15	2.74	1.28	0.950
Presentations by university staff	2.70	1.32	2.54	1.33	2.94	1.31	0.322
Information you received at a university Open Day (e.g. UiA)	2.55	1.47	2.55	1.47	2.56	1.50	0.983
Brochures	2.38	1.29	2.09	1.20	2.74	1.33	0.104
Newspaper articles	2.09	1.11	1.92	0.93	2.32	1.29	0.246

* Significant at the 0.05 level

The participants of the study were asked to indicate their opinions on the listed statements on a five-point scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Table 4 presents the mean values of students' opinions towards IS career and study. The respondents have positive opinions towards career in IS and study. However, their ratings are not high. The mean values of ratings of female and male students are lower than four for the listed items. In addition, the results show that the respondents do not agree that IS seems easy to study in general.

The results of t-test show that there is a significant difference between female and male students on the item "IS is more suitable for men than for women." Mean scores for this item are belove than the midpoint (3). Both female and male students disagree with this statement in general. But male students rated this statement significantly higher than female students.

Table 4. Respondents' opinions towards IS profession and study (1=Strongly disagree, 5=Strongly agree)

	Total (n=50)		Female (n= 30)		Male (n=20)		
	Mean	St Dev	Mean	St Dev	Mean	St Dev	p
Information Systems (IS) graduates have good and well-paid jobs.	3.68	0.74	3.70	0.70	3.65	0.81	0.818
IS jobs are stable and fast-growing.	3.80	0.78	3.73	0.74	3.90	0.85	0.466
IS seems easy to study.	2.56	0.88	2.53	0.90	2.60	0.88	0.797
IS major/jobs sounded interesting and cool.	3.00	1.01	2.80	1.03	3.30	0.92	0.086
IS studies give me the opportunity to contribute to the development of the society of the future.	3.62	1.09	3.70	1.02	3.50	1.19	0.529
IS is more suitable for men than for women.	2.26	1.21	1.97	1.13	2.70	1.22	0.034*
Men are more likely to succeed in the IS profession than women.	2.34	1.06	2.33	1.21	2.35	0.81	0.954

* Significant at the 0.05 level

CONCLUSION

In this study, we explored the reasons why students do not choose to study Information Systems using a sample of undergraduate students at a Norwegian university, as a part of larger study. The most indicated reason by the respondent students in not choosing Information Systems was "little or no knowledge about IS," followed by "lack of interest in the IS field."

For the respondents, the most motivating factors in choosing to study their study programs was job availability, followed by interesting work assignments and career opportunities. The results revealed that the influence of friends and family members did not play an important role in students' decisions in choosing their study programs. The survey results revealed that the university/department website was an important information source for students in choosing their study programs.

There is an obvious need to better promote Information Systems study programs to candidate students. Candidate students may not know the difference between Information Systems and other IT-related studies. Therefore, candidate students should be given sufficient information about Information Systems and how it differs from other IT-related study programs should be explained well.

Limitations of this study include the following: the sample size was relatively small; the sample consists of undergraduate students from only one Norwegian university; an online survey link emailed to the students' university e-mails. Future studies should explore the factors affecting enrolment to Information Systems study programs with larger sample sizes and in different universities. Qualitative studies can help a deeper understanding of students' career decisions. Future studies can also consider comparative studies in different countries.

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