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An Exploratory Investigation of Internet Usage and Its Impacts in University Education

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Abstract

What impact does Internet usage have on university education? How effective is this impact? What are important antecedents for Internet usage in university education? Answers to these questions can help justify heavy investment from many universities in Internet infrastructures, as well as increase benefits of Internet usage in university education. Because Internet usage in university education is still at its early stage, many important questions such as those mentioned above have remained unanswered. This study intends to explore these issues by conducting a survey among university students. A research framework is proposed based on theories of TRA and TAM. The research findings provide some useful insights for university educators and Internet service providers (ISPs).

A Research Framework & Research Method

Many universities across the world are expanding their investment in the Internet technologies and actively promoting the Internet usage in university education. Since educational usage of the Internet is still in its infancy stage (Coleman et al. 1998), many important questions regarding to Internet usage in university education have not been examined in empirical research. This study explores antecedents and impacts of Internet usage in university education.

Even though little research done in educational usage of the Internet, there are some studies conducted to examine microcomputer usage and its antecedent factors in the literature (e.g., Igarria et al. 1996). The theoretical basis for this study is mainly drawn on the Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975), Technology Acceptance Model (TAM) (Davis et al. 1989), and IT Diffusion Process Model (Straub 1994), as shown in Figure 1.

Figure 1 represents an integration of the theoretical perspectives and prior studies discussed above. The first set of variables is involved in organizational contexts as well as in individual factors. Prior research reports that organizational support, information technology (IT) support, IT skills, and perceived complexity of IT use are important factors influencing individuals' perceptions and attitudes toward microcomputer usage (Igarria et al. 1997), the usage (Igarria et al. 1996; Igarria et al. 1997), and impacts of the usage (Anandarajan et al. 1998). The second group of variables is derived from TAM and TRA, depicting individuals' perceptions and attitudes that influence behaviors (i.e., Internet usage in this case). The first and second set of variables can be considered as antecedents for the Internet usage. The third set of factors is to describe various aspects of Internet usage among university students. The final set of variables examines impacts of Internet usage, which is adapted from the Straub's model (1994).

The survey was conducted in a big university among undergraduates with majors in engineering, business, and science. A research questionnaire was distributed to 500 students and 328 of them returned complete questionnaires. The response rate was 66%. Most of them (80%) were between the ages of 20 and 22 years (the average age was 20.5 years and the standard deviation was 1.02). 77% were female students and another 23% male students. First year students constituted 31%, second year students 41%, and third year students 28%. The research questionnaire was derived based on prior research and theoretical models of TRA and TAM, and tested in construct validity and reliability.

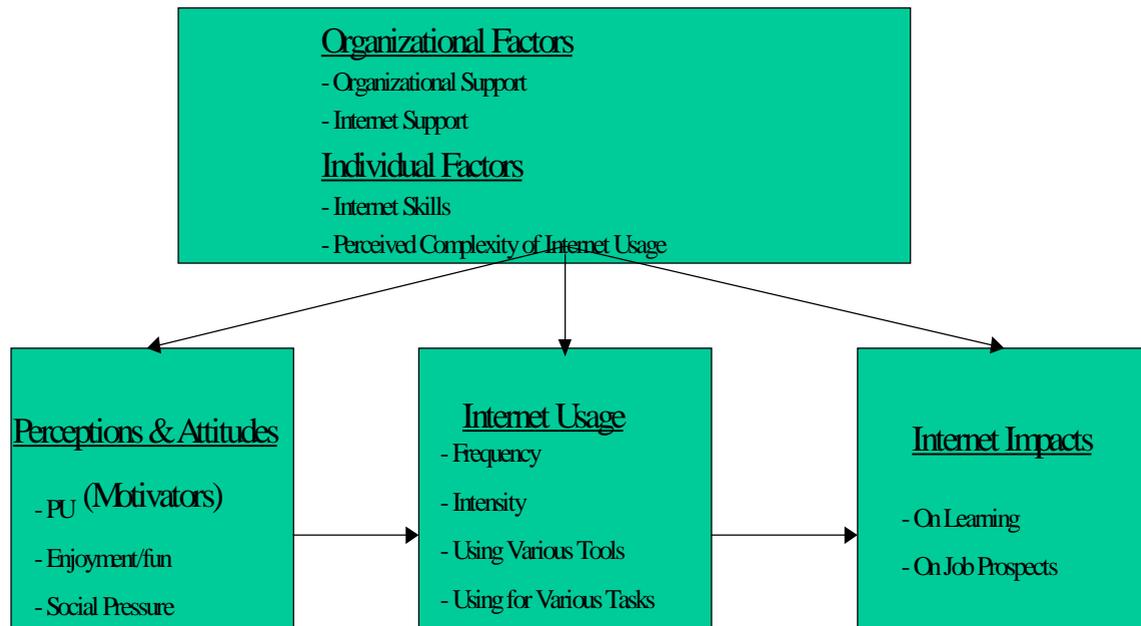


Figure 1 A Research Framework

Research Findings and Discussion

Research data were analyzed using bivariate correlation test as well as T-test. In general, many correlated associations predicted in the research framework as shown in Figure 1 were supported. Internet usage was found to have positive impacts on students' learning and their future's job prospects. Universities therefore would have good justifications to invest in Internet technologies and promote Internet usage in university studies and education. Some antecedents of Internet usage detected in this research may help universities to better allocate their available financial and human resources and work out better policies to achieve the goal of promoting greater Internet usage. These antecedents include organizational factors, personal factors, and individuals' perceptions and attitudes towards Internet usage. Some specific measures found effective and important to foster Internet usage and enhance learning effectiveness in this research are:

- (1) Three motivators (PU, perceived enjoyment, and social pressure) can be used to promote Internet usage in university studies. ISPs (Internet Services Providers) or Internet software designers should consider to provide more suitable and useful functions in their Internet software packages and services, as well as more interesting and friendly software interfaces, all of which can enhance adoption and usage of Internet technologies in university education. Further, more group projects requiring Internet access in university courses should be assigned to students, so that social pressure of using Internet from their peer group members can also foster a greater Internet usage.
- (2) Universities/schools should provide necessary resources and facilities to students; instructors need to encourage and support Internet usage in their course teaching; and Internet technical support should be available and effective. All these can lead to positive beliefs and attitudes from students, which in turn result in more Internet usage.
- (3) Universities/schools and instructors can also foster students' positive attitudes toward Internet usage by enhancing their Internet skills or decreasing perceived complexity, which can be achieved through good Internet training programs or hands-on experiences of using Internet in their assignments and projects.

- (4) Internet usage can enhance at least three additional learning dimensions in university education, which in turn supplements and enhances traditional university education and learning. These additional learning dimensions are identified by a factor analysis that explains 49% of the total variance: distance learning, learning link with business world, and communication skills in collaborative learning. These learning dimensions may also help bridge the gap between university education and business needs in organizations.
- (5) Universities/schools/instructors adopting and promoting Internet usage in university education should also be cautious about potential “side-effects” of such usage. One such possible side-effect found in this survey study shows that more Internet usage could result in less learning efficiency and more time spent for non-study purposes. Therefore, necessary measures should be taken to educate students not to abuse the usage of Internet.

Generally, findings of this exploratory study help identify some important antecedent factors that can enhance Internet usage as well as positive impacts of such usage in university studies. While Internet provides a new mode supplementing traditional teaching and Internet usage in university education seems being widespread in the near future, more extensive research in this area should be conducted to fully understand what factors lead to a greater Internet usage as well as real benefits of such usage.

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