



The current use of ICT by novice female teachers in Saudi primary schools and their perceived training needs

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The overall focus of this study is ICT in primary schools in Saudi Arabia, in particular the use made of ICT by novice female primary school teachers. This represents the first phase of a study that aims to discover whether a tailored training program might help teachers to widen and improve their use of ICT, and thus to improve their students' results. A questionnaire and semi-structured interviews were used in this phase to collect data. The findings revealed that the participants do suffer from a great gap in their knowledge and in even the basic technical and pedagogical skills of using technology in teaching. It was also found that their current use of technology is very low. The reasons behind this could include lack of access to technology, lack of training, and lack of time. The paper also presents some features of the participants' desired training program.

Keywords: Teacher training, primary school, ICT, technology, in-service training.

Introduction

Before designing in-service ICT training for teachers, it was considered necessary to explore their knowledge and skill levels, and how they currently use ICT in their primary school classrooms. The focus of this paper is therefore on teachers who trained in the past five years, and their own descriptions of ways in which they use ICT in their teaching, together with an exploration of factors that influence their practice, and the kind of training that they themselves would prefer. This study will develop the following arguments: 1) There is a lack of ICT training for all primary school teachers in Saudi Arabia; 2) There is a need to design and evaluate ICT training for primary school teachers that meets the needs of teachers and is informed by research and relevant pedagogy.

Despite the efforts made by educational bodies to offer in-service training in using modern technology, most of these courses have not had the desired influence. The reasons for this lack of success are varied. Firstly, the training has been delivered as "one-size fits all", and has not been related to the trainees' specific needs. For example, Edmondson (2003) believes that in the teacher training field, teachers' needs should be identified prior to designing the training package. Aldhahi (2011) confirms that training programs in Saudi Arabia do not meet the quality standards that they should, and do not achieve their objectives because they have not been designed according to teachers' needs. The other factor that decreases the usefulness of the ICT training programs is that the training focuses solely on technological skills. According to Jones (2004), inappropriate training styles that lack pedagogical aspects are likely to be unsuccessful, and cannot guarantee high levels of ICT use by teachers. In contrast however, Preston, Cox & Cox (2000) assert the need for training in some specific ICT skills, especially those needed to solve technical problems and to understand the basic workings of the technology: they provide evidence that the breakdown of technology equipment deters teachers from using ICT.

The Kingdom of Saudi Arabia has shown a great interest in improving the whole educational system, especially in terms of using ICT (Ministry of Economy and Planning, 2010). Although this interest has been translated into

many projects and initiatives, most of the efforts and focus have been allocated to the secondary sector, while the primary stage has been largely ignored. More surprisingly, primary teachers are still required to integrate technology into their teaching despite the fact that they have not been prepared for their new roles in such a technology rich environment.

Many of the Saudi studies of teachers' use of technology, that typically focus on intermediate and secondary teachers, reveal a low degree of ICT usage and a lack of training in the field. For example, Alsahli (2012) conducted a study to investigate the educational technology training needs of female geography teachers in Saudi Arabian secondary schools in Jeddah. More specifically, she examined the teachers' training needs in terms of 'Knowledge', 'Usage' and 'Production' of educational technology. She concludes that there is a gap in knowledge and use of technology, which mirrors a lack of training for female geography teachers on both the technical and the pedagogical use of educational technology. The investigation by Alkanani (2012), on the reality of and the barriers to using educational technology in teaching social subjects in the intermediate stage in boys' schools in Al-Qunfoda province, Saudi Arabia, shows that the participants' usage of multimedia technology, Interactive Whiteboard, and distance learning is very low. He also identified the lack of training as one of the most important barriers that inhibit them from using educational technology.

The study by Althubiani (2008), on the reality of contemporary technology usage by Saudi intermediate mathematics teachers, shows that the teachers' use of several technologies including the Internet, Intranet, and interactive video is very low. Alotaibi (2011) conducted a study to determine the extent of the use of educational technology by female science teachers in Hail city, Saudi Arabia. The findings indicate that the participants rarely use educational technology. The research evidence shows that Saudi teachers from all stages, including secondary teachers, who are the priority for the Ministry of Education (MoE), lack most of the basic skills of using ICT in teaching. The evidence also shows that their use of ICT in their teaching is very low. This would consequently lead to the suggestion that primary teachers, whom the MoE ignores, are especially likely to be in need of more assistance. In particular the importance of opportunities to be trained is highlighted by the research.

The present study argues that there is a crucial need to develop an in-service training program in ICT for primary teachers that uses the most popular theories in the field as well as meeting the teachers' training needs. To gain the most from the proposed program, it will be necessary to implement it and evaluate its effectiveness. The study goes on to propose the design, implementation and evaluation of a training program in ICT skills and related pedagogies. The study is the first to be conducted using this approach in Saudi Arabia in general and in Al Ahsa city in particular. The study may also provide a model for training program designers around the world. The study applies the theory to real practice in order to assess its effectiveness and suitability to the Saudi Arabian educational context.

Research questions

This paper aims to provide answers to the following question: What are the ICT training needs of female novice primary school teachers in Saudi Arabia? This question was broken down into the four sub-questions: What ICT skills do teachers already have and what are the gaps in their skills and knowledge? How do teachers currently use ICT in their classrooms and what factors influence this use? What are teachers' prior ICT training experiences? What are teachers' ICT training preferences?

Population and participants

This study mainly focuses on female primary teachers in Saudi Arabia who have five or less years of teaching experience no matter what stage(s) or subject(s) they teach. At the time of data collection, there were 5754 female teachers working in 1575 girls' primary schools who met the sampling criteria in the six cities in which the data was collected namely Al Ahsa, Dammam, Riyadh, Qassim, Makkah and Jeddah. Out of all these teachers 135 participated in the questionnaire and 20 in the interviews.

Data collection and analysis

The questionnaire was distributed by email and post. Approximately 163 questionnaire forms were returned; only 135 were processed and analysed since the rest (n=28) were returned uncompleted with or without a notice of refusal to participate. In total, 20 interviews were conducted: eight in Al Ahsa, four in Dammam, one in Riyadh, two in Qassim, two in Makkah and three in Jeddah.

Since the majority of the questionnaire items were closed questions, they were analysed quantitatively using SPSS software to calculate the frequencies and percentages. However, these numbers were interpreted qualitatively. All the open-ended items from the questionnaire were analysed manually in tables. Similarly, the semi-structured interviews were analysed manually in a template based on the most common themes.

Findings and discussion

1. ICT skills teachers already have and gaps in knowledge

The findings from the questionnaire and the interviews indicated a huge gap in even basic ICT knowledge and skills. This gap is indicated by the low percentages with experience in using Word, PowerPoint, and the Internet although more than half had some experience of using a computer (PC or laptop). Unfortunately, this lack of technical skills is not surprising in the Saudi context. Many researchers have found similar results, such as Aldhahi (2011), Alsahli (2012) and Alkanani (2012).

2. Teachers' current use of technology in the classroom and factors that influence this

The findings from the questionnaire and the interviews highlighted a low level of ICT usage by the participants. There are several possible reasons for this low level of usage including lack of training, lack of time, and/or lack of access to technology. Jones (2004) reports that lack of appropriate training and lack of time for preparation and training are major barriers to ICT integration in education. A low level of use of ICT skills is common in Saudi schools. This finding was confirmed by studies in a variety of Saudi contexts that involved different school stages, different teaching subjects, in different cities and provinces, and as perceived by both teachers and others (Alotaibi, 2011; Alsahli, 2012; Alkanani, 2012). The results also indicated that teachers' current use of technology is teacher-centred. They deal with the technology as a carrier of knowledge and a more interesting method of presenting the lesson. The results suggested an urgent need to train teachers in the pedagogical aspects of the use of ICT as well as the technical ones. Again lack of training in pedagogical aspects of ICT is one of the main barriers reported in both international studies (Jones, 2004; Unal & Ozturk, 2012) and the Saudi literature (Alamri, 2011; Alsahli, 2012).

The factors that influence teachers' use of technology in the classroom could be either disablers or motivators. The most important disablers that were highlighted by the questionnaire and the interviews included lack of access to technology, lack of training in using technology, and lack of time. On the other hand, the most important motivators revealed by the questionnaire and the interviews were teachers' positive attitudes towards technology, perceiving technology as interesting and enjoyable, the belief that technology improves pedagogy and students' attainments, and the perception that technology saves time and effort. These factors are found in the ICT integration literature generally (Cunningham, Kerr, McEune, Smith & Harris, 2003; Unal & Ozturk, 2012; Khan, Hasan & Clement, 2012; Bakr, 2011; Serin, 2011) and the Saudi literature in particular (Oyaid, 2009; Alamri, 2011).

3. Teachers' prior ICT training experiences

The data collected by the questionnaire and the interviews alike showed that the teachers have not experienced a comprehensive training program that aims at both the technical and the pedagogical skills needed to enable the educational use of ICT tools. The separation between the training in technical and pedagogical skills, or the omission of training in the pedagogical aspects of utilising technology in teaching is argued to make the training useless (Preston *et al.*, 2000; Jones, 2004; Unal & Ozturk, 2012). Saudi researchers have also reached the same conclusions (Oyaid, 2009; Bingimlas, 2010).

4. Teachers' ICT training preferences

The participants' preferences regarding future training in ICT were a mixture of technical and pedagogical for the content; blended (face-to-face and online) for the delivery; between one and four weeks for the duration; within school time for the time; collaboratively in small groups for the learning method; and rating themselves regarding their confidence, skills and ability to use educational technology in the classroom for the assessment.

Conclusion

This paper has presented the findings of the first phase of a two-phase study. The focus of the study is to explore the ICT training needs of novice female teachers in Saudi primary schools. The overall plan is to design, pilot and evaluate a training program in ICT and related pedagogies, based on what teachers say they need. The first phase is about investigating the teachers' training needs and preferences in respect of ICT. The findings of this phase indicated that the participants do suffer from a great gap in their knowledge and in the technical and pedagogical skills of using technology in teaching. It was also found that their use of technology currently is very low. This low level of usage could be due to one or more barriers including lack of access to technology, lack of training, and lack of time. However, there are many motivators that encourage teachers to use technology in their teaching including holding positive attitudes: technology is perceived as an enjoyable tool, and technology could improve pedagogy and students' attainments and save teachers' time and effort. The participants were interested in receiving a mixture of technical and pedagogical training and specified some features of their desired training program.

The present study argues that there is a crucial need to develop an in-service training program in ICT for primary teachers that uses the most popular theories in the field as well as meeting the teachers' training needs. Therefore, a program was designed based on training needs discovered in the first phase, which is described in this paper, on research literature describing and discussing ICT training programs and on relevant learning theory. However, the literature review of training needs reveals that ICT training programs are rarely underpinned by learning theories. Social constructivism theory was selected to underpin the design of the program because of the strong relationship between it and the use of ICT in learning (Jonassen, Peck & Wilson, 1999). Kolb's experiential learning cycle also informed the program design as an example of a practical application of constructivism. The study is the first to be conducted using such an approach in Saudi Arabia in general and in Al Ahsa city in particular. The study may also provide a model for training program designers around the world. The study applies theory to practice to assess its effectiveness and suitability for the Saudi Arabian educational context.

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