An Exploration of the Relationship between Students' Attitudes toward Using Online Instruction and Their Prior Experience in Using the Internet

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ABSTRACT

High costs, increased number of students, and the exponential growth in information are among the most obvious challenges that confront higher education all over the world. In order to face such challenges, many universities are working on integrating online instruction into their mission. The success of this integration is related to students' acceptance of online instruction. Therefore, investigating students' attitudes toward using online instruction is imperative.

This study surveyed 240 students enrolled in a web-based course at the Hashemite University. Students were taught in a mixed mode of instruction. Blackboard e-learning system was used to deliver the content of the course. A Likert-type instrument was developed to collect data for the study. Linear regression analysis was utilized to analyze data.

The study explored the relationship between students' attitudes toward using online instruction and their prior years of experience in using the Internet. The findings revealed a linear relationship between the two variables such that as students' prior years of experience in using the Internet increases their attitudes toward using online instruction increases. The findings also indicated high positive students' attitudes toward using online instruction.

Keywords: Online Instruction, Electronic learning, Internet-based Instruction, Internet.

1. INTRODUCTION

With the recent and rapid increase in Internet technology and online participation, the opportunity for computer-mediated education has increased. Since the first online course that was offered ten years ago, there has been a significant increase in both the availability of online courses and the number of students enrolled in such courses (Milliron, 2004). New media offers an unprecedented opportunity to students, particularly those previously unable to attend on-campus courses, whatever their reason. Consequently, students can now receive course credit with technology support. What was once a social, face-to-face learning experience has become a computer-mediated learning experience. Using the Internet technology, students and professors can converse through a variety of forums, including e-mail, online discussion forums, bulletin boards and web pages (Richter, 2001).

By time numerous higher education institutions have added online courses to their curriculum, especially when limited selections of university courses are offered every year. With the growing number of students and the less governmental funding in universities such development becomes essential. Symonds (2003) noted that undergraduate enrolment in the US is up 8% since 1999, yet there are widespread instances of reductions in government spending. In response, tuition fees have risen steadily. This does not appear to be a long-term solution, however. It appears that significantly different organizational forms are needed to accommodate these joint pressures of growing demand, rising tuition and limited public funding within the university system. A review of the evolution of online and distance education in higher education might indicate how traditional universities' organizational structures will change in the future in response to these environmental pressures. These changes indicate a major, underlying shift in the way in which university education will be conducted in the future, and provide additional evidence of the effectiveness of online instruction. This is also the case in many other countries over the world, including Jordan.

The increase in the number of students in Jordanian public universities from 30,000 students in 1985 to more than 120,000 students in 2003 has been coupled with an increase in the government spending for those universities of no more than 50% (Burke and Al-Waked, 2003). It's been clear that universities are facing raised ground and in most cases decreased government funding. Therefore, the need to move to online instruction has inevitably become crucial in the Jordanian system for higher education.

This study investigated a Jordanian university's experience with online instruction. Located in Al-Zarqa governance, the Hashemite University is considered one of Jordanian's largest providers of higher-level education. Until the end of the Academic year 2003-2004, it is the only public university accredited for online teaching by the Ministry of Higher Education and Research in Jordan. Many other universities are moving toward getting such a credit. Although it's relatively newly established, the Hashemite University was the first university in Jordan that started the process of planning and integrating e-learning into its courses. Rationally, this process had to be guided by ample and ongoing research to investigate all the aspects of e-learning at its different stages of implementation. Students' attitude toward using online instruction was among these aspects.

The purpose of this study was to explore the relationship between students' attitudes toward using online instruction and their prior experience in using the Internet. More specifically, the study came to test whether students' attitudes toward using online instruction could be predicted by students' prior years of experience in using the Internet. The findings of this study can be helpful in achieving a proper and successful integration of e-learning into the university settings.

Online Instruction at the Hashemite University

The Hashemite University invested and continues to invest significant capital into new technologies and enhancement to both on-campus courses and distance courses. By the end of the academic year 2003-2004, hundred of staff members and thousands of students were somehow involved in a kind of online instruction. Recently an E-learning Center is being established to foster a good quality of online courses by providing training programs and workshops for staff members on how to develop and deliver online courses.

As the case in most departments at the Hashemite University, the Accounting Department started to web-enhance many of its accounting courses. Two instructors who participated in a summer workshop on e-learning were responsible of converting four traditional accounting courses into online courses. Over time, these courses were enhanced and more online features were added. In the same direction, more instructors have been trained and more online courses have been developed. By now the number of online courses offered by the Accounting Department is around 10. The first accounting course offered online was during the summer semester of the academic year 2002-2003, where the number of students involved was around 90 students. During the summer semester of the academic year 2003-2004 around 250 students were enrolled in Accounting Principles (1) -Online.

Accounting Principles (1) -Online

All students enrolled in the course Accounting Principles (1) in the summer semester of the academic year 2003-2004 were chosen to be the sample for this study. All three sections of the course were taught in a flexible (mixed) mode by two instructors who successfully finished a workshop on developing online courses. During the workshop, the two instructors worked together on developing an online version of the Accounting Principles (1) course using Blackboard Learning and Community Portal System^{TM}, an authoring environment, which utilizes asynchronous (Bulletin, e-mail) and synchronous (Chat) communication tools. Face-to-face lectures of three class hours per week were supplemented by a variety of online materials including an extensive collection of interactive, collaborative practice materials, extensive set of PowerPoint slides available as a supplement to the textbook and extensive files of repeatable practice quizzes. Online communication was set up to support the assessments. These consisted of a portfolio, which followed the development process of the online materials and led to the online course as a final product.

2. LITERATURE REVIEW

According to Richter (2001), online web based teaching takes different modes that range from conventional tasks using online resources (links to information online) and tools (e.g. dictionaries, machine translation, etc.) to freestanding online courses,

simulations, games and virtual worlds (composed of online information, activities, computer-mediated communication and assessments).

By moving from one mode to another, choices need to be made in the initial conceptualization phase about what the online part of the course should achieve. If the objectives of the online course are to achieve deep learning, how will it be facilitated? How do we cater for different learner types and levels of learning? And the first aspect that needs to be considered is where the online course is situated in the continuum between face-to-face and distance learning (Vargo, 1997), See Figure (1).
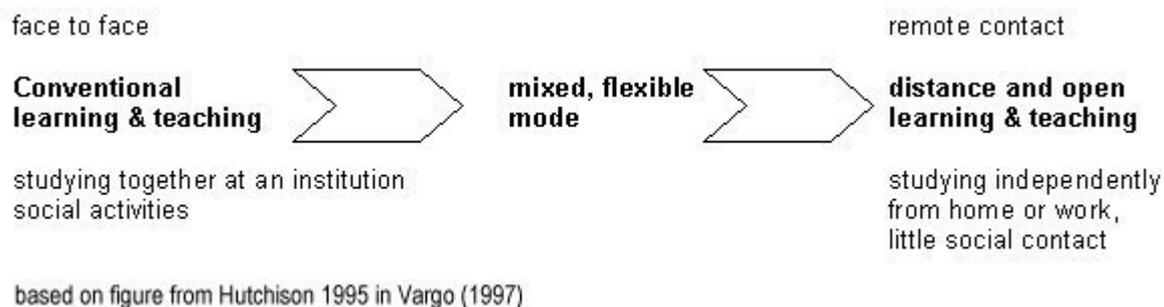

Figure 1. Continuum Face-to-Face and Distance Learning

Consequently, it is expected that each mode has its specific features and students' attitudes toward the learning process in each mode might be affected by some factors (Randall, 2001). For example, students' prior experience in using the Internet might affect students' attitudes toward using online instruction.

The course of concern in this study was prepared according to the features of the mixed, flexible mode. All chapter materials including learning objectives, lecture notes, solved exercises and problems and chapter tests were offered online. The Blackboard Learning and Community Portal System™ was utilized, so the discussion forums, e-mail service, announcement, calendar and some other tools were available to be used by students.

Our main goal in the course was to improve learning by offering some kind of online instruction. Milliron (2004) claims that any technology has to prove that it will ultimately improve or expand learning. This will come about if educators slow down, look around, and get on the road to a place to thoughtfully engage and explore all aspects of technology, good, bad or indifferent.

In the literature, some researchers showed an evidence of the success of using online materials. For example, Doucette (1994) explains the use of multimedia as a new technology which will allow students to learn at their own pace while being sensitive to the various learning styles. He found (a) high completion rates, (b) increased student demand for courses using the new technology,

and (c) increased number of faculty members unwilling to return to classroom-based instruction. Riddle (1993), cited in Gayton and Slate (2002-2003), utilized multimedia in an elementary classroom. She found that the use of multimedia tools (a) enhanced students' development of ideas, (b) increased students' motivation level, (c) increased peer collaboration, and (d) increased satisfaction level because students were proud of their work.

McDonald (2002) emphasized that there are many benefits to using online distance learning environments: online education is available "anyplace, anytime" for global communities of learners based on shared interests. She claims that "online education with its group-based instruction and Computer Mediated Communication (CMC) provides an opportunity for new development and understanding in teaching and learning" (p.11). McDonald concluded that CMC encourages collaborative learning by not providing cues regarding appearance, race, gender, education or social status bestowing a sort of anonymity to participants.

A study completed by Devlin and James (2003) in Australia concluded that the impact of multimedia and educational technology could provide some indication of improved student learning. In investigating the impact of randomly generated open access tests, Thelwell (2000) finds an evidence of improved student motivation and modified student study behavior through increased revision.

In light of the previous studies, it can be said that the use of online instruction has many benefits for education. However, one may wonder whether achieving these benefits is linked with students' experience in using the Internet.

Many studies investigated the relationships between students' attitudes towards using online instruction and students' experience in using the Internet. Experience with the Internet was investigated because research has documented the relationship between experience and user acceptance of technology in general (Koohang, 1989). The more experience a user has with technology the more he or she tends to accept it. Therefore, user's acceptance may in turn promote learning.

According to Lucy (1993), some significant relationships exist between students' attitudes towards computers, computer experience and the use of computer-mediated communication. She concluded that positive attitudes towards computers could be predicted by students' prior experience with computers. A similar result was found by another study done in 1997 by Naert.

Koohang and Durante (2003) tested learners' perceptions toward Web-based distance learning and gave attention to some variables, including learners' experience with the Internet to find whether these variables are significant factors in learners' perceptions towards the Web-based distance learning. They found that there was a significant difference among levels of learners' experience with the Internet and their perceptions towards the Web-based distance learning activities. Their study also showed high positive learners' perceptions toward Web-based learning.

Recently, Koohang (2004) again investigated users' perceptions toward e-learning by giving attention to the variables of prior experience with the Internet and amount of time the e-learner spent on the e-learning courseware to do his/her assignments. The study found out that users' prior experience with the Internet and the amount of time users spent on e-learning were significant factors. Consequently, subjects with more prior experience with the Internet had significantly higher positive perceptions toward e-learning.

Based on the above review of literature, we can say that students' acceptance of online instruction plays a valuable role in the success of this kind of instruction. After all, the promise of the future lies not in technology alone, but in people's ability to use, manage and understand technology (Dugger and Satchwell, 1996).

Institutions seeking to incorporate online instruction into their conventional face-to-face programs need to consider students' attitudes toward online instruction. Identifying factors that may contribute to students' positive attitudes is also essential. Therefore, this study comes to explore the relationship between students' attitudes toward online instruction and students' prior experience in using the Internet.

3. RESEARCH QUESTIONS

This study was designed to answer the following research question:

Could students' attitudes toward using online instruction be predicted by their prior years of experience in using the Internet?

4. RESEARCH METHODOLOGY

The population of this study consisted of all the undergraduate students who enrolled in the Accounting Principles (1) course during the summer semester of the academic year 2003-2004. The sample of the study was the whole population, which was 245 students. Among these, 5 students were excluded because their responses were not consistent. The rest of the students (240) consisted of 125 males and 115 females. In order to evaluate students' attitudes toward the course and their prior experience in using the Internet, a questionnaire was developed and handed to students at the end of the semester. Since the Accounting Principles (1) course was the students' first experience with online instruction, feedback from online discussions (called forums), e-mails, and conversations with students was gathered to help better understand the results of the study.

The instrument employed in this study was a questionnaire that was built to measure students' attitudes toward using online instruction in light of their experience with the Accounting Principles (1) course. Students were asked to rate their agreement with eleven items on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The statements for the items were worded positively so that higher score indicates more favorable attitudes toward using online instruction. A list of these items is shown in Figure (2).

As part of the questionnaire, their was an item to measure students' prior experience in using the Internet by having students indicate the number of years of experience they have had in using the Internet.

Attitudes toward Using Online Instruction

Using the following scale, please indicate your agreement with each of the items that follow by circling the number that best describes your belief about using online instruction in the Accounting (1) course:

Scale:

5=Strongly Agree, 4=Agree, 3=Neither Agree nor Disagree, 2=Disagree, 1=Strongly Disagree

1.	Enhances my appreciation for the course material.	5 4 3 2 1
2.	Improves my communication with the instructor and the students.	5 4 3 2 1
3.	Helps me to feel more confident when studying.	5 4 3 2 1
4.	Provides me with additional resources related to the course material.	5 4 3 2 1
5.	Encourages me to learn more.	5 4 3 2 1
6.	Improves my preparation for the examinations.	5 4 3 2 1
7.	Helps me better understand what I learn.	5 4 3 2 1
8.	Stimulates me to think about the course material in new ways.	5 4 3 2 1
9.	Helps me to be more informed of my performance in the course.	5 4 3 2 1
10.	Provides me with a new positive learning experience.	5 4 3 2 1
11.	Encourages me to take courses taught in a similar way.	5 4 3 2 1

Figure 2. The Attitudes Scale Used in the Study

To determine whether the items clearly and adequately describe students' attitudes, the questionnaire was submitted to a panel of expertise consisted of four members with various experiences in instructional technology, instructional design, and measurement and evaluation. Before implementing the questionnaire, minor modifications were made based on the panel's suggestions.

The internal consistency of the instrument was determined using 40 students who were studying in the Accounting Principles (1) course, Online. The calculated coefficient alpha reliability for the attitudes scale of the questionnaire was .84. This figure suggests that the instrument is suitable to measure students' attitudes toward using online instruction.

To test whether students' attitudes toward using online instruction could be predicted by their prior years of experience in using the Internet, a linear regression analysis was conducted. The SPSS statistical package was utilized to compute all statistics reported in the following section.

5. RESULTS

Table (1) shows the descriptive analysis for the items that measure students' attitudes toward using online instruction. The overall mean score for all the eleven items was 4.03; indicating high students' attitudes toward using online instruction.

A linear regression analysis was conducted to evaluate the prediction of students' attitudes toward using online instruction from their prior years of experience in using the Internet. The scatterplot for the two variables, as shown in Figure 3, indicates that the two variables are linearly related such that as students' prior years of experience in using the Internet increases their attitudes toward using online instruction increase. The regression equation used for predicting students' attitudes toward using online instruction was

$$Sa = \gamma_0 + \gamma_1 Sp$$

Where,

Sa = Students' attitudes toward using online instruction

Sp = Students' prior years of experience in using the Internet

Table 1. Descriptive Analysis

| Item	N	Mean	SD
1. Enhances my appreciation for the course material.	240	4.24	1.241
2. Improves my communication with the instructor and the students.	240	4.09	1.175
3. Helps me to feel more confident when studying.	240	4.38	1.124
4. Provides me with additional resources related to the course material.	240	3.75	1.161
5. Encourages me to learn more.	240	3.99	1.138
6. Improves my preparation for the examinations.	240	3.47	1.213
7. Helps me better understand what I learn.	240	3.58	1.397
8. Stimulates me to think about the course material in new ways.	240	4.16	1.267
9. Helps me to be more informed of my performance in the course.	240	4.59	1.095
10. Provides me with a new positive learning experience.	240	3.87	1.153
11. Encourages me to take courses taught in a similar way.	240	4.21	1.104
Average	4.03		
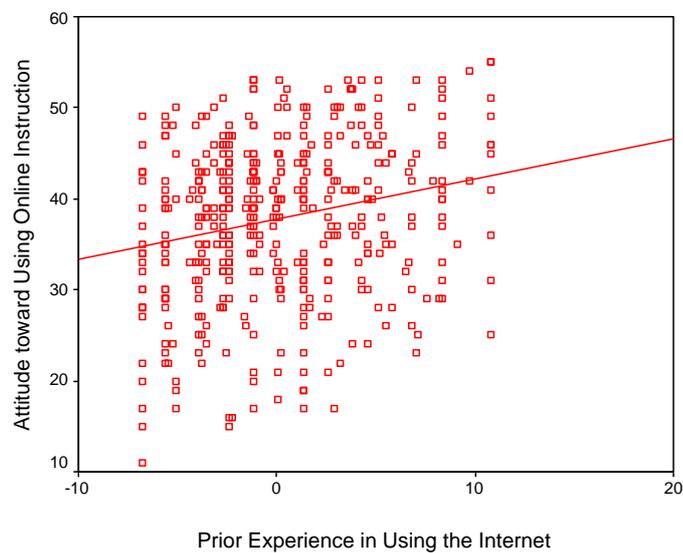
Figure 3. Scatterplot Depicting the Relationship between Students' Attitudes toward Using Online Instruction and Their Prior Years of Experience in Using the Internet

Table 2. The Statistical Results of the Regression Model

Regression Statistics

R Square	0.05		
Observations	240		

ANOVA	df	F	Sig. F
Regression	1	23.011	0.001
Residual	238		
Total	239		

Coefficients		T	P-value
γ_0 (intercept)	37.738	93.144	0.001
γ_1	0.445	4.797	0.001

γ_0 = Regression constant
γ_1 = The regression coefficient to be estimated

The statistical results of the regression model, shown in Table 2, indicate that students who have more prior years of experience in using the Internet tend to have more positive attitudes toward using online instruction. Accuracy in predicting students' attitudes was close to moderate. The correlation between the two variables was .223, t(238)=4.797, p<.001. Approximately 5% (r^2=.223^2=.05) of the variance of the students' attitudes variable was accounted for by its linear relationship with students' prior years of experience in using the Internet.

6. DISCUSSION AND CONCLUSIONS

Getting some information and feedback about using online instruction in the education system of a specific institute is so imperative. Since the number of students participating in online education will undoubtedly continue to increase over the next several years, it is necessary that researchers and educators have thorough understanding of students' reactions and thoughts. Through this understanding, it may be possible to increase or enhance students' online learning experiences in some measurable ways. This study came to investigate whether students' attitudes toward using online instruction could be predicted from their prior years of experience in using the Internet.

The findings of the study indicated high students' attitudes toward using online instruction. In general, students valued online instruction. They believed that online instruction enhanced and improved their study in the course. This can be looked at as an evidence of students' acceptance of online instruction, which can be very helpful in the integration of this mode of instruction into conventional institution settings. It is interesting to mention that these findings agree to a large extent with the findings of the study conducted by Koohang and Durante (2003).

The findings of the study also showed that students'

attitudes toward online instruction and students' prior years of experience in using the internet are significantly correlated. Specifically, the study found out that students who have more prior years of experience in using the Internet tend to have more positive attitudes toward using online instruction. This result, which aligns with the results of other studies conducted by Koohang and Durante (2003) and Koohang (2004), encourages institutions that are adopting online instruction to have an adequate number of introductory courses that deal with the Internet and its wide range of applications in education. These courses introduce students to the services that the Internet provides education with. Searching for specific information using the World Wide Web, exchanging email messages, chatting with other people and downloading information from the Internet can be good topics that can be covered in these introductory courses. Based on the findings of this study, the experiences students gain in these courses are likely to be reflected in their attitudes toward using online instruction.

In predicting students' attitudes toward using online instruction from their prior years of experience in using the Internet, this study showed that, with accuracy close to moderate, approximately 5% of the variance of the students' attitudes variable was accounted for by its linear relationship with students' prior years of experience in using the Internet. This indicates that students' prior years of experience is a significant predictor of students' attitudes toward online instruction. However, other significant predictors may exist, but they need serious investigations. For example, the frequency of accessing the Web-based course measured by the number of hits to the course site may provide a fertile soil for a future piece of research.

It is worth to mention that this study didn't examine the relationship between attitudes toward using online instruction and prior years of experience in using the Internet for instructors. We highly recommend that further studies be conducted to explore this relationship for its importance in enhancing online instruction.

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