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A study on Integration of Information Technology in Higher Education in Saudi Arabia

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Abstract

This study examined the level of information technology (IT) integration in Yanbu University College at Royal Commission for Jubail and Yanbu at Yanbu Industrial City, Saudi Arabia. Both male and female teachers across all departments were investigated about their utilization of IT in the classroom. The survey also included degree of IT use, frequency and demographic data. Methodology of study was from summarizing data, mean and also from correlation.

The mean frequency of use for all educational activities was averaged at 1-2 times per week. Male and female teachers familiarised with variety of uses and often use IT to support their existing classroom practices and teaching strategies. In general, frequency of IT usage amongst female and male teachers is marginal higher than the male staff at 2.70 as compared to 2.60. In terms of gender, it was found that there was no relationship between gender and usage of IT with r value of 0.017.

Keywords: e-learning, Integration of Information Technology, Use of IT in classes and Technology Education

1. Introduction

There has been a driving force to infuse technology at all levels in the Kingdom of Saudi Arabia government agencies, private sectors, federal legislation, and at Higher Education level, teachers are encouraged to use technology in their lessons as a teaching tool. Integrating technology into learning and teaching processes is widely perceived as a great emphasize in these reforms. Standards for technology integration have existed for many years, yet it is still a challenge for teachers to infuse technology into their teaching. Additionally, changes in delivery methods requiring them to adapt to using technology in the teaching and learning process in preparing their students for the workforce.

Today, the utilization of technology is at a paramount stage since teachers have a primary role of preparing graduates who will use technology in their workplaces. According to the International Society for Technology in Education (2007), today's classroom teachers must be prepared to provide technology-supported learning opportunities for their students; being prepared to use technology and knowing how that technology can support student learning must be integral skills in every teacher's professional repertoire (p. 2). Brandt (2001) suggests that it is not enough that students and faculty "have rudimentary skills in

using a given technology—instruction could be given one day in how to use a system, but the interface or underlying technology could change overnight" (p.74). Therefore, to help students incorporate technology into their lessons requires that faculty use technology beyond their office; teachers must design courses that require their students to use technology themselves (Wetzel, 2001).

Some educational theorists are convinced that technology will significantly change every culture and revolutionize the education process. Some theorists think that technology and Internet are the enemies of culture and morality with negative impact on issues such as ethics. Other theorists, however, see IT as basically an additive to the existing culture. They believe that it will speed up the transmission of information in education but will not change the fundamental nature of the educational process.

However, the implementation process of technology integration has been surrounded by skepticism concerning its effectiveness. Various obstacles in implementing technology integration have been identified and discussed by scholars based on different contexts. In the context of Higher Education in developing countries, despite notable progress, many challenges impend concerning the use and implementation of technology (Kajuna, 2009). The benefits of integrating technology in Saudi Arabia into learning and teaching are numerous and especially at this time when the country is implementing its development Vision 2020. Any study of this nature is important in motivating and trying to streamline reform strategies. The findings of this study will contribute to the body of ideas and knowledge about better ways or strategies of implementing technology integration in Higher Education in Saudi Arabia.

The general aim of this study is to investigate the impact of integration of technology in teaching-learning process at Yanbu University College of Royal Commission for Jubail and Yanbu, Saudi Arabia. Technology integration is defined as employing technology to support, enhance, inspire and create learning (Kotrlik and Redman, 2005). The teaching and learning process is defined as the implementation of instructional activities that result in student learning (Kotrlik and Redmann, 2005).

To conduct this study there were two important questions. What is the extent of IT adoption in teaching and learning process? Based on this statement, two research questions were formulated:

- To what extent do Yanbu University College teachers integrate IT in their classroom teaching?; and
- Which demographic variables (gender, teacher's training, and/or years of experience) are related to the use of IT?

The paper examined the degree of use of information technology in teaching and learning process. It also identified the factors that are related to the use of information technology. Using a survey, degree of information technology used and the frequency of usage were identified and reported in this study. Amongst important questions are applications of Microsoft office tools, presentation programs and tools, multimedia programs and tools, online programs and tools, real-time collaboration programs and tools, teacher-assisted programs and tools; for curriculum, administrative, translator, dictionary, encyclopedia , and others. Information of demographic data based on gender, teacher training, and years of teaching experience were gathered and presented.

The paper is an organized as follows. We indicate the limitation of this study in section 2. In Section 3, a methodology is introduced which provided procedure to collect data and findings regarding IT integration. In Section 4, results and discussions are presented. Finally, we summarized the paper with future discussion and recommendations.

2. Limitation of Study

This study only focused on male and female teachers in Yanbu University College covering Academic Year 2008-2009. The degree and frequency of the use of technology can change over time. Based on the rapid and advance development in computer and wireless technology, the degree of technology use this year may be different from that of next year.

This study was restricted to a specific university college in Saudi Arabia. It is hoped that the results could be generalised due to the inclusion of feedback from across the globe which was used in the development of the survey instrument.

3. Methodology

The research instrument was developed to reproduce this study using summary of data, mean and correlation in order to monitor frequency and the degree of the technology use in Higher Education over a period of time. Based on the findings from a preliminary focus group of 74 teachers in YUC, degree and frequency of technology use were identified to design the survey instrument.

3.1. Variables

The dependent variables included the degree and frequency of technology use. The scored measures of respondents' frequency and duration of sustained IT activities were used. The demographic variables include gender, years of teaching experience, IT training (pre-service and in-service) and age. Participants were asked to add any other information they considered important that were not mentioned in the instrument.

3.2. Survey Instrument

The survey instrument consisted of two main parts - technology use and demographic factors. The first part of the instrument focused on the degree and frequency of technology use based on four responses: not familiar, entry, adaptation, and transformation are listed in Table 1.

Option	*Value*	*Description*
Not Familiar	0	You don't use it all
Entry	1	You are just beginning to learn the basic skills and are aware of possibilities, but you do not use often in your teaching practice
Adaption	2	You are familiar with variety of uses of this, and often use it to support your existing classroom practices and teaching strategies
Transformation	3	Use of this tool has significantly changed your classroom practice; because of it you have crafted new curricula and new teaching and learning techniques

Table 1. Technology Adoption Scale

On the frequency of respondents' use of technology, the teachers responded based on the options which are listed in Table 2. Duration or how long activities had been done by the respondents was recorded by asking the number of years they had been involved with the particular technology-related activity. The second part of the survey contained demographic information such as gender, years of teaching experience, training, age, grade levels taught, highest educational degree and year earned, presence of a computer in their home or college, where computers were used (at home or college), where access to the Internet was available (at home or college), and number of computers available in teachers' classrooms and in computer laboratories in colleges.

Description	Value
Never use the technology for this activity	0
Use the technology 1-2 times during the semester	1
Use the technology 1-2 times per month	2
Use the technology 1-2 times per week	3
Use the technology 3 times or more per week	4

Table 2. Frequency of Technology Use Scale

3.3. Participant Sample

The survey was conducted from male and female campus of Yanbu University College, Saudi Arabia during the Academic Year 2008-2009. Survey questionnaires were distributed to all male and female teachers who volunteered to participate in the study. Only 74 questionnaires were returned with composition of 31 male and 43 female teachers.

3.4. Analytical Procedures

Descriptive statistics were used to find out the extent teachers integrate IT in classroom teaching. The scale of the frequencies was from zero (never use) to 4 (use 3 times or more per week). The mean frequency of use for each teaching-related activity studied was sorted in descending order to examine the most frequent and least frequent use of technology shown in Table 3.

Teaching Activity	Mean IT Use	Std. Dev
1. To do administrative record keeping	3.61	0.85
2. To communicate between colleagues and/or profession-als	3.38	1.13
3. To create instructional material	3.32	1.09
4. To gather information for planning lessons	3.26	1.05
5. To access information and research on best practices for teaching	2.84	1.22
6. To access model lesson plans	2.76	1.28
7. To learn about computers and/or improve your computer skills	2.53	1.14
8. To communicate with students outside of class hours	2.51	1.40
9. To post homework or other class requirements, project information or suggestions	2.33	1.44
10. To create multimedia presentations for classroom	2.28	1.48
11. To communicate with experts	2.14	1.43
12. To post/share student work on the web	1.61	1.56

Table 3. Teaching activities in order by highest mean of IT use

4. Results and Discussions

The results of the level Information Technology integration in the college is presented in this section. Data collection was taken from all teachers participated from this study including their demographic information. The general skills usage in using IT amongst male and female teachers are at the same level (mean = 1.75). This means that the usage of IT is towards ‘Adaptation’ level; which proves that the male and female teachers are towards familiarising with variety of uses and often use IT to support their existing classroom practices and teaching strategies. Meanwhile, the general frequency of IT usage amongst female and male staff is marginal higher than the male staff at 2.70 as compared to 2.60 (almost to 1-2 times per week).

4.1 Frequency of Information Technology (IT) Use

The mean frequency of use for all educational activities was at the value of 2.60. This further shows that the frequency of IT use for all education activities was averaged at 1-2 times per week. The maximum average frequency of use was reported at 4.00; which is 3 times or more per week. Table 4 shows the frequency of IT use by teachers in Yanbu University College. Three activities representing the most frequent uses of IT:

1. To do administrative record keeping	Mean= 3.61
2. To communicate between colleagues and/or professionals	Mean= 3.38
3. To create instructional material	Mean= 3.32

Table 4. Three activities representing most frequent usage of IT amongst teachers.

In Table 5 below, the three activities in which the least frequent usage of IT occurred were:

1. To access information and research on best practices for teaching	Mean= 2.83
2. To access model lesson plans	Mean= 2.76
3. To post/share student work on the web	Mean= 1.61

Table 5. Three activities representing least usage of IT amongst teachers

The mean for IT usage for both the male and female teachers was above entry level with a value of 1.75. This means that the usage of IT is towards ‘Adaptation’ level; which proves that the male and female teachers are towards familiarising with variety of uses and often use IT to support their existing classroom practices and teaching strategies. Meanwhile, the overall mean for frequency is 2.65. The general frequency of IT usage amongst female and male staff is marginal higher than the male staff at 2.70 as compared to 2.60. This means that all the teachers (male and female) used almost 1-2 times of IT per week. According to the result in Table 4 above, the three activities representing the most frequency of IT usage are (1) To do administrative record keeping (mean=3.61); (2) To communicate between colleagues and/or professionals (mean= 3.38) and, (3) To create instructional material (mean-=3.32). The three least frequent usage of IT occurred are (1) To access information and research on best practices for teaching (mean-=2.83); (2) To access model lesson plans (mean- 2.76) and third least is to post/share student work on the web (mean-1.61).

A correlation study was also conducted on usage, gender and teaching experience. Table 6 describes the findings below. The current usage of IT amongst all the respondents is independent of trainings either pre-service or in-service trainings. The r value is 0.045. However, there is a very insignificant negative relationship (inverse relationship) between usage of IT and teaching experience. This shows a very small insignificant number of

teaching years increase is matched by reduction of IT usage. In terms of gender, it is found that there is no relationship between gender and usage of IT with r value of 0.017. In terms of gender we found r value is 0.017 so that no relationship between gender and use of IT suggested in our results which you can find in Table 6.

	Independent Variable		
Dependent Variable	Gender	Training	Teaching Experience
Usage of IT	0.017	0.045	-0.13

Table 6. Correlation between dependent and independent variables

Conclusion and Future Research

To integrate IT more effectively into Higher Education, policy makers in Yanbu University College should provide continuous staff development programs for all teachers. Close monitoring must be done to ensure the high quality of training programs that also serve as practical examples of technology-enhanced learning and learning-by-doing. Teachers experiencing quality training in addition to learning technical skills, will promote integration of IT into Higher Education in Saudi Arabia. Based on the findings of this study, the literature review, and the experiences of other countries in integrating IT into Higher Education, a continuous strategic plan for integration of IT by the management of Yanbu University College supported by Royal Commission for Jubail and Yanbu, is recommended. At macro-level, adoption of three levels of IT adoption (a) personal productivity aids, (b) enrichment add-ins, and (c) paradigm shift (Massy & Zemsky, 2006) would define an IT adoption plan for the entire education policy at the higher management level of the college. The micro component of the strategic plan would define domain-specific plans, such as a college IT strategic plan, to deal with particular needs of training the teachers. The application of IT can be complicated and time-consuming until it has been mastered. Training and technical support is critical, yet some faculty have had little training on how to make effective use of IT resources in their instructional and scholarly work (Parker, 2005).

Future research has been started to pursue this study, there have been events in Saudi Arabia that are worth mentioning because they have some implications for the rapidly use of technology in Higher Education in the country. The establishment of Arab Open University, King Abdul Aziz Economic City and King Abdullah Science and Technology University have tremendously contributed to the expansion of integration and usage of IT amongst faculty and students in Higher Education.

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