

Integration of Computer Technology into Turkish Early Childhood Curriculum

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Abstract: It has become a great concern about how children may be affected and how teachers should use computers in their classroom activities effectively with the increased role of computers in early childhood children's learning. It is important to consider how it can be used more effectively integrated into early childhood curriculum since technological device are widely used to maximize the learning activity. In this research, it is investigated how technological tools can be integrated into the pre-school curriculum. A qualitative research design and a descriptive case study approach were used to collect data from 20 kindergarten students and a kindergarten teacher via interviews and observations. This study presents three examples to illustrate how early childhood teachers integrate technological tools into curriculum to enhance young children learning. The results show that there is an emphasis on certain essential points so as to assist kindergarten teachers to exploit technological tools in their learning environments.

Introduction

Technology has a significant role in all aspect of human life. Heinich (1999) states that using media and technology in education have many influences to enhance children's learning. Specifically, computers present many facilities to improve the learning process in instructional settings. However, the integration of different media into this process is still on the responsibility of teachers (Heinich, 1999). Teachers have critical role in using technological devices, choosing acceptable software, and observing children to make developmentally appropriate learning practice. (NAEYC, 1996). Researches about how to use technology in learning environment might be beneficial to share those responsibilities of teachers.

There are some pretensions for improving student achievement and teacher quality with emerging technologies. Diverse usage of technology in early childhood curriculum effects achievement of children (Gimbert & Cristol, 2004). On the one hand, National Association for the Education of Young Children (NAEYC), and High Scope Foundation strongly support computer environment in early childhood education and they believe that technology enhances children's learning and development (NAEYC, 1996; Hougland, 1997; Hogman, 1990; cited in Isikoglu, 2002 p, 2). According to Landerholm (1995), preschools should give more importance to 'providing a guidebook software' for young children education than computer hardware. Providing software choice is important for children satisfying their interest (Landerholm, 1995). In addition, using technology in kindergartens improve children's social interaction and language skills (Clement & Nastasi, 1993, Isikoglu, 2002). However, there are some against beliefs about computer usage in early childhood education. One of them is that using computer in learning activities is very limited for young children to construct their knowledge with manipulating. Isikoglu (2002) states that all of the materials being used in early child education can be well used or misused by the instructors, administers, or students. Therefore, in order to integrate the computer technology into early childhood curriculum, it is needed to conduct more researches about how to use technology in young children education.

Lau, Higgins, Gelfer, Hong, Miller (2005) were investigated the impact of teacher facilitation on the young children's social interactions during computer activities. The sample was two groups of children with and without disabilities who received teacher facilitation during computer activities and children who did not receive teacher facilitation. In the analysis, the teacher's impression, children's social skills and interactions were considered. Children exhibited few negative social interactions to the detriment of their age, disability status, or intervention group assignment. In the teacher-facilitated computer group with and without disabilities children demonstrated

more effective social behaviors and had positive social interactions more than the children in the computer-only group.

Children's developmental levels relate to their information requirements (Kuhlthau, 1988). According to Lui (1996), the age of using computers for young children can be reduce as young as three years old. Cooper (2005) investigated the digital environments for young children. There are some criteria for the using developmentally appropriate digital environment. These criteria are supporting the child as a unique individual, being open ended rather than close-ended, being active rather than passive, involving multiple sense, encouraging exploration, experimentation, risk taking, critical thinking decision making and problem solving (NAEYC, 1997, Haugland, 2000, Clement&Samara, 2002, Cooper 2005) It is argued that whether computer use contributes to damages the education of young children. According to Cooper, it the criteria are considered when designing materials for young children, the answer of this question is positive. For extending learning possibilities of young children, digital environment is just a tool. An appropriate digital environment provides assisted vehicles for children's learning.

Schwall (2005) was interested in student's creative activities on the computer. He suggests that if computer play activities combine children's imagination, it can be powerful learning tool. According to researcher, when children play the computer, they should be freedom to explore, and they can able to master the technology.

Djarf, Bengtsson, Ottoson, (2005) investigated teachers' ways of relating to computer as a tool in pre-school activities and described the learning environments at the pre-school unit visited focused on computer use. Results of the study described three identified learning environments. First, protective learning environment is where the teachers related to the computers as a threat the other activities. Second, the supportive learning environment is that the computer is used the available options. And the study described the last learning environment as guiding where the computers apply is a necessary part of pre-school activity. In our study, the guiding learning environment is used to develop research environment.

A dramatic increase was observed in availability of computers in educational settings (Isikoglu, 2002). Likewise, technology usage increases in early childhood classrooms. However, computer in pre-school setting was not commonly used in Turkey last ten years. There are not enough computer equipments in almost all schools for children's usage. Turkish pre-school curriculum does not include computer for using children's learning activities. Computers are commonly used for administrations activities instead of students' learning activities in Turkish school. There are some reasons the lack of technological application in kindergartens curriculum (Turkish Ministry of National Education, MEB, 2006). The reasons are based on some criteria providing educational materials for the learning activities in pre-school setting. It is considered that materials should be economical, multipurpose, and actively participates in the classroom activities for all children. Other considerations of Turkish Ministry of National Education in selecting appropriate materials are that they should be constructed, interesting for children, healthier, harmless, practical and easy usage. Computer as an instructional material includes some of these properties, however, the most important disadvantages that it is an expensive. Hence, that is a not suitable material according to criteria of the Turkish Ministry of National Education for selecting appropriate instructional material in pre-school settings. However, in the close future, public pre-schools settings will be belongs to technological materials for children's learning activities with government's contribution.

Cognitive, social, physical and emotional domains are covered children developments. Each domain is bound with each other for the young children development. For instance, the development of speaking activities is cognitive domain ability. Additionally, this ability includes understanding and language knowledge. Furthermore, the controlling of mouth muscles and breathing is a necessity for children's speaking well and this controlling physically describes physical domain. For the social domain, to socialize the other people, children must speak. And the finally, to built relationship and emotional trust, children again must communicate, so it includes emotional domain. Thus, each of the domains influences the other, and these stages place other stages (NAEYC, 1997). In our study, we developed three activities, which include these four domains to integrate the computer in kindergarten curriculum.

Obtaining computers in schools does not mean that children use computers actively in their learning activities (Clement, 2002). Classroom teachers need support to integrate technological tools into their activities (Gimbert, & Cristol, 2004) with becoming widespread use of technological devices in pre-schools classrooms. Thus,

in our study, the research question is how can the technological devices be integrated into early childhood curriculum to enhance students' learning activities?

In this study, once it is considered how to improve kindergarten children's learning activities by using technology and it is investigated how the computer technology is integrated into Turkish early childhood curriculum. The sample is selected among the schools, which have computers using for learning activities. This study is important to become a guide for the nearest future teachers in Turkey, and try to describe how the teachers should be used the technological environment in the classroom settings.

Method

In this study, it is aimed to present three examples to illustrate how early childhood teachers integrate technological tools into their curriculum to enhance young children learning. Gimbert et. al. stated that kindergarten teachers are supported by technology to be able to plan and design effective learning environments. Therefore, to facilitate students' learning, teachers need to professional development opportunities that include learning methods and strategies for integrating technological tools into their curriculum (Gimbert et. al., 2004). Thus, some of these strategies to help the teachers were developed in this study.

Qualitative research method was used in this study. This research method need to detailed thick description, inquiry in depth (Frankel & Wallen, 2005). This study also need analysis deeply peoples personal perspectives and experiences. In addition, according to Frankel and Wallen (2005), researcher has direct contact with and gets close to the people and situation; and researchers' personal experiences and insights are important. Therefore, results of this study base on researchers understanding of the environment and people. Descriptive case study approaches was used to collect data. Case studies include systematically collecting needed information about a particular person, social setting, event or group in order to understand subjects' practices. For the sampling, it was selected a kindergarten where computers are used very effectively in the classrooms. Criterion sampling method was used in order to meet information-rich subjects. This study involved 20 kindergarten students and a kindergarten teacher.

The period of collecting data continued two semesters each of which are 4 months. In the middle of the year, there is a semester holiday. Researchers participated actively the classroom activities with classroom teacher together. During approximately two months, researchers become acquainted ice-breaking activities with children. Then, researchers started to collect data. In the introduction period, researchers made also observation and unstructured interview. Data collecting method includes three activities. Activities were prepared by researchers in the classroom teacher's guidance.

Activity One

In the first activity, teacher wanted to create a computer model from children as using all materials in the classroom. These materials might be paper, paperboard, box, pencil etc. When the activity were being existed by children, teacher's role was just guidance, and role of researchers is observing and data collecting. Researchers also took some field notes and used voice recorder.

Activity Two

In the second activity, children were separated two groups by classroom teacher. Using their own bodies, teacher wanted to create a computer figure in the each group separately. The figure of the computer demonstrations should like a photograph square. When the first group demonstrated their computer model, other group watched them and teacher took their photographs. Also in this activity, teacher is guidance, and researchers are observer and data collector. After the demonstrations, children sat down as a circle form. Teacher asked to students one by one which part of the computer children did and which of the roles of this part of computer is. Students moved on the circle in order as volunteer and said their roles. Then, teacher asked the children how yours feeling is and then asked whether there is another person who wants give an answer.

Activity Three

The third and last activity for the collecting data is a drama approach. In this activity, there was a scenario is prepared by researchers for the children who will demonstrate it. The classroom teacher narrated the scenario. This scenario is given below.

Scenario

Suzan has a computer at home but her father does not allow using computer at home. Suzan feel sad because of unable to use computer. She enjoys using computer and wants to give permit from her father to use computer. Now, Suzan needs your help. Could you help her to be able to use computer?

Why Suzan's father does not allow Suzan to use her computer?

How can we persuade Suzan's father to provide that Suzan may use her computer?"

Volunteer children form a group by classroom teacher and play the scenario. And all children discussed the Suzan's problem. In this activity, teacher is more than guidance and coordinates the roles and gives some clues for the story, and researchers are observer and data collector.

Discussion

The first activity children draw a picture on plastic plates with pastels. According to results of the teacher interview, computer is an important tool for children learning environment, however, children need to exposure other activities more. For example, in their curriculum, for their physical and motor development children should draw a picture. In the first activity when children draw a picture, the teacher could understand the meaning of computer in children overview. Some children draw a monitor instead of a desktop computer. There was a misunderstood in the meaning of computer. In addition some of the children draw a picture like a type recorder and some of them did not want to draw. The teacher stated that it means these children do not like the computer. The first activity showed the importance of the computer for children. Also it shows some of the misunderstanding and gets a chance for the teacher to correct those misunderstanding further learning of children. In this activity, children use cognitive, physical and emotional domains together.

In the second activity, teacher asked to students how we could create a computer figure. Students talked about their opinion separately. Children decided that parts of a computer can be illustrated by one student. Student did not want to create two groups. Some of the children wanted to show a figure and actively participate in the activity; and remained of them as audience. One of them was showed a number table which on the wall and they are decided to use this for monitor. In this activity children also used social domain. In addition, they can learn parts of the computer and its functions. In this activity, it was observed the gender differences in children's interests.

In the last activity, the teacher showed another problem for children's using computer. The children spend too much time at the computer. Therefore, it may lead some. Scenario was narrated the children. Then children wanted to demonstration this situation. In this activity, they discussed using computer for their experiences. Using computer excessively is an important issue for children. In addition, some children said that also they live such a situation at home across their parents. In this discussion, children said some prevention for misusing computer such as excessive using, their parents' promises, and communion the computer activities with their children and their sisters or brothers. In the last activity children could use four domains at the same time, cognitive, social, emotional by discussing and physical domain by demonstrate the scenario.

Conclusions

Using technology in early childhood has some challenges for teacher. According to results, students are desirous when they use technology, especially computer. However, teachers have some complaint in this issue such as excessive usage, addiction on some software, some health problems. Thus, teachers implied that using technology in kindergartens need to more documentation, information about physical and psychological health issues, and qualified software. In this research, there are some limitations. One of them is that the study limited only one kindergarten. In addition sample was small, but the interviews with teacher were comprehensive and duration of

observation was long. In the results, we get answer the question what the teachers roles, using technology in classroom. That is the contribution of using computer in kindergarten curriculum.

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