Evaluating the Opinions of the Preschool Teachers on Computer Assisted Education

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Abstract

Preschool education is highly important for pediatric development. During this period which covers 0-6 age, a child develops rapid physical, mental and social developments. Child's acquaintance with computer before school age is highly important. The purpose of this study is giving the opinions of the preschool teachers on computer assisted education. In this study, one of the qualitative researching methods, content analysis, and semi-structured interview forms are used to collect the required data. The participant group of the study consists of 33 preschool education teachers who are working in Sakarya. The data of the research are tested through reasoning analysis. The opinions of the preschool teachers on computer assisted education are examined within 8 themes and results are presented according to the gathered findings. The participant teachers indicated that computer assisted education is useful as it provides visual-audial abundance, interesting points and also develops hand-eye coordination. The teachers indicate that they use computer software actively in most activities in preschool education.

Key Words

Preschool Education, Computer Assisted Education, Teacher Opinions.

Preschool education period is a highly important period in individual development. Especially, a high ratio of mental, physical and social development takes place in this period and this situation makes this period more meaningful (Grotewell & Burton, 2008). Preschool education is crucial for a preparation to youth and adulthood and also it is important on its own. So, childhood must be perceived as a separate period more than being a preparation period to adulthood in life (Oktay, 2007). Preschool education can be defined as an education period that occurs between 0 and 72 months with convenient developmental stages and individual features, providing abundant stimuli and a nice environment, helping children in developing emotionally, mentally, socially and physically and leading them to cultural assessments of society, preparing children to primary education and meanwhile a part of basic education integrity (Gürkan, 2002). It can be possible to increase the education quality of children with careful efforts in this area. Thus, it is a need to qualify children's education, developing and learning life from the very beginning of preschool education (Tuğrul, 2002).

The use of computers in preschool education is not an old concept. The computers we can see in every part of life are the most important technological devices of our century that contains all intellectual reservoirs (Altun, 2005). It encounters 1960s that computers involve in education and the concept of Computer Assisted Education (CAE) appears. At these times hardware was more important than software, but with time this concept changed and software became more important (Akkoyunlu,

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2003). In general, the use of computers in teaching-learning process can be divided in two; with a teaching role and a learner role (Çakır & Yılmaz, 2009). The discussion that at what age children should encounter with computer was just started with the involvement of computer in education. There are so many opinions and discussions on this point. Most of educators support that children should face with computers in preschool periods. Because, in this period children are more enthusiastic to discover new equipment and devices they see (Yaşar, 2004).

With the help of computers children's creativity and critical thinking develop and they can easily communicate and co-operate in reaching the targets. This co-operation helps children in their social development (Haugland, 2000). The usage of computer in preschool education gives computer skills to children and besides, it gives the chance to know adult's life in a more realistic way. The child who understands technology in early ages will not have a fear of using computers and s/he will develop a self-control mechanism (Yaşar, 2004). When an educational environment is prepared, computers are one of the important devices. Having other needed hardware and CAE software is an important point. It can be said that the inadequate hardware and software in educational institutions will hinder in succeeding the aims of CAE.

While choosing CAE software in preschool education, we must be careful in these points; (*i*) the language of software must be Turkish. (*ii*) The software must be designed according to opinions of experts in assessment and evaluation, development and preschool education. (*iii*) The colours used for designing must be designed in a way that captures the attention of children. (*iv*) The animations, objects that used in software must be convenient to children's level. (*vi*) Software must be in a quality level that get the attention of children and motivate them to interact with CAE. (*vii*) The software must be effective in tending the children to the point they will learn. (*viii*) Instructions used in software must be given audibly with an approach that children might be illiterate. (*ix*) Software must be designed in a form that they can use without getting help of an adult. (*x*) They must be designed in a form that enthusiasts and excites the children with its visual and audial stimulus as a natural need of CAE.

So many researches have been carried out about computer assisted education in preschool education in Turkey and in the world. When these researches are examined; it is revealed that CAE has useful effects in preschool education, and researchers offered the effective use of CAE in preschool education. (Akkoyunlu & Tuğrul, 2002; Alabay, 2006; Coşkun, 1990; Couse & Chen, 2010; Crawford, 2000; Çekbaş, Yakar, Yıldırım, & Savran, 2003; Davis & Shade, 1994; Demir, 2007; Fish et al., 2008; Haugland, 1992; Hoot & Kimler, 1987; Huffstetter, King, Onwuegbuzie, Schneider, & Powell, 2010; İliş, 2006; Kacar, 2006; Kulik & Drowns, 1985; Macaruso & Rodman, 2011; Öztopçu, 2003; Panagiotakopoulos & Ioannidis, 2002; Pekçağlıyan, 1990; Rubin, Fein, & Vandenberg, 1983; San & Arı, 1988; Sancak, 2003; Sandberg, 2002; Sprigle & Schaefer, 1984; Todman & Dick, 1992).

The aim of this study is to set down the opinions of teachers about the use of CAE in preschool education. In order to fulfil this aim, the answers of the following questions are examined; (*i*) what is the general opinion of preschool teachers about the use of CAE in preschool teaching? (*ii*) What is the general opinion of preschool teachers about the software designed for CAE? (*iii*) How often preschool teachers use CAE software and in which activities they use the software? (*iv*) If preschool teachers do not use computer software, why they don't use?

Method

In this part; the information about research model, participants, data collecting tools and data analysis were given.

Research Model

This research is a qualitative research that aims to determine the opinions of preschool teachers about computer assisted education. In this research, content analysis, which eases generalization of data, is used for determining conceptual and inter-conceptual relationships beyond data on the basis of qualitative coding (Yıldırım & Şimşek, 2005).

Participants

The participants are 33 preschool teachers who are working in preschool departments of primary schools of Sakarya city in 2010-2011 education term. The participants have voluntarily been chosen and they work in different primary schools in Sakarya province. All of the teachers work in state schools with preschool students under the age of 6. Among the participants, distribution according to their education level was given in graphic 1, distri-

bution according to their teaching experience is in graphic 2, and their ages were shown in graphic 3.
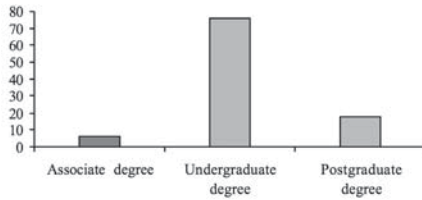
Graphic 1.
The Education Level of Participant Teachers

Basically, 6% of teachers have associate degree, 76% of them have undergraduate degree and 18% of the teachers have a postgraduate degree**.**
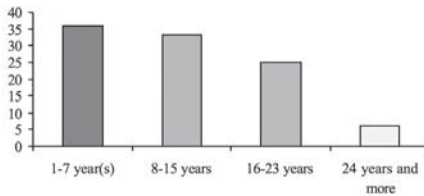
Graphic 2.
Teaching Experience of Participant Teachers

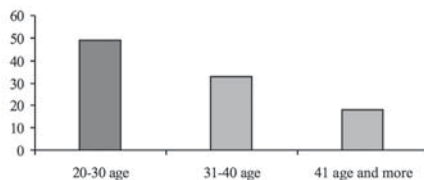36% of teachers have experience of 1-7 years, 33% of them have 8-15 years, 25% of them have 16-23 years' experience of teaching. 6% of teachers have experience of more than 24 years.

Graphic 3.
Age Distribution of Participant

49% of teachers are 20-30 years old , 33% of them are at 31-40 age range, 18% of them are 41 and more.

Data Gathering Device

In this study, as data collection tools semi-structured interview forms have been used. It is possible to determine experiences, attitude, ideas, intentions, comments, mental perceptions and reactions within an interview process (Yıldırım & Şimşek, 2005). Before preparing interview questions a broad literature research was conducted on the topic of study and also other studies concerning the topic were examined. Based on the literature review the bases of the study were formed. The questions prepared for the study were debated with three academics and four preschool teachers, and some rearrangements were done according to their advice. After this process, the interview items which would be in the form were decided. There are four questions in the interview form and they are as stated; (*i*) What are your opinions about computer assisted education in preschool education? (*ii*) What are your opinions about the computer software which is prepared for preschool education? (*iii*) How often do you use the computer software which is prepared for preschool education and in which activities do you use them? (*iv*) If you don't use the computer software which is prepared for preschool education, what are your reasons for not using it? In data collection process, teacher views were noted down and saved. The interview with each preschool teacher lasted for 35 minutes and the whole study lasted for almost 7 weeks. As a part of nature of qualitative studies, the generalization of collected data is not aimed.

Data Analysis

The reasoning analysis was used in this study. In reasoning analysis, data are coded, themes are determined, data are arranged according to codes and themes and a definition is given and lastly findings are interpreted (Yıldırım & Şimşek, 2005). All the gathered data of the study from interview forms were transferred to the computers and the coding process was carried out. After coding process, all the codes brought together and the common points were found, the basic themes of study were put forth. The validity of qualitative studies depends on researcher's objective attitude to findings and examined topic (Kirk & Miller, 1986). Within the frame of validity of the study, the convenience of findings with the academic environment that it held in was examined, the clear presentations of events and phenomenon were provided, any expected fault was held with an attitude of removing the fault and correcting the code. To enhance the solidity of study, the categories and themes found out were examined by two other academics of same university who are expert in qualitative studies and the disagreements on common themes were removed, and they reached a consensus on found themes and codes.

Results

In this part, the findings from the preschool teachers' opinions on CAE were presented. In data analysis, as some participants gave more than one answers, total frequency is more than the number of participants. Study findings; (*i*) The opinions about necessity of CAE; (*ii*) The opinions about benefits of; (*iii*) The opinions about harms of CAE; (*iv*) The opinions about the limits of CAE; (*v*) The opinions about the convenience of CAE software with preschool education; (*vi*) The opinions about the activities in which CAE software is; (*vii*) The opinions about how often CAE software is used in preschool education; (*viii*) The opinions about insufficiency of CAE software in preschool, these are 8 themes that handled in the study. In table one there are findings on preschool teachers' opinions about necessity of CAE.

Table 1.
Distribution of The Preschool Teachers' Opinions on the Necessity of Computer Assisted Education

Codes	η	%
1- To increase the quality of education	24	40
2- To be age of computer and technology	16	27
3- To be curious on computerized training	12	20
4- Be open to learning with computer	8	13
TOTAL	**60**	**100**

When we look at the table 1, 40% of the teachers think that CAE enhances the quality of education, 27% of them think that it is technology and computer era, 20% of them think that it contributes to education that children are enthusiastic to CAE, 13% of the teachers think that the CAE is a need and the children's attitude CAE is positive. In table 2, there are opinions about the benefits of CAE.

Table 2.
Distribution of The Preschool Teachers' Opinions on the Benefits of Computer Assisted Education

Codes	η	%
1- Wealth of audio-visual	20	30
2- Be interesting	16	25
3- Hand-eye coordination development	11	16
4- Permanent learning	5	8
5- Personalizing learning	4	6
6- Giving time to teacher	4	6
7- Positive motivation	4	6
8- Attention gathering	2	3
TOTAL	**66**	**100**

When we take a look to the table 2, 30% of teachers think that CAE contribute the education environment with visual and audible abundance, 25% think CAE makes education more interesting, 16%

of them think that CAE contribute in hand-eye co-ordination, 8% of the teachers think that CAE provides a permanent learning, 6% think that it makes education more individual, 3% of the teachers indicate their opinions that CAE gets the attention of children. In table 3, there are the opinions about the harms of CAE.

Table 3.
Distribution of The Preschool Teachers' Opinions on The Harms of Computer Assisted Education

Codes	η	%
1- Being antisocial	12	52
2- Unconscious use	8	48
TOTAL	**20**	**100**

When we look at the table 3, 52% of teachers think that extra use of CAE makes children anti-social and other negative behaviours, 48% of them indicate that unconscious use of computer harms the children. In table 4 there are opinions about limitation of CAE.

Table 4.
Distribution of The Preschool Teachers' Opinions on The Limitations Computer Assisted Education

Codes	η	%
1- The need for adult supervision	6	60
2- Limitations in communication	4	40
TOTAL	**10**	**100**

When we look at the table 4, 60% of teachers think that children should use CAE activities under the control of adults, 40% of them indicate that inter-action with children causes the limitation. In table 5 the opinions about the convenience of CAE software in preschool education were given.

Table 5.
Distribution of The Preschool Teachers' Positive Opinions on The Suitability of Computer Assisted Education Software for Early Childhood Education

Codes	η	%
1- The design is appropriate to the level of the child (colours, objects, in terms of animation)	27	47
2- The child's level of compliance in terms of content	19	33
3- The goal achievement is appropriate	11	20
TOTAL	**57**	**100**

When we look at the table 5, 47% of the teachers think the prepared software is convenient for pre-school education, 33% of them think that in terms of content, the software is convenient, 20% of teachers indicate that CAE is convenient for means-out-comes for preschool education. In table 6, there are

negative opinions of preschool teachers on convenience of CAE software in preschool education.

Table 6.
Distribution of The Preschool Teachers' Negative Opinions on The Suitability of Computer Assisted Education Software for Early Childhood Education

Codes	η	%
1- The design is not appropriate to the level of the child	8	47
2- Content is not suitable for the child's level	5	29
3- Commercial purposed software is built	4	24
TOTAL	**17**	**100**

When we look at the table 6, 47% of teachers say that the prepared software is not conveniently designed for preschool education, 24% of them indicate that the software is prepared with commercial point of views, so it is not informative. In table 7, the opinions concerning CAE software employed in the preschool education activities are shown.

Table 7.
Distribution of The Preschool Teachers' Opinions on Computer Assisted Education Software Contributed Activities

Codes	η	%
1- Riddles, puzzles and matching activities	22	18
2- Activities for the development of the concept	19	14
3- Story activities	13	11
4- Movie show	12	10
5- Art events	12	10
6- Free time activities	11	9
7- Science and nature activities	8	7
8- Music events	7	6
9- Math activities	6	5
10- Reading and writing activities in preparation	6	5
11- Power point presentations	6	5
TOTAL	**122**	**100**

When we look at the table 7, 18% of the teachers say that CAE software is used for puzzle and matching activities, 14% of them say software is used for concept developing activities, 11% of them say that it is used for story activities, 10% of them mention that it is used for movie watching and art activities, 9% say for free time activities, 7% say for science and nature activities, 6% say for music, and the other 5% of the teachers say CAE software is used for mathematics and power point presentations. In table 8, there are opinions about how often CAE is used in preschool education.

Table 8.
Distribution of The Preschool Teachers' Opinions on The Frequency of Computer Assisted Education Software Usage

Codes	η	%
1- From time to time	17	52
2- Each time	7	21
3- Rarely	5	15
4- Never use	4	12
TOTAL	**33**	**100**

When we look at the table 8, 52% of the teachers use CAE software from time to time, 21% of them use always, 15% of them use seldom, and the other 12% indicate that they never use CAE software. In table 9, there are opinions about insufficiencies about CAE software.

Table 9.
Distribution of The Preschool Teachers' Opinions on Computer Assisted Education Software of İnsufficiencies

Codes	η	%
1- Hardware failure	11	38
2- Missing software	9	31
3- Physical impairments	4	14
4-Teacher's improper use of the software	3	10
5- Foreign language software	2	7
TOTAL	**29**	**100**

When we look at the table 9, 38% of the teachers say that they cannot use CAE software because of insufficiencies, 31% of them say their schools do not have the software they need, 14% of them indicate that they cannot use CAE software efficiently because of the physical insufficiency in their school, 10% of them say they cannot use CAE software as they do not have enough technological information, 7% say that they cannot CAE software as it is in English.

Discussion and Suggestions

The researches regarding CAE in preschool education have started to be carried out in the last 30 years. When these researches are examined, it is seen that when traditional education methods are supported wit CAE, we can have positive consequences. The use of CAE in pre-school education is so new in our country. In this study, the opinion of teachers about necessity of CAE in preschool education is clearly seen. The other studies also give similar consequences. (Akkoyunlu & Tuğrul 2002; Alabay, 2006; Coşkun, 1990; Couse & Chen, 2010; Crawford, 2000; Çekbaş et al., 2003; Davis & Shade, 1994; Demir, 2007; Fish et al., 2008; Haugland, 1992; Hoot & Kimler, 1987; Huffstetter et al., 2010;

Kacar, 2006; Kulik & Drowns, 1985; Macaruso & Rodman, 2011; Öztopçu, 2003; Panagiotakopoulos & Ioannidis, 2002; Pekçağlıyan, 1990; Rubin et al., 1983; San & Arı, 1988; Sancak, 2003; Sandberg, 2002; Sprigle & Schaefer, 1984; Todman & Dick, 1992).

The children who face with computers in early childhood get both CAE's benefits and computer skills. We can say this is important for future life of children. Education environments with abundant stimulus can address to all senses of children and provide a better and permanent learning. The visually and audibly well computers contribute a lot to children and get their attention and motivate them in attending the learning process more efficiently. This situation was put forth in different studies (Akkoyunlu & Tuğrul 2002; Crawford, 2000; Çekbaş et al., 2003; Hoot & Kimler, 1987; Rubin et al., 1983).

One of the most important points of preschool education is child's interest. Children interact more with the devices they are interested in. Definitely, computers are leading devices that children get interested in. The following of mouse and monitor and using of them will contribute in hand-eye coordination of children. The eye-hand coordination of children which aimed to be developing by art activities will develop automatically with limitless trial of computer hardware. This situation and development was accepted and observed by teachers. Similar consequences are gained in different studies (Akkoyunlu & Tuğrul, 2002; Öztopçu, 2003; Sandberg, 2002; Sprigle & Schaefer, 1984; Todman & Dick, 1992).

There are some negative effects of computers because of wrong uses besides indicated benefits. The time a child spends for computer is a crucial point. This time shouldn't be taken from the time he will spend with his friends for being more socialized. Children should not isolate himself/herself from social life while getting acquisitions of CAE. Spending too much time for computer can cause that children will see the computer as only friend of him/her. As computers do everything a child want and never reject them, children can have same expectations from their friends. To prevent bad effects, the balance between social life and computer must be taught to children by teacher.

According to the participants of study, CAE software is used for preschool activities such as puzzles, matching, concept developing, story activities, movies, art activities, free time activities, and science-nature activities. As CAE gives a limitless repeating chance, it provides a better and more

qualified learning. The limitless options that are presented by CAE to children are important. This can be seen in nature of CAE and it can be shown as one of the best advantages of CAE. This data can be presented according to consequences of study; (*i*) While choosing CAE software for preschool education, the design and the content must be chosen by experts and convenient contents must be preferred. (*ii*) The lacking devices must be completed in CAE areas in preschool education environment and technology classrooms must be serving for children more and more. (*iii*) The time preschool children spend for computer must be arranged well and the usage of computer must be under the control of the teacher. (*iv*) In CAE process, children must be instructed by their teachers in points like what they will do and how long they will stay on computer and they must be leaded whenever they are needed. (*v*) The software which is convenient for aiming supportive acquisitions must be provided by related institutions (within the experts in this area). (*vi*) The physical arrangements for CAE, like placement of desk, chair and computers according to preschool children must be provided by institutions.

Such suggestions can be made for future researchers; (*i*) Researchers can do their similar researches with different research questions. (*ii*) Researchers can work with a participant group from the teachers who are working in different socio-economic and socio-cultural places. (*iii*) This study has been conducted in state primary schools with the teachers of 6 age children. The future researchers can do similar researches with the teachers of 4-5 age groups who are working in private preschools or independent schools.

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