

Teachers' Perceptions of Technology Integration in the United Arab Emirates School Classrooms

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ABSTRACT

Technology is a growing part of any society today. Educational technology has become a cornerstone for any country's efforts to improve students' performance at K-12 schools. It has become the focus of educators worldwide. However, research studies investigating technology integration, particularly at the United Arab Emirates (UAE) K-12 schools, focus on quantitative data collection methodology. This study investigated technology integration at UAE Model schools using a mixed method of data collection consisting of focus group interviews and a questionnaire. Study sample consisted of 40 female and 60 male teachers from two schools in Al-Ain Educational Zone, Abu Dhabi. Study results showed that teachers at both schools are integrating technology in their classes' activities. They use a variety of technologies to promote students' learning. However, methods of integration by male teachers differed in some cases compared to their female colleagues. Implications for technology integration in the UAE context are discussed.

Keywords

Technology Integration, Teachers' Perceptions, UAE Schools

Introduction

Technology integration in the classroom has become an important aspect of successful teaching. It has triggered many researchers to investigate different aspects of such integration (e.g., Kotrlik & Redmann, 2005; Bauer and Kenton, 2005; Judson, 2006; Totter et al., 2006; ChanLin et al., 2006; Zhao, 2007; Gulbahar, 2007; Anderson and Maninger, 2007; Abbit and Klett, 2007; & Wood and Ashfield, 2008). This is because it allows students to learn more in less time and allows schools to focus on global learning environments if used appropriately. In addition, it could be an effective teaching tool when used to engage all students in the learning process (Almekhlafi, 2006a, 2006b).

Research shows that there are increasing number of computers being used at home and an increasing number of technological devices available to schools (Goddard, 2002). Research documented teachers' use of computers for different purposes and objectives (e.g., Guha, 2000; Yildirim, 2000; & Rowand, 2000). Some teachers use computers for instructional purposes while others use them for both personal and instructional goals. This study investigates teachers' perceptions of utilizing of computers and other technologies for teaching and learning.

Literature Review

Technology use in education is becoming an increasingly important part of higher and professional education (Wernet, Olliges, & Delicath, 2000; & Almekhlafi, 2006a, 2006b). Technology not only gives learners the opportunity to control their own learning process, but also provides them with ready access to a vast amount of information over which the teacher has no control (Lam & Lawrence, 2002).

According to Rowand (2000), a survey based on a National Center for Education Statistics (NCES, 2000), found that 39% of teachers indicated that they used computers or the Internet to create instructional materials, 34% for administrative record keeping, less than 10% reported to access model lesson plans or to access research and best practices. Novice teachers were more likely to use computers or the Internet. Similarly and according to a report released by the U. S. Department of Education, NCES (2000), novice teachers were more likely to use computers or the Internet to accomplish various teaching objectives. Teachers with at most nine years of teaching experience were more likely compared teachers with 20 or more years of experience to report using computers or the Internet to communicate with colleagues.

Because technology integration is a very broad concept and has several aspects and implications, researchers categorized the previous studies into four different categories:

(1) Technology Integration and its Impact on Students and Teachers

A number of researchers have explored technology integration projects worldwide and reported positive impact on teaching and learning for teachers using technology (e.g., Holinga, 1999; Guha, 2000; Sandholtz, 2001; Manzo, 2001; Sherry et al., 2001; Hong and Koh, 2002; Zorfass and Rivero, 2005, & Almekhlafi, 2006a, 2006b). For example, Guha (2000) reported significant differences and positive correlations between teachers' present computer training, level of comfort, and computer usage in the classroom as compared to their previous training, comfort level, and usage.

Manzo's (2001) study found that many of the students who are drawn to Electronic Arts Class were struggling in most of their other classes. Once they saw what they could do with technology, they began to appreciate the importance of doing well in all subjects. Similarly, Sherry et al. (2001) studied the WEB Project. Their findings of a survey assessing the grant's impact on student achievement suggest that teachers should emphasize the use of meta-cognitive skills, application of skills, and inquiry of learning as they infuse technology into their academic content areas.

(2) Factors Influencing Teachers' Technology Integration in the Classroom

Technology integration at schools and factors affecting such integration has drawn the attention of many researchers and has been of high interest to them. A number of studies and projects have been conducted to explore teachers' use of technology and factors hindering such use (e.g., Becker and Ravitz, 2001; Redmann and Kotlik, 2004; Kotlik and Redmann, 2005; Bauer and Kenton, 2005; Judson, 2006; Totter et al., 2006; ChanLin et al., 2006; Zhao, 2007; Gulbahar, 2007; & Anderson and Maninger, 2007).

Bauer and Kenton (2005) found that teachers, who were highly educated and skilled with technology, were innovative and adept at overcoming obstacles, but they did not integrate technology on a consistent basis both as a teaching and learning tool. Results suggest that schools have not yet achieved true technology integration. Gulbahar (2007) concluded that teachers and administrative staff felt themselves competent in using ICT available at the school; they reported a lack of guidelines that would lead them to successful integration. On the other hand, students reported that ICT is not utilized sufficiently in their classes.

Zhao (2007) conducted a qualitative research to investigate the perspectives and experiences of 17 social studies teachers following technology integration training. The research indicated that teachers held a variety of views towards technology integration. These views influenced their use of technology in the classroom. Most teachers were willing to use technology, expressed positive experiences with technology integration training, increased their use of technology in the classroom, and used technology more creatively.

On the other hand, numerous studies have been carried out to identify factors facilitating or prohibiting technology integration in the classroom, particularly computers. Some studies focus on the availability of computers in the classroom, sharing of resources, a supportive administration, and a strong support staff as the primary influencing factors. As an example, the Becker and Ravitz (2001) study showed that computer use among teachers is related to more constructivist views and practices and to changes in practice in a more constructivist-compatible direction. In addition, other research studies suggest that there is a relationship between a teacher's student-centered beliefs about instruction and the nature of teacher's technology-integrated experiences (Judson, 2006; & Totter et al., 2006).

Similarly, ChanLin et al. (2006) conducted a study to identify the factors affecting eight teachers' use of technology in creative teaching practices. The identified factors were classified into four categories: environmental, personal, social and curricular issues. Besides Chanlin's study, Anderson and Maninger (2007) investigated the changes in and factors related to students' technology-related abilities, beliefs, and intentions. Statistically significant changes were found in students' perceived abilities, self-efficacy beliefs, value beliefs, and intentions to use software in their future classrooms. Students' self-efficacy, value beliefs, and intentions were moderately correlated with each other. Abilities were correlated with self-efficacy and computer access. The best predictors of intentions were self-efficacy beliefs, gender, and value beliefs.

(3) Teachers' Perceptions of Technology Integration and Gender Differences

Teachers' perspectives of their use of instructional technology, understanding of this technology, and feelings about the support structure associated with this equipment have been examined with the findings suggesting that teachers believe technology is an integral part of the process of educating their students. Pertaining to gender differences in technology integration, the literature showed that there were some differences between male and female teachers in technology use, while other studies did not (e.g., Shashaani, 1997; Bhargava et al., 1999; and Hong & Koh, 2002).

The results of Shashaani's study (1997) showed that female students were less interested in computers and less confident than male students. The results also showed that males were more experienced than females and females' attitudes improved after taking the course. Bhargava et al. (1999) studied gender discrepancy in both classroom access and use. The findings showed that there were significant differences between males and females and these differences were due to biased classroom practices, lack of female role models, and home computer gender gaps. Following the same path, Hong and Koh (2002) found that female teachers were more anxious than male teachers toward hardware. They also found that the overall computer anxiety levels of male teachers were not significantly different from the anxiety levels of female teachers. Only for the hardware anxiety domain was significant differences detected between male and female teachers.

(4) Technology Integration Barriers

A number of barriers that hinder technology integration have been documented (Flores, 2002; Earle, 2002; & Brinkerhof, 2006). According to Flores (2002), teachers face many barriers in their quest to incorporate technology. In addition to time scheduling for technology use and administrative support, equity is another important issue. The introduction of technology is particularly hard when there are few resources.

Earle (2002) pointed out some barriers to the integration of technology in the classroom including both restraining forces that are extrinsic to teachers such as access, time, support, resources, and training and forces that are intrinsic such as attitudes, beliefs, practices, and resistance. More recently, Brinkerhof (2006) pointed out that barriers are grouped into four main categories: resources, institutional and administrative support, training and experience, and attitudinal or personality factors.

Statement of the problem

Due to the role of technology in the advancement of society in general and educational sector in particular, effective technology integration into teaching and learning has become the focus of many educators. However, most research studies conducted so far focus on quantitative data collection methodology such as surveys. This method of data collection does not always give a true picture of technology integration in the classroom. This is particularly true if teachers and students were not voluntarily participating in the study. In such a case, they may fill in questionnaires without giving enough thought to content. Hence, study results are affected and do not reflect reality. Therefore, the need to investigate technology integration using a mixed-methodology is a must. This study aims at investigating technology integration at UAE K-12 schools using a mixed-method for data collection. Such research in the United Arab Emirates has not been conducted as literature search did not result in any studies. This study aims at investigating teachers' perceptions of their technology integration competencies, barriers obstructing such integration, and incentives to increase it, in addition to other related issues.

Methodology

Participants

The participants were 100 (Grades 6-9) teachers from two model schools in Al-Ain educational zone, Abu Dhabi, United Arab Emirates. Forty of the participants were female, while the rest were male teachers. All teachers at both schools had between 5 and 15 years of teaching experience. All had experience using technology in their classes as it is mandated by model schools. Both schools have good technology infrastructures available for teachers.

Research Questions

This study aimed at answering the following questions

1. How do teachers perceive their competencies to technology integration?
2. How do teachers perceive obstacles and incentives related to successful classroom technology integration?
3. How do teachers perceive their students' classroom usage of technology?
4. To what extent do teachers perceive their classroom use of technology tools?
5. What is the difference in perception of male and female teachers in technology integration?

Data Collection

To answer these questions, the study used multiple research tools, a questionnaire and focus group interviews. The aim of these tools is to investigate teachers' perceptions of technology integration and actual classroom practices. In addition, the use of these tools enables researchers to validate study results, and hence get more reliable findings.

- a) A questionnaire focusing on teachers' perception of technology integration was developed. It consisted of a number of subthemes that investigated teachers' perceptions of their technology competencies and usage, students' usage of technology, problems hindering technology integration, and incentives that motivate teachers to integrate technology. The face validity of the questionnaire was established by refereeing it by a panel of university professors with different specializations, including educational technology. The questionnaire validity using Cronbach's Alpha was 0.94. The questionnaire used a five-point Likert scale extending from 5 (very high or strongly agree) to 1 (very low or strongly disagree). The questionnaire was distributed to all teachers at participating schools. Response rate was around 75%.
- b) Focus group interviews were conducted with the teachers at both schools. The aim of these interviews was to collect detailed data on technology integration methods, problems hindering such integration, and incentives that increase this integration in the class. Two focus group interviews were conducted with about 20 teachers from the two schools representing different subjects, namely Islamic and Arabic Studies, Social Studies, Science, Math, and English.

Data Analysis

Data gathered from questionnaire items were analyzed using SPSS 15.0. Descriptive statistics, a multivariate analysis, and analysis of variance (ANOVA) were used. In addition, the researchers analyzed these items using "Item Analysis" method in order to get a deep understanding of the results from the questionnaire. On the other hand, data collected from focus group interviews were analyzed using the phenomenographic approach to data analysis, which classified expressions used by participants according to similarities and differences (Levin and Wadman, 2006).

Results and Discussion

To answer question 1 "How do teachers perceive their competencies to technology integration?", results indicated that teachers highly regard their competencies in technology integration. The mean scores ranged from 4.0 to 4.8 on a 5-point scale (see Table 1). This high perception by teachers might be due to the fact that technology integration in classrooms is a part of teacher evaluation, particularly at model schools. Investigating the items in details, the highest mean scores were for items that are related to teachers' ability to use hardware and software, using technology to locate, evaluate, and collect information from a variety of sources, and content-specific tools.

These results conform to Bauer and Kenton (2005), where they found that teachers were highly skilled with technology and had the competencies required from successful technology integration. In addition, they were also supported by Zhao (2007) who investigated the perspectives and experiences of 17 social studies teachers following technology integration training. Four major categories of technology-related activities were observed among participants: (a) teacher-centered, (b) structured inquiry, (c) teacher-student negotiated, and (d) student-centered. Most teachers were willing to use technology, expressed positive experiences with technology integration training, increased their use of technology in the classroom, and used technology more creatively.

Enforcing these results, focus group interviews yielded some recommendations by teachers in order to enhance their technology competencies and hence result in successful and effective technology integration in the classroom. Male teachers recommend the following: (1) using computer labs as they give teachers the freedom and flexibility to prepare class materials required for the whole course, (2) providing teachers with appropriate professional development in the form of workshops on technology integration, (3) matching technology with curriculum goals so that technology integration enhances teaching and learning, and (4) giving enough freedom for teachers in the coverage and selection of materials to focus on quality rather than quantity.

ChanLin et al. (2006) supported the above findings, where teachers' perceptions about technology use were studied in order to identify the factors affecting their use of technology in their teaching. Two major issues were explored. First, the researchers studied how teachers integrated technology into creative teaching; they then identified the factors that influenced teachers' use of technology in teaching. The identified factors were classified into four categories: environmental, personal, social and curricular issues.

Table 1: Teachers' Perceptions of their Competencies to Technology Integration

	M	SD
I am proficient in the use of common input and output devices; I can solve routine hardware and software problems; I can make informed choices about technology systems, resources, and services.	4.8	0.4
I can use technology to locate, evaluate, and collect information from a variety of sources.	4.6	0.5
I can use technology tools and information resources to increase productivity, promote creativity, and facilitate academic learning.	4.5	0.6
I can use content-specific tools (e.g., software, simulation, environmental probes, graphing calculators, exploratory environments, Web tools) to support learning and research.	4.5	0.6
I can collaborate in constructing technology-enhanced models, preparing publications, and producing other creative works using productivity tools.	4.5	0.6
I can use technology tools to process data and report results.	4.4	0.6
I have a strong understanding of the nature and operation of technology systems.	4.3	0.6
I understand the legal, ethical, cultural, and societal issues related to technology.	4.2	0.7
I can choose learning and technology resources.	4.1	0.7
I can use technology resources to facilitate higher order and complex thinking skills, including problem solving, critical thinking, informed decision-making, knowledge construction, and creativity.	4.1	0.8
I can troubleshoot common computer problems.	4.0	0.9
I can use technology in the development of strategies for solving problems in the real world.	4.0	0.7
I have knowledge to discuss health and ethical issues related to technology.	4.0	0.8
I can use technology tools and resources for managing and communicating information (e.g., finances, schedules, addresses, purchases, correspondence).	4.0	0.8
I can evaluate and select new information resources and technological innovations based on their appropriateness to specific tasks	4.0	0.7
I can use a variety of media and formats, including telecommunications, to collaborate, publish, and interact with peers, experts, and other audiences.	4.0	0.8
I can discuss diversity issues related to electronic media.	4.0	0.8

To answer question 2 “How do teachers perceive obstacles and incentives related to successful technology integration in the classroom?”, results showed that teachers perceive time and curriculum as two major obstacles that hinder their technology integration in their classrooms (see Table 2).

Deep analysis of focus group interviews showed other barriers that hinder technology integration. Male teachers indicated that there is a lack of training on how to integrate technology effectively. Most teachers depend on self-learning. They need to be involved in subjects that enable them to learn technology integration techniques and strategies so they can use it successfully in their classes. Another barrier is parents' and teachers' negative attitudes toward the importance and benefits of technology for learning and teaching.

Female teachers pointed out that a large number of students, technical problems, and expensive tools are the common problems that negatively affect the effectiveness of technology. They suggested that schools should provide teachers

with affordable and/or free professional development subjects. Furthermore, there should be collaboration between schools where teachers can exchange ideas and successful technology integration techniques. Finally, they suggested that the curriculum should be accompanied with technology-enhanced materials such as CDs and videos. These findings conform to Shelly et al. (2002).

Pertaining to incentives (see Table 2), results showed that participants consider having a free or discounted computer as a major incentive for them. This might be because they need computers at home to enable them to work on technology integration activities at their own pace and time. Other incentives that had high mean scores are participation in workshops, having additional resources, positive evaluations, and recognition by school or school zone. In fact, professional development for teachers and having enough technology resources are crucial for successful technology integration in the classroom. These results are supported by the results of a number of research studies such as Roberts and Ferris, 1994; Slough and Chamblee, 2000; Flores, 2002; Earle, 2002; Zorfass and Rivero, 2005; & ChanLin et al., 2006.

Roberts and Ferris (1994) stated that barriers to technology integration included lack of knowledge of available hardware and software, time commitment, and the risk of using technology. Similarly, Slough and Chamblee (2000) argued that a view of technology as something unstable and always changing presents a major barrier to its use in the classroom. Moreover, Flores (2002) concluded that teachers face many barriers in their quest to incorporate technology such as time scheduling for technology use and administrative support, equity, and the lack of resources. Earle (2002) pointed out to extrinsic barriers to technology integration such as access, time, support, resources, and training and forces that are intrinsic to teachers such as attitudes, beliefs, practices, and resistance. On the other hand, ChanLin et al. (2006) supported these findings by identifying the factors that influenced teachers' use of technology in teaching. These factors were classified into four categories: environmental, personal, social and curricular issues.

Table 2: Teachers' Perceptions of Obstacles and Incentives Related to Successful Technology Integration in Classroom

Variable	Mean	SD
Obstacles		
The teacher does not have much time to prepare and implement them	3.4	1.2
Curricula are not ready to use such new technologies	3.0	1.3
Not enough encouragement to use them	2.7	1.3
Qualified staff for the labs are not available to help	2.5	1.3
Equipped labs are not available in schools	2.1	1.2
Technologies are not available in schools	2.0	1.1
Incentives		
Free or discounted computers for their own use	3.6	1.6
Participation in special workshops	3.0	1.2
Additional resources for their classroom	3.0	1.2
Positive evaluations	3.0	1.3
School or educational zone recognition program	3.0	1.2
Free software.	2.8	1.6
Release time	2.7	1.4
Salary supplement	2.3	1.5
Mentor teacher designation (or similar designation)	2.3	1.3

To answer question 3 “How do teachers perceive their students’ usage of technology in the classroom?”, results showed that teachers had high perception of students’ usage of technology (see Table 3). They reported high usage of technology for interaction and communication, independent learning, engagement in learning, and understanding of academic subjects. The mean score for each of these items was 4.0 on a 5-point scale. These results are supported by Holinga (1999) who studied how Project LINCOLN in Springfield, Illinois, changed children’s education in an important and meaningful way. The result of the project showed that student achievement has improved across all grades.

To answer question 4 “To what extent do teachers perceive their usage of technology tools in the classroom?”, results indicated that teachers use a number of technologies in their classrooms such as computers with different software, transparencies, the Internet, maps, OHP, and Flyers & Folded Papers (see Table 4). Mean scores for the

usage of these tools were 3.3 or above. These results are supported by Ertmer et al. (1999) who found that teachers' perceptions of the role of technology are closely linked to how technology is used. Another study conforming the results of this study was conducted by Kotrlik and Redmann (2005), where results revealed that although teachers feel some anxiety when it comes to technology integration, they perceived that they are effective in using technology.

Table 3: Teachers' Perceptions of their Students' Usage of Technology in classroom

Variable	Mean	SD
Students are interacting and communicating differently with the help of technology	4.0	0.9
Students become more independent learners as a result of technology.	4.0	0.8
Students are more engaged in learning due to technology.	4.0	0.7
Student understanding of academic subjects has deepened due to technology use	4.0	0.8
Students use technology to improve their basic skills with computer programs.	3.8	0.8
Students are developing online research expertise.	3.8	0.9
Students do more school work when not in school	3.8	0.6
The primary student-related use of technology is to teach students how to use the technology itself.	3.7	0.9
Schools report that students have better grades and/or test scores since they began using technology	3.7	1.0
Students use technology in at least some of their regular classrooms.	3.6	1.1
Schools report an increase in attendance on days that students are scheduled to use technology.	3.2	1.0
Students use computers only in a lab	3.1	1.2
Schools have reported decreases in the student dropout rate attributed to the use of technology.	3.1	1.2
Students actively participate in distance learning with other schools.	2.7	1.3

Away from perceptions, data analysis for the first focus group interview with male teachers indicated that most male teachers believe that using technology is important, but not all the time. On the other hand, they indicated that technology has many advantages for the teaching-learning process. It saves class time, minimizes teachers' efforts, grasps students' attention, and makes learning interesting. Students' understanding is the most important factor that teachers could use to evaluate the effectiveness of using technology in their classrooms.

Most female teachers highly regard technology and are using different types of applications in their classes such as computers, visual projectors, and the Internet. Female teachers think that technology helps facilitate learning and teaching, increases student participation, and provides visual support for students of different learning styles.

Table 4: Teachers' Perceptions of their Usage of Technology Tools in Classroom

Variable	M	SD
Computer	4.6	0.5
Transparencies	4.6	0.6
Different Computer Software	4.5	0.7
Geographic maps	4.2	1.0
Internet	4.0	1.1
Over Head Projector	4.0	1.1
Flyers & Folded Papers	4.0	1.1
Electronic Mail	3.8	1.2
Posters	3.8	1.0
Video	3.7	1.2
Wood Manipulatives	3.7	1.2
Drawing Tools	3.6	1.1
Tools for Creating Models	3.6	1.2
Raw Materials & Real Things (e.g., Seeds, Buttons, Bean Pills,...)	3.6	1.2
Video	3.5	1.3
TV	3.4	1.4
Distance Learning Equipment and Infrastructure	3.3	1.1

To answer question 5 “What is the difference in perception of male and female teachers in technology integration?”, a multivariate analysis was run. Results indicated a significant difference between the two groups with a Hotelling’s trace value of 9.3 with a significant f of 10.75. To locate the significant differences within subscales, a one way analysis of variance (ANOVA) was run. However, in order to control Type I error when conducting the analysis of Variance, the researchers adjusted α level (0.05) using Benfaroni modification method. The adjusted value of α is ≤ 0.005 . Table 5 shows the items that yielded significant differences within the sub-themes.

As seen from the table, technology availability was a concern for female teachers more than it was for males. In spite of this fact, results showed that female teachers use different types of technologies more than male teachers do. The means scores for female teachers on technologies used are all above 4.4, while the mean scores for male teachers ranged from 2.5 to 3.5. This might indicate that female teachers integrate technology in their classrooms more than male teachers do.

On the other hand, Hong and Koh (2002) found that female teachers were more anxious than male teachers toward hardware. They also found that the overall computer anxiety levels of male teachers were not significantly different from the anxiety levels of female teachers. Only for the hardware anxiety domain were significant differences detected between male and female teachers.

Table 5: Differences Between Male and Female Teachers in their Perception of Technology Integration

	M	F	f.
Teachers Perception of their Competencies in Technology Integration			
I can use a variety of media and formats, including telecommunications, to collaborate, publish, and interact with peers, experts, and other audiences.	3.9	4.4	0.0
creating multimedia presentations.	5.0	4.8	0.0
using computers for on-line communication (e.g., e-mail).	4.7	4.2	0.0
designing web pages.	3.3	4.2	0.0
Obstacles			
Technologies are not available in schools	1.7	2.8	.00
Qualified staff for the labs are not available to help	2.2	3.1	.01
Technologies that Might be Used			
Video	2.8	4.6	.00
Over Head Projector	3.3	4.7	.00
TV	2.5	4.7	.00
Electronic Mail	3.7	4.6	.01
Internet	3.7	4.7	.01
Distance Learning Equipment and Infrastructure	3.0	4.1	.01
Video	2.8	4.6	.00
Over Head Projector	3.3	4.7	.00
TV	2.5	4.7	.00
Electronic Mail	3.4	4.6	.00
Internet	3.7	4.7	.01
Wood Manipulatives	2.9	3.9	.02
Video	2.8	4.6	.00
Models and 3D Pieces	3.8	4.7	.02
Posters	3.4	4.4	.00
Transparencies	3.5	4.6	.00
Drawing Tools	3.5	4.6	.00
Tools for Creating Models	3.0	4.4	.00
Raw Materials & Real Things (e.g., Seeds, Buttons, Bean Pills,...)	3.1	4.7	.00
Flyers & Folded Papers	3.8	4.4	.02
Results of Teachers' Beliefs about Technologies and Using them in Instruction			
Most students have so many other needs that technology use is a low priority	3.3	4.0	.04

From focus group interviews the following can be concluded: (1) female teachers have more experience, familiarity, and knowledge of technology resources and applications than male teachers, (2) male teachers think that technology should be a part of the curriculum plan and that they should receive rewards for their technology integration

performance, (3) most male and female teachers are mainly focusing on the use of computers and transparencies in their classes, (4) both male and female teachers think technology should be used only when needed while teachers should use a variety of teaching methods, and (5) all teachers agree that lesson goals and the nature of the subject are the two factors that determine the type of technology the teacher should use.

Conclusion

Study results show that both male and female teachers at UAE Model Schools have high self perception of their abilities and competencies to integrate technology successfully in their teaching. In addition, results revealed that teachers integrate technology in their classes with different degrees and effectiveness in spite of the barriers that hinder such integration (e.g., technical problems, large number of students, lack of professional development training, lack of motivation and financial support, and negative teacher and parent attitudes toward the impact of technology on teaching and learning).

In order to increase effective technology integration, both male and female teachers recommend the following: (1) regular professional development workshops, (2) enhancing curriculum with technology-enhanced materials such as CDs and videos, (3) increasing collaboration between schools across the country, and (4) giving enough freedom for teachers in the selection and coverage of curriculum materials.

It is worth mentioning that when model schools at the UAE were inaugurated more than a decade ago, they had advantages over typical schools, particularly in their infrastructure and teacher professional development activities. Due to the success of these schools, most public schools around the country started to follow their path. As a result, these days the gap between model schools and public schools almost vanished when it comes to technology availability and teacher professional development. Most public schools, particularly in Abu Dhabi have more or less the same advantages of model schools, particularly when it comes to technology equipment and teacher training. Thus, the implication of this change is that the results obtained from this study can be easily generalized to other UAE public schools covering the same grade levels as model schools.

These results were consistent with other studies investigating the same issues (e.g., Slough and Chamblee, 2000; Guha, 2000; Flores, 2002; Earle, 2002; Shelly et al., 2002; Bauer and Kenton, 2005; Kotrlik and Redmann, 2005; Zorfass and Rivero, 2005; and ChanLin et al., 2006).

Based on the above findings, the researchers recommend the following to enhance teachers' skills and competencies in technology integration regardless of country or gender:

1. Enhance teachers' technology integration abilities and skills by delivering workshops about effective technology integration.
2. Provide teachers with state-of-the-art technology including hardware and software.
3. Provide teachers with incentives and awards for outstanding technology integration in their classrooms.
4. Provide teachers with some release time so that they can plan effectively for technology integration in teaching and learning.
5. Explore the use of technology in classrooms covering all school levels, including public and private schools.
6. Investigate the effect of technology integration on students' achievement and attitude.
7. Investigate technology integration in relationship to curriculum goals and outcomes.

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