TEACHER TRAINING PROGRAMS for COMPUTER EDUCATION and COMPUTER ASSISTED EDUCATION in TURKEY

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ABSTRACT

The aim of this descriptive study is to review the applications and problems on the teacher training programs for computer education and computer assisted education(CAE)in Turkey. The study, firstly, introduces some applications and major problems on using instructional media and computers in developing countries and instructional technology programs and computer assisted education in Turkey; Secondly, comparatively with developed countries, determines and discusses the applications and problems on the teacher training for computer education and computer assisted education(CAE) in Turkey; Than, presents number of suggestions on the teacher training for computer education and CAE in Turkey.

Keywords;Computer assisted education;teacher training;instructional technology;Turkey

INTRODUCTION

A very important issue in computer education and CAE is teacher training. Making use of computers is almost impossible when teachers have insufficient computer knowledge in computer education and CAE. Teachers are the key persons to use computers in educational settings productively and to help integrate computers into the curriculum (MEB,1991, p. 221). Millions of dollars have been invested in hardware and software which are the other two components of CAE. Teacher training in computer education has been ignored (Finkel, 1990). What needs to be done is to establish a balance among these three components of CAE; hardware, software and teacher training. All these components depend on each other: a weakness in one affects all the others negatively (Yasar, 1997).

Teachers need support and training to positively integrate technology into their classroom and teacher attitudes toward computer technology may be a significant factor in the implementation of computers in education.

REVIEW of the LITERATURE

Many studies investigated teachers' attitudes toward the use of technology and their anxiety about using technology. These studies were particularly important because a teachers' attitude about computers and related technologies could positively or negatively influence their students' attitudes toward technology (Sheingold & Hadley, 1990; Bielefeldt,2001;Bolick, Berson, Coutts, & Heinecke 2003;Dexter.,&Riedel,2003).A number of studies and reports revealed that both new and veteran teachers felt inadequately prepared to use computers in their classroom (Bosch & Cardinal, 1993 ;Topp,Mortensen &Grandganett, 1995).A study of elementary teachers in a Cincinnati teachers college indicated that, the more computer experiences a teacher had, the greater the indication that the teacher would feel comfortable and have positive attitudes toward technology (Akbaba & Kurubacak, 1998 In the past, studies have shown that many teachers are struggling to make efficient and effective use of today's technologies (Planow, Bauder, Carr, & Sarrar, 1993). Many teachers often did not have favorable attitudes toward the effectiveness of technology, even when it was viewed as an effective instructional strategy (Akbaba & Kurubacak, 1998).

The Educational Testing Service (ETS, 1999), indicated that, when properly used, computers can serve as important tools for improving student achievement. This report also indicated that, when computers are used to teach higher-order concepts and when teachers are trained and direct students to such applications, computers are associated with significant gains in math achievement as well as improvements in the social environment of the school. Additionally, this study found that, when computers are used for drill and practice, computer use is unrelated to achievement and, in some cases, can be harmful.

The literature shows a significant difference between the attitudes of teachers toward technology and the expectations of the public and professional organizations (Bosch & Cardinale, 1993; Cuban, 1986**;** Planow ;Bauder.,&Sarrar,1995).

Diem (1982) reviewed several training models for innovative technologies. Wells and Bitter (1982) appeared to offer the most comprehensive approach to the introduction of computers in education.

Rogers, Moursund, and Engel (1984) pursued the magnitude of the teacher training effort necessary to attain the goals of computer education for teachers. Seidman (cited in Krysa, 1998) has conducted a study into issues surrounding teacher training and its relationship with the successful implementation of computers. Along with the statistical analysis, Seidmen found that the handwritten comments by teacher respondents "overwhelmingly expressed a need for teacher training on basic computer skills". The Office of Technology Assessment Report(OTA) (cited in Geisert and Futrell, 1995) was written for the U. S. Congress to provide federal policy-makers an information base for making long-term decisions about computers in education. The OTA Report stated that technologies had the potential to enrich the teaching and learning process but only under certain related conditions:adequate teacher training in the skills needed to operate the technology a clear vision and understanding among educators of state-of-the-art development and applications support for experimentation and innovation time for learning and practice .

Yaşar (1997) proposed a model to expand the effective use of computers in middle and high schools in Turkey. Observations and interviews conducted in K-12 schools in Arizona, USA, were used to collect relevant data that might be used in locating, constructing and refining this model. One of the questions that would be useful in addressing the main purpose was so; What are the best ways to train teachers in computer skills?.

SOME APPLICATIONS and MAJOR PROBLEMS on USING INSTRUCTIONAL MEDIA and COMPUTER in DEVELOPING COUNTRIES

When computers are used for education in developing countries, it is to be hoped that the most recent developments in the technology can be immediately applied, so that the history of the development of hardware and software, including the mistakes made, will not be needlessly replicated in other countries. In addition to the limitations and problems mentioned in the discussion of the history of educational computing in the United States, there are some additional constraints that are more pertinent to implementations in other countries that may stand in the way of rapid dissemination of the technology in the developing world. The major constraints have to do with the environment, power requirements, human resources, curriculum and pedagogy, and finances with financial concerns being closely related to all the other constraints.

The lack of human resources is another concern. There will be a need for trained operators (or for hardware and software that can be used effectively by untrained personnel) and for trained maintenance personnel. In many countries, neither kind of human resource is available, so training will be very important.

The consequence of technological underdevelopment of the developing world is an obvious cause of failure in industrial fabrications for domestic educational media. In turn, the situation leads to high import dependency. It is not surprising, for example, that in many developing nations school materials such as laboratory equipment, chemicals, audio/visual materials and sometimes even paper are imported. The recent global economic recession is magnified in the economies of developing nations. As a result, education in developing countries suffers cuts more than any other sector merely for the simple fact that it **is** always falsely considered as a non-producing sector. When budgets are so tight and priorities are difficult to define, media materials have always become most vulnerable. In turn, that incapacitates proper functioning of the school systems in general, and in particular, the teaching/learning process.

TEACHER TRAINING for COMPUTER EDUCATION and COMPUTER ASSISTED EDUCATION(CAE) in TURKEY

In the 1930s,Turkish schools had teaching materials such as maps,laboratory equipments,and film strip projectors for instructional use.Until the 1940s,mostly printed instructional materials were used in schools.Between 1950 and 1970 ,schools had technologies such as audio cassettes and overhead projectors.Distance education was first introduced to students in Turkey in 1974.During the 1970s,several new teaching materials were provided for schools and introduced to teachers.In addition,some big universities started to offer graduate programs aimed at training professionals in the field of educational technology.Though some of these traditional technologies are still in use to prepare students,educational polocy makers in Turkey belive that schools must give students the knowledge and the skills they will need in the future.Because of this,computers have gained more importance than any other educational technology.

To identity opinions of key policymakers about present and future of information technology, 15 interviews were conducted in the Ministry of National Education in Turkey. Most expressed the view that the Turkish education system was not ready to incorporate instructional technology, the biggest obstacle being the lack of teacher preparation.Akkoyunlu and Orhan (2001) determined that, in Turkey, computers can creat better teaching and learning atmosphere in school as long as teachers are trained well, motivated enough, assisted, and supervised effectively.

Although one of the main components of CAI project (1984) was training of teachers for computer assisted instruction (Yedekcioglu, 1996; Yasar, 1997), selected teachers were not trained in an adequate fashion. To take part by training teachers in programming and computer literacy, in 1989, the Ministry of National Education(MONE) invited some universities.

According to the Turkish Ministry of National Education (MONE) (MEB, 1991); teacher sufficiencies for CAE were the following:

- *General sufficiencies:*

Basic skills for computer literacy
Recognition and evaluation the course-wares Using the course-wares in the lesson Guiding to their students for using the course-wares.

- *Special sufficiencies:*

Communicate with course-ware experts for developing course-wares related to their expertness area.

Developing the course-ware scenarios

Yedekcioglu said (1996) that CAI application were started twelve years ago, computers have not been integrated into the curriculum as desired, and lack of sufficient amount of computer literature teachers was the one of main reasons of this situation. The World Bank Supported project, called “Project for Globalization in Education 2000” was very important for Turkish Education System and through this project, new computer labs were established in the primary and secondary schools and the technology classrooms were constructed and to make “teachers computer literate” was the one of the basic principles of this project.

Computer Experimental School (CES) Project and Teacher Training in Turkey

In Turkey, by the middle of 1995, a draft of specifications including staffing needs and training outlines was complete and by the end of 1995 year, firms which were to provide hardware and software to the school had been selected and the Computer Experimental School (CES) project was a dynamic example of the country’s commitment to opening up educational opportunities to a wider population and accelerating the development of human capital to support the acquisition of a whole new set of twenty-first century skills.

Two hundred schools were equipped to work as curriculum laboratories, to test the new curricula and teaching materials, and 53 schools were identified as Computer Experimental School (CES), where information technology would be integrated with the teaching-learning process to facilitate education.

The computer laboratories in the pilot schools were used regularly, some intensely**.**By now, approximately 250 teachers have been trained in the use of computers and educational software. A computer laboratory provides the authoring system for teachers. The CES model was being adopted by some of the non-CES .Trained teachers from the CES were actively involved in helping to equip laboratories and train staff in similar voluntary projects in non-CES .

The project also needs to address the problem of workload of the teachers who were trained to be formators, or teacher trainers, for the CES schools (Schware & Jaramillo, 1998).

Since 1985, in-service training programs have been provided to develop teachers' skills in using computer and computer assisted teaching methods. This new application was called "Formator Teacher" training and used a "train the trainer" approach. The aim of this program was to train in-service teachers as computer teachers. The training took place in various universities in Turkey and the number of Formator Teachers trained had been approximately 4,500 .

Training Formator Teachers is an imperative transformation action for Turkish educational system, but the number of current Formator Teachers is not enough. Until the needed number of Formator Teachers is reached, technical education facilities of several universities have started computer-teaching departments that graduate computer teachers for the system.

Within the framework of reconstruction of educational faculties, "Computer" and "Instructional Technologies and Material Development" courses are part of compulsory teaching certificate courses in all teacher education departments. The aim of this new arrangement is given as follows in an HEC (Higher Education Council) report:

"It is aimed that via these courses the teacher candidates be familiar with and capable of using technologies as computer, Internet, multimedia, television, video, and projection equipment. Thus the future teachers are anticipated to know the technology and apply it efficiently in instructional settings” (Akkoyunlu & Orhan, 2001).

Initial aims of Department of Information Technology in Education (DITE), which is running the CES Project, relate to evaluation, maintenance, curriculum and training. The ultimate goal is increased interaction among schools through services like e-mail and computer conferencing, plus access to online databases and electronic bulletin boards. These aims can be summarized as follows:

- *Evaluation and Maintenance Goals and Functions:*
  Exchange e-mail about problems and solutions found during implementation. Send formal evaluation forms to teachers and administrators to complete and return.
  Monitor CES implementation via e-mail questionnaires and online meetings.
  Maintain a help-desk by e-mail to help schools solve technical problems.

- *Curriculum Goals and Functions**:***
  Cooperative project work among national schools and schools abroad.
  Teacher and student access to multimedia resources.
  Establish student news and information bulletin boards.

- *Training Goals and Functions:*
  Teacher training via distance learning.

Provide links among educators at all levels for professional development.
Distribute news and information from DITE in the form of a bulletin.
To achieve these goals, the 53 CES schools were being equipped with necessary hardware and software. The PCs in a CES laboratory at each school were locally networked (LAN) as interconnected with the others by a wide area network (WAN), which also provided access to Internet.Yedekcioğlu(1996) said that such a network should provide the basis for collaborative learning and research, for world-wide communication to enrich the curriculum and supply online help for teachers, for data world-wide communication to enrich the curriculum and supply online help for teacher collection and numerous other opportunities (Usun,2000).

CONCLUSION

Teachers are key personnel in the integration of computers in instructional situations and in the adoption of all other innovations in school. Hardware, software and teacher training are the three components of computer assisted instruction and all these components depend on each other. Millions of dollars have been invested in software and hardware but teacher training, which is very important issue in CAI, has been ignored. But we know that only when teachers are trained on how to teach using computers appropriately will CAI have the greatest impact on student learning.

In order to computers to be used effectively, teachers must have at the very least minimal expertise in computer education and CAI. The appropriate level of expertise may come from formal in-service or pre-service teacher training.

It is important that teachers focus on programming as a feasible educational tool. They need not program the software to be used because they can always depend on the technical support. However, they can use the activity of programming as part of the learning resources they offer their students. In addition the ability to use certain basic tools such as the word processor, database systems, and plotting systems, provides both teachers and students with a feeling of control over the technology.

The literature shows a significant difference between the attitudes of teachers toward technology and the expectation of the public and professional organizations. Teachers need support and training to positively integrate technology into their classroom. Many studies have shown that there is a positive relationship between the use of computer technology and the effectiveness of teaching and learning.

According to the findings of many studies in the related literature; pre-service training of education students and in-service training of practicing teachers are the most important issues for the computer education of teachers. Many studies have shown that the teacher training should not be limited to teachers who teach computing and training all teachers on the educational use of computers gain special importance when considering integrating the computer into regular curriculum. The literature shows that teachers are unprepared to use computers in their classrooms and they lack support and educational guidance and teachers will need continuing in-service programs as technology changes. They are central to the implementation of computers in the classroom and essential to teacher training is drawing a link between technology and pedagogy. According to the findings of some studies in related literature, teachers' use of technology was related to their training and preparation and standalone courses in instructional technology were not sufficient to prepare future teachers to use computer technology. Integration of technology applications within existing teacher preparation courses was most desirable and had a greater effect on use of computer technology in practice.

Turkey, a developing country, has several serious problems in the application of in-service training programs aiming to train teachers how to use new technology effectively. Pre-service teacher training programs at the universities also have several inadequacies. For more effective solutions, special attention should be paid to revising and updating the curricula, equipment, and educational materials on a permanent basis in facilities of education. Moreover, qualified manpower requirements should be met especially in using new technology effectively. In Turkey, as long as teachers are trained well, computers can create better teaching and learning atmosphere in schools (Akkoyunlu & Orhan, 2001).

Although the computer assisted instruction applications were started about 20 years ago, computers have not been integrated into curriculum as desired, and one of the main reasons was the lack of sufficient amount of computer literate teachers.In Turkey, since 1985, in-service training programs have been provided to develop teachers' skills in using computer and CAI methods.

The World Bank Supported two projects named "Computer Experimental School (CES)" and "Globalization in Education 2000" were very important for Turkish Educational System and to make teachers computer literate was one of the basic principles of these projects. Although the Turkish Educational System requires teachers who technologically equipped and knowing the technology and applying it efficiently in instructional settings, she has much major problems on the teacher training for computer education and computer assisted education; these major problem areas are the following:

Although the main project in Turkey was called a CAE project, it has only been able to achieve a minimum subset of International Federation for Information Processing (IFIP)' reasoning for the use computers in education. It is hard to describe it as computer-aided education (Yedekcioglu, 1996).

Although the CAE applications were started about 30 years ago, computers have not been integrated into curriculum desired.

Low economic and technological development; lack of governing policies; excessive population growth and political instability are the most important and general problems to train teachers for CAE in Turkey.

The poor planning for CAE has played an important negative role. The need to train teachers at teacher education colleges and the need for in-service was discovered rather late.

Pre-service teacher training programs for CAE at the universities also have several inadequacies.

The number and quality of current formator (computer literate) teachers are not enough, so, this is an important problem on the in-service teacher training for CAE in Turkey.

SUGGESTIONS

To train teachers ,effectively, for computer education and computer assisted education(CAE) in Turkey,our some suggestions are the following;

1)Firstly, the computers must be integrate into curriculum as desired

2)Pre-service teacher training programs should be applied in different universities.

3)The number and quality of formator teachers should be increased **.**

4)In order for computers to be used effectively, teachers must have at very least minimal expertise in computer education and CAI. So, the appropriate level of expertise may come from formal in-service or pre-service teacher training.

5)It is not sufficient that teachers should know and use these technologies for a successful computer education and CAI applications. If computers are to be effective tools for learning, each teacher must be trained how to use computers efficienty and fruitfully in the teaching-learning process and how to use computers in his or her classroom.

6)Training programs must not only be designed for teachers to improve their skills with computer technology but also help teachers change their attitudes toward the use of computer technology.

7)Pre-service training of education students and in-service training of practicing teachers are the most important issues for the computer education of teachers. So, the technology applications must be integrated to the existing teacher training programs in Turkey.

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