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How to Deal With the Perceptions of IS Students on IS/IT Job Loss Due to IT Offshore Outsourcing?
An Empirical Investigation

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ABSTRACT

It seems to be a nationwide trend that U.S. colleges and universities are having a decrease in the enrollment of their information systems (IS), information technology (IT), and computer sciences programs. One of the reasons for this decline is believed to be a result of the negative perceptions students have on the effect of IT offshore outsourcing on the job market. This paper presents evidence to show that the students' perceptions are based on exaggerated predictions rather than actual facts. This paper also includes an empirical investigation conducted by the IS program of Ohio University on the methods it took in order to change students' perceptions.

KEYWORDS

Information systems, information technology, IT offshore outsourcing

 INTRODUCTION

The enrollment of IS and computer science programs of U.S. colleges has been decreasing in the last five years. The table below shows that the enrollment of some universities was decreased by 40-70%.

Ohio University					
http://www.ohiou.edu/instres/compendium/profile/					
Management Information Systems					
Fall Student Headcount	**2000**	**2001**	**2002**	**2003**	**2004**
Undergraduate	333	320	247	143	94
Computer Science					
Fall Student Headcount	**2000**	**2001**	**2002**	**2003**	**2004**
Undergraduate	125	136	113	103	77
University of Massachusetts (Amherst)					
http://www.umass.edu/oapa/publications/department_profiles/					
Computer Science					
First-Year Fall Student Headcount	**2000**	**2001**	**2002**	**2003**	**2004**
Undergraduate	92	114	78	53	45

University of Florida www.ir.ufl.edu/OIRApps/DeptProfile/ **Information and Management Sciences** Fall Student Headcount	**2000**	**2001**	**2002**	**2003**	**2004**
Undergraduate	490	514	402	256	175

Table 1

One of the main reasons for this enrollment decrease was due to the fear from students on possible IS/IT job losses due to IT offshore outsourcing. In the past three years, mass media (TV and Magazines) and other published articles have warned the public of the big impact of IT offshore outsourcing on job loss in the U.S. job market. Research on outsourcing has been a hot topic in the academic field as well (e.g., Grover, Cheon and Teng, 1996, Hall and Liedtka, 2005, Hirschheim and Lacity, 2000, Ho, Ang and Straub, 2003, Marios and Sosa, 2004, Willcocks and Kern, 1998). Some predicted that IT offshore outsourcing would grow at the rate of over 50% in the coming two years with a total of 7.8 billion dollars being shifted towards outsourcing (Sneider, 2004), and even some well-known IS/IT research organizations such as the Gartner research firm, estimated that by the end of 2004, 1 out of every 10 IT jobs would be outsourced overseas (Drezner, 2004).

Exposed to those news and/or research reports, IS or computer science students were very concerned about their future jobs after graduation. One possible choice for them was to drop their IS or computer science major and go into another area of study. If the students had not yet declared a major, then they would choose another field to go into rather than IS or computer science. In recent years, students acting on these choices have led to the big decrease of enrollment of IS or computer science majors in US colleges.

However, contrary to the predictions, the facts show that offshore outsourcing over the past three years actually accounted for less than 10% of the total 2.3 million jobs lost in the U.S. (Thottam, 2004). Therefore, how to deal with college students' perceived uncertainty and/or risk on choosing the IS major is an important issue faced by both IS faculty and IS students.

LITERATURE REVIEW AND RESEARCH BACKGROUND

In the past few years, partly due to the 2004 Presidential election's political campaigns, some politicians used offshore outsourcing as an issue to attract public attention. The possible negative impact of offshore outsourcing on IS/IT jobs in U.S. was widely reported and/or broadcasted in the mass media (TV, newspaper or magazines). For example, Forrester research firm projected that 3.3 million white-collar jobs would be moved offshore by 2015 (Drezner, 2004) and a cumulative total of 830,000 positions would have been moved offshore by 2005 (RTTS, 2005).

However, some truthful statistical data and/or facts on offshore outsourcing has been overlooked by mass media and many college IS students. Even given the estimated 3.3 million white-collar job losses by 2015 (Drezner, 2004), that estimation is spread across 15 years. This means only about 220,000 lost jobs each year for the U.S. where the total employment is about 130 million and where 22 million new jobs are estimated to be added between now and 2010 (Drezner, 2004).

In contrary to previous predictions that offshore outsourcing would be increased over years, the total value of business process outsourcing deals in the United States actually fell by 32 percent in 2003 (Drezner, 2004). The U.S. Labor Department reported that for the 4,633 jobs moved offshore during the first three months of 2004, it was less than 2% of layoffs for the same time period (Gumpert, 2004).

Further, there were some positive impacts of offshore outsourcing on the U.S. job market. For example, Delta Airlines, with their headquarters in Atlanta, outsourced 1,000 call-center jobs to India in 2003. The $25 million in savings from the deal allowed the firm to add 1,200 reservation and sales positions in the United States. For the economy as a whole, although between 1999 and 2003 the U.S. lost 70,000 computer programming jobs, more than 115,000 computer software engineers found higher-paying jobs during that same period (Drezner, 2004).

In summary, IS students' fear on IS/IT job losses due to offshore outsourcing has not been supported by solid facts. The fear has only been based upon one-sided publicity of the possible negative impact of offshore outsourcing on the U.S. IS/IT job market. Therefore, how to address the perception of IS students on the impact of IS/IT offshore outsourcing on the IT job market is important in order to solve the problem of the enrollment decrease of IS programs taking place in many U.S. colleges.

INITIAL EMPIRICAL INVESTIGATION

After realizing the impact of IS students' negative perceptions of the IS job market, the IS department of Ohio University took effective measures to address this important issue. This empirical investigation reported what they did in order to stop the enrollment decrease and the measures it took in order to attract more students to the major.

The empirical investigation started at the beginning of a quarter in 2005. A researcher of this paper did interviews with a focus group of IS students on issues such as how they felt about the impact of the IS/IT job market due to offshore outsourcing, through which sources they got to know the possible job losses due to IT offshore outsourcing, etc.. The following three figures report some initial findings.
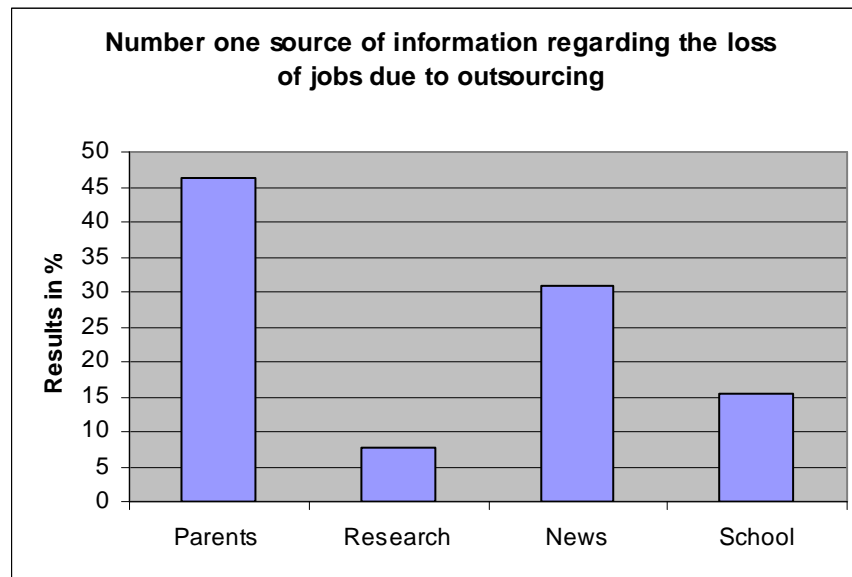
Figure 1

When asked for the number one source of information regarding the loss of jobs due to outsourcing, 46% of the students who responded said that they learned this from their parents, and 31% from the news.
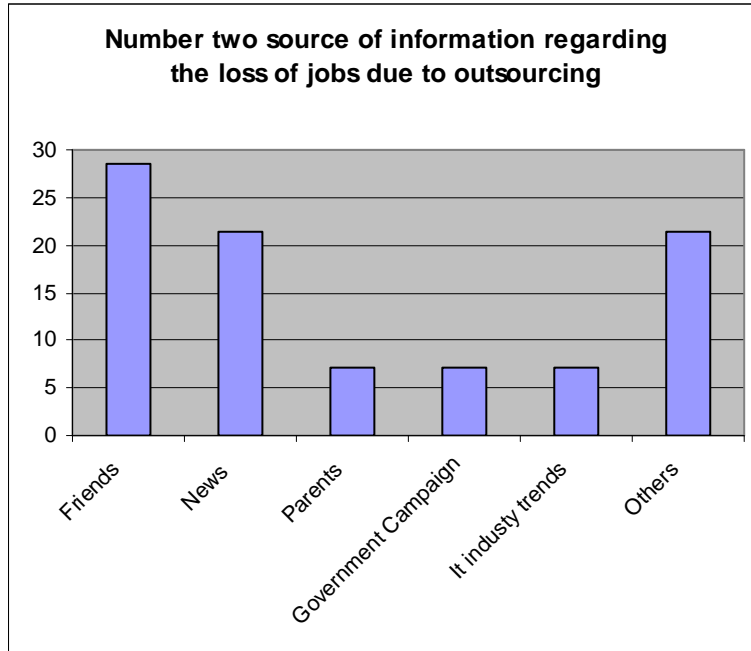
Number two source of information regarding the loss of jobs due to outsourcing

Figure 2

This figure displays the percentages of the responses to the number two source of information regarding the loss of jobs due to outsourcing. 29% of students said that they learned about this from friends, and 21% said from the news.
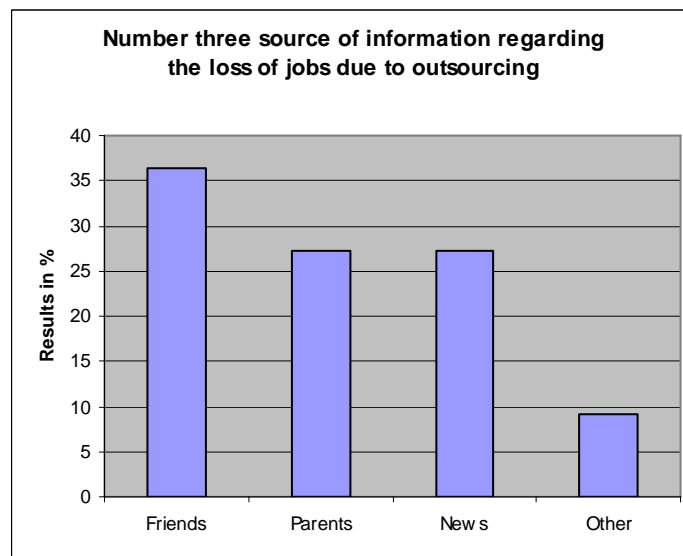
Number three source of information regarding the loss of jobs due to outsourcing

Figure 3

Figure 3 displays the responses for the number three source of information regarding the loss of jobs due to outsourcing. 36% of the students said that they learned about this from their friends, 27% said from their parents, and 27% said from the news.

From the findings of the focus group interviews, most students didn't do research themselves. They only heard from three main sources, their parents, news, and friends, that there would be a looming IT job market in the next few years due to IT offshore outsourcing. However, parents and friends cannot be considered reliable sources unless they are experts or have done research themselves, which is usually not the case. The news can sometimes be biased, as the research shows, because politicians are trying to promote their political agenda. In spite of this, these sources have given students reasons to be

skeptical about the IS major, which was evidenced by the decreased enrollment in IS programs at universities around the country.

As a result, a good and effective "education" on how to correctly understand offshore outsourcing and its impact, is the key to help stop the enrollment decrease of IS programs. The following measures were taken by faculty of the IS department to address this important issue.

First, the faculty faced the fact of the possible negative perception on the IT job market due to IT offshore outsourcing, instead of avoiding it. Further, it asked students to do their own research in order to give them a real picture about IT offshore outsourcing. By doing their homework, students were able to figure out if what they were hearing from their parents, friends, and the news was accurate or not.

Second, faculty taught students in and/or outside of class that IS/IT job loss could be caused by many factors including IT spending cut from corporations, government budgets, etc., which has happened cyclically before to many other industries.

Third, based upon student groups' research findings, faculty discussed with students which types of IS/IT jobs would be more easily outsourced offshore, and which types of IS/IT jobs would be more difficult to be outsourced offshore. In general, low skill programming jobs would be easier to outsource, whereas jobs that required knowing how to use IT to improve business processes would be much more difficult.

Fourth, students were presented with the analysis of the role of IS/IT to modern organizations and businesses. The analysis clearly showed to students that IS/IT is everywhere in modern businesses and corporations. Possessing IS/IT skills is a plus for future job hunting and career development, even in light of IT offshore outsourcing.

Fifth, to better support strategies of businesses, IS/IT professionals will have to broaden their skill sets and become business and financial specialists in order to leverage their technical skills with their organization. As a result, students were advised that doing a double major was an effective choice for their future job offer.

After going through the above-mentioned processes, students had a better and more truthful idea on the possible impact of IT offshore outsourcing on the future IS/IT job market. A questionnaire was sent to each student at the end of the quarter to see whether the assigned research projects were effective in terms of correcting students' previous negative perceptions. The main survey findings are reported below.
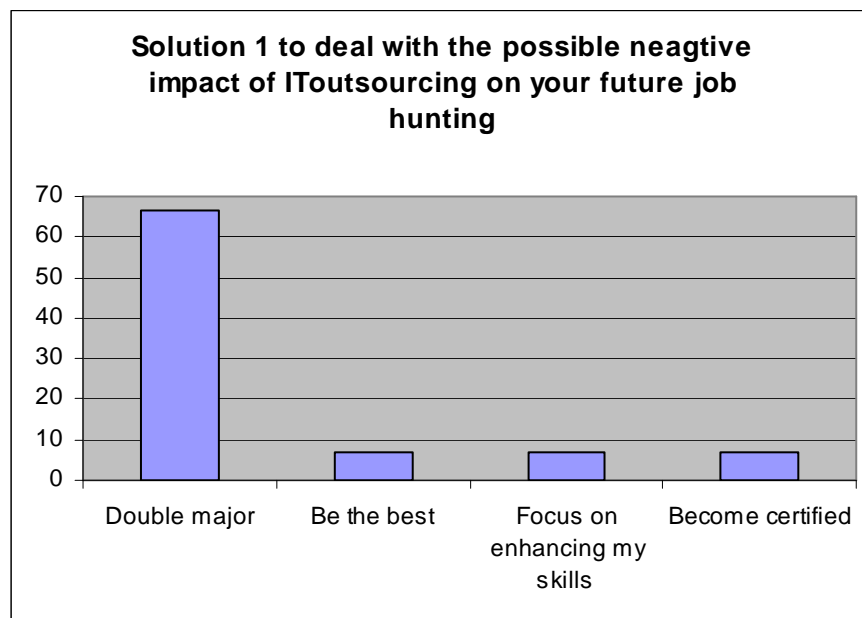

Solution 1 to deal with the possible neagtive impact of IToutsourcing on your future job hunting

Figure 4

This figure shows the number one solution being considered by students in order to deal with the possible negative impact of IT outsourcing on future job hunting. 77% responded with double major, 8% said to be the best, 8% were going to focus on enhancing their skills, and 8% were going to become certified.
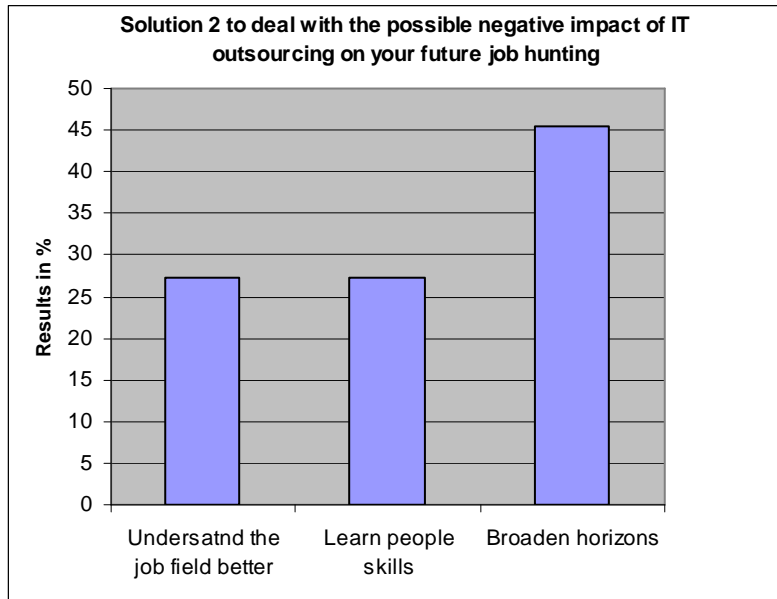
Solution 2 to deal with the possible negative impact of IT outsourcing on your future job hunting

Figure 5

This figure shows the number two solution being considered by students in order to deal with the possible negative impact of IT outsourcing on future job hunting. 45% of the students said to broaden their horizons, 27% said to understand the job field better, and 27% responded with learning people skills.

Solution 3 to deal with the possible neagtive impact of IToutsourcing on your future job hunting

Figure 6

This figure shows the number three solution being considered by students in order to deal with the possible negative impact of IT outsourcing on future job hunting. 33% of the students responded with business as usual, 17% said creativity, 17% said to drop MIS, 17% were going to build business skills, and 17% were not going to worry about it too much.
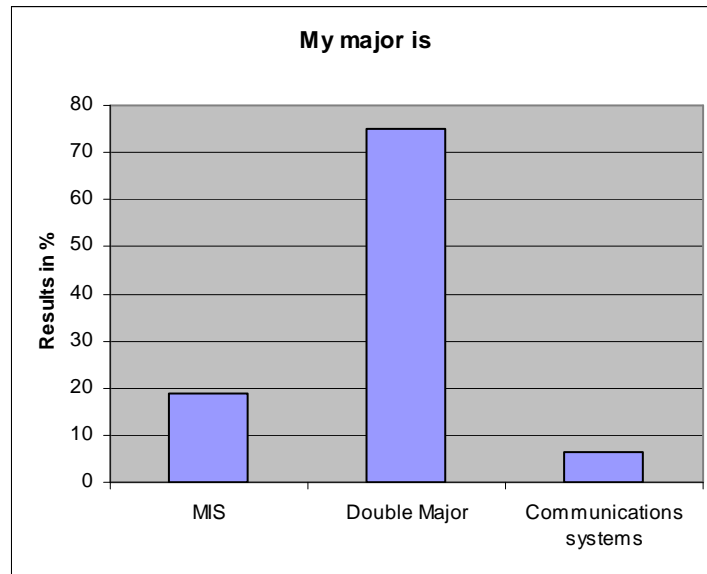
My major is

Figure 7

This figure shows that of the students questioned 75% were double majors with MIS as one of the two, 18.75% were just MIS majors and 6.25% were just communications systems majors.

As seen from the above survey findings, after their own research, as well as education from the faculty, it seems that most students knew how to better deal with the impact of IT offshore outsourcing on the IS/IT job market. The students also seemed to realize that for an IS major, it was very important to integrate IT skills and knowledge with business skills and knowledge. In order to achieve this goal, most students (77%) thought that the Number 1 solution was to double major in the business college, i.e., doing an IS major together with another business major such as finance, marketing, or accounting. More importantly, they have already taken actions to do so. Most students (75%) are already a double major with IS as one of the two majors, and 18.75% of the students still chose IS as their single major. The good news was that after students knew how to deal with the impact of IT offshore outsourcing on IS/IT job market, the majority of students did not consider dropping the IS major a good choice for them anymore (only 17% still considered this as one possible choice).

In addition, more and more students seemed more aware that only having IT technical knowledge and skills might not be enough in the future IS/IT job market. 45% of the students intended to broaden their horizons by studying more business related subjects and 27% of the students intended to learn more people skills in their college studies. This was in line with the suggestions given by industry experts. They said IT professionals need to broaden their skill sets and become business and financial specialists in order to leverage their technical skills with their organization. This in turn, will protect their job from being outsourced (McLean, 2006).

In summary, the strategy adopted and implemented to educate students seemed to be effective in terms of addressing the largely negative perceptions toward IS majors due to IT offshore outsourcing. Further, the latest enrollment data also showed that the enrollment decrease of the IS program was stopped, and in fact, the enrollment started to increase significantly by more than 20% starting late last year.

DISCUSSION AND IMPLICATIONS
This investigation reported a successful case of Ohio University dealing with the negative perceptions of students towards IS programs due to IT offshore outsourcing. Recently, these negative perceptions resulted in a big decrease in the enrollment in IS programs. The empirical investigation showed that students' negative perceptions towards IS major programs were not firmly grounded by solid facts in the industry, but largely influenced by their parents, friends, and the news of mass media.

The strategies and methods used by the IS department appear to have effectively changed the negative perceptions of students, stopped the decline of its enrollment, and even started to increase the amount of students entering the program.

The results from this research and this empirical investigation coincide with results from a new study released by the Association of Computing Machinery (ACM). The ACM conducted a year long study on the impact and implications of outsourcing and found the predictions of job loss due to IT offshore outsourcing to be greatly exaggerated. They reported that although there are losses due to outsourcing to lower-wage countries like India and China, the idea of IT jobs disappearing is false. The study went on to say that these exaggerated predictions have negatively influenced students and their parents by discouraging them to enter into IT careers. In turn, this will lead to lower numbers of highly qualified professionals in the IT marketplace (Lohr, 2006). In light of this, IS departments will have to find ways to encourage prospective students and rid them and their parents of their misconceptions about the future of the IT job market.

While IS departments need to directly address negative perceptions of students towards IS major programs, they may also consider to revise their IS curricula by integrating IT knowledge and skills with business knowledge and skills. Furthermore, IS programs may consider revising their curricula in order to better facilitate its students who want to double major. By aligning students' IT technical skills with specific business needs and skills, students will be able to fill the new positions that will be created from the process of outsourcing the lower-level IT programming jobs. This trend is similar to thirty or forty years ago when manufacturing jobs were being lost due to automation. It was true that those lower-level jobs were being lost, but it was also true that new jobs were being created that required a new set of skills. In order to obtain a job in these fields, students had to learn new skills in order to adapt to the changes. Colleges, too, needed to change by revising their curricula to teach students how to adapt to the changes. The same will be true in regards to IT outsourcing.

In this way, the enrollment decrease of IS major programs could be stopped, and, once again, begin to reach numbers that they had in the past.

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