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Effects of Family Socioeconomic Status on Parents' Views Concerning the Integration of Computers into Preschool Classrooms

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Abstract

Background: The rapid growth of ICT has led to an important increase in the use of computers in preschool age. However the benefits of this use are a debatable issue. Some focus on the positive effects of computers on learning and kids' cognitive development while others believe that computers may negatively affect their social and motivational impact.
Aim: The aim of this research was to study Greek parents' views on preschools' computer programs and how these views are influenced by the family's socioeconomic level.
Methodology: The survey involved 280 parents of children aged 3-5 years, of whom 140 were in the upper socioeconomic level and the other 140 in a lower one.
Results: The upper socioeconomic level parents thought that the use of computers was appropriate for preschool children more than parents of lower socioeconomic status (P=0.01). and that its inclusion in the preschool center's program would work in favor for children who have no computer at home (P=0.00). Parents with higher socioeconomic status felt more than the others that such a program can support the provision of knowledge (P=0.00), the development of mathematical (P=0.00) and linguistic skills (P=0.00) and entertain children (P=0.04). Furthermore, the upper socioeconomic level parents as opposed to the other group do not consider that the computer will remove preschool educator from their leading and teaching role (P=0.04) or reduce their communication with the preschoolers (P=0.00).
Conclusions: The results of this study revealed that Greek parents, especially those of higher socioeconomic level, have a positive view on the integration of a computer program into the preschool classroom.

Key words: socioeconomic status, parents' views, computer use in preschool age

Introduction

The rapid growth of ICT (Technology of Information and Communications) has led to an important increase to the use of computers at the pre-school age, especially during the first decade of the 21st century. There are sites even for infants and a lot of them offer free online games and activities for toddlers and preschoolers (Jenkins 2012). The many soft-ware programs aimed at young children may pursuade adults that there is no limit to the

computer's educational value. This has motivated parents to let their children use computers at home, too, with the rational that they would rather have them playing educational games than watching TV. Thus, in the beginning of the millenium in the USA, 31% of children up to 3 years of age and 70% of 4-6 year old were competent computer users (Rideout, Vandewater & Martella 2003), while by the end of its first decade, it rose in Australia to 90% for preschoolers (Australia Bureau of Statistics, 2009) and to 73.5% in Greece (Natsiopoulou & Bletsou 2011). Moreover, 36% of US preschool children exceed the American Academy of Pediatrics recommendation to limit media time to 2 hours or less per day (Anand & Krosnick 2005).

At the same time, many developed countries, in their efforts for educational reforms, have included computer programs in the kindergarten curriculum. Supporters of new technology argue that computers, thanks to special features such as visual animation, graphics, music, etc., offer valuable opportunities towards learning by providing information based mainly on images. Research findings indicate that children who progressively use the computer and are gradually getting better at navigating around, gain in self- respect and confidence (Doliopoulou 2006), develop their cognitive abilities (Florini 2009, Fish, Li, McCarrick et al 2008), pre-reading and verbal abilities (Din & Calao 2001), even among disadvantaged families (Li, Atkins & Stanton 2006), math skills (Weiss, Kramarski & Tallis 2006, Clements 2002), fine-motor skills and eye-hand coordination (Donker & Reitsma 2007, Li & Atkins 2004) and facilitate learning and development in kids with special abilities (Clements & Sarama 2003).

However, there are also arguments against the use of computers in the preschool years. Young children explore and understand the world through activities requiring them to handle 3-dimentional objects as well as by interacting with others, and not by means of a virtual world. Computers simply do not match their learning style since young children learn through their bodies, moving and changing focus frequently. Long hours on the computer and the use of pre-constructed images can negatively affect the development of imagination, creativity and kids' attention span. Too much computer time could also hamper development because it limits children's participation in activities like sports, outdoor playing, book reading and it can cause obesity, seizures, physical problems like hand injuries, eye strain, back and wrist problems (Alliance for Childhood 2009, Mendoza et al 2007, He et al 2005). Furthermore, preschool children are not emotionally, socially, morally or intellectually prepared to be pinned down to the constraining logical abstractions that computers require and they can have a negative social and motivational impact if a balance is not kept between many other learning opportunities (Vanderwater et al 2007).

The positive impact of early computer use is related to the application of appropriate developmental programs and the active participation of adults. Computers have an impact on children when they provide concrete learning experiences and they give preschoolers plenty of time to experiment and explore with an adult nearby (Kumbasa 2012, Nir-Gal & Klein 2004), who is interfering in order to use the computer as a tool of learning and education (Espinosa et al 2006). Furthermore, the proper use of early computer programs was closely related to the positive views of educators in utilizing and applying them in order to create an innovative school environment (Hermans, Tondeur, van Braak & Valche 2008). The well trained preschool educator can teach proper computer use and monitor the preschooler to have a constructive and useful time on the computer.

Computers became part of the Greek kindergarten by the Interthematic Context Curriculum (Government Gazette1376, volume B, article 6, 18-10-2001). However there is no reference for the use of computers in preschool centers (Government Gazette 497, 22-4-2002).

Since the Greek Ministry of Education offers little help on this matter, preschool educators can use the help of parents in order to

evaluate and select appropriate software for children of this age and frequently check if the school's technology is up-to-date. It is important though that the state integrates technology instructions into the preschool educational program.

Aim

The aim of our research work was to study parents' views on the integration of computers into the preschool classroom and how they are related to family socioeconomic background.

Methodology

The study consisted of 280 parents with children aged 3-5 years. Data garnered from a questionnaire which was also used by Zaranis & Economides (2008) to explore kindergarten teachers' views on the introduction of Information Technologies and Communication in early childhood education. 300 questionnaires were distributed to parents whose children attended three private and three municipal preschool centers. Finally 280 questionnaires were returned completed (93%) by 140 parents with higher socioeconomic status (HSES) and 140 parents from a lower one (LSES).

The first group had their kids in private centers with high educational fees, while the kids of the second group were accepted in the municipal center after the parents' low tax form was taken into consideration.

The statistical data analysis was performed using SPSS 15.0 for Windows and involved: frequency statistics and cross- tabulation statistics (chi-square, degrees of freedom, significance value). Minimum level of significance was $P < 0.05$.

Results

According to the responses of participants, 81.7% of families, regardless of their socioeconomic status (SES) had a computer at home and their children were involved with it.

Table 1. Parents' views on the effects of using the computer according to family's socioeconomic status

Consequences of using the computer	Parents %	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Offers joy and entertainment	HSES LSES	1.4% 3,6%	2.1% 4,3%	13.6% 16.4%	50.7% 52.1%	32.1% 23.6%
Promotes participation in learning	HSES LSES	2.1% 6.4%	13.6% 18.6%	28.6% 24.3%	34.3% 38.6%	21.4% 12.1%
Increases imagination and creativity	HSES LSES	4.3% 11.4%	8.6% 16.4%	22.1% 23.6%	47.9% 37.9%	17.1%* 10.7%
Increase initiative	HSES LSES	2.9% 10%	30.7% 25%	23.6% 27.9%	30.7% 30.7%	12.1%* 6.4%
Respects personal rhythms	HSES LSES	4.3% 15%	29.3% 32.1%	25.7% 37.1%	31.4% 10.7%	9.3%* 5%
Limits free play	HSES LSES	20% 1.4%	22.1% 11.4%	17.1% 9.3%	22.1% 39.3%	18.6%* 38.6%
Limits child's reading	HSES LSES	7.1% 2.1%	26.4% 15%	14.3% 15%	31.4% 32.1%	20.7%* 35.7%

***P<0.05**

The majority of parents regardless of their SES agree with the view that computers offer enjoyment and promote their active participation in learning. The other prevailing view is that computers foster imagination and creativity of children with which parents of upper SES agree significantly more than those from the lower one ($X^2=11.77$, df=4, P=0.01). On the other hand, parents from lower SES are skeptical with the view that

computers increase kids' initiative or respect their learning rhythms (X^2=9.33, df=4, P=0.05, X^2=27.48, df=4, P=0.00, respectively).The same group also agree that the use of a computer limits the free play of children, a view with which parents of higher SES agree and disagree at the same rate (41%) (X^2=47.08, df=4, P=0.00). Even though the majority of parents agree that computers work at the expense of reading books, there is a significant difference for parents of lower SES (X^2=13.80, df=4, P=0.00).

Table 2. Parents' views on the consequences of installing computers in preschools according to family's socioeconomic status

Consequences of the computer	Parents %	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Contact with technology	HSES LSES	1.4% 5.7%	2.1% 5.7%	7.1% 11.4%	50.7% 52.9%	38.6% 24.3%
Compensatory benefits	HSES LSES	2.9% 5.7%	12.9% 9.3%	41.4% 35%	35% 39.3%	7.9%* 10.7%
Educational inequalities	HSES LSES	0% 5%	5.7% 12.1%	27.9% 27.9%	39.3% 46.4%	27.1% 8.6%
Difficulty for bad students	HSES LSES	10% 8.6%	47.9% 34.3%	35.7% 41.4%	5.7% 13.6%	0.7%* 2.1%
Easy for good students	HSES LSES	2.9% 7.9%	19.3% 32.9%	31.4% 35.7%	36.4% 21.4%	10%* 2.1%
Cooperation between students	HSES LSES	7.1% 15.7%	27.1% 25%	30.7% 32.9%	29.3% 22.9%	5.7% 3.6%
Unsuitable for preschoolers	HSES LSES	19.3% 5%	25.7% 26.4%	27.9% 23.6%	20.7% 18.6%	6.4%* 26.4%

***P<0.05**

Most parents, regardless of their SES are consistent with the view that the introduction of computers in the preschool will bring kids in contact with technology and it will cause educational inequalities if not equipped with a computer all nurseries.

Most parents, particularly those of low SES agree with the view that the integration of the computer into the preschool classroom will operate in compensation for children who have no computer at home (X^2=24.59, df=4, P=0.00). However, these parents are skeptical about the role of the computer in faciliting "good" students, but making things worse for "bad" ones, in contrast with parents of higher SES that disagree with this view (X^2=9.36, df=4, P=0.05, X^2=21.15, df= 4, P=0.00, respectively).

Parents regardless of their SES are uncertain about the possibility of cooperation between children using the computer. As far as to whether computer use is inappropriate for preschool age, parents of higher SES disagree and the other ones agree at the same rate (45%) (X^2=29.48, df=4, P=0.00). Most parents agree especially those with higher SES that computers in the preschool can be useful providing information (X^2=40.51, df=4, P=0.00), developing mathematical skills (X^2=29.05, df=4, P=0.00), entertaining (X^2=15.20, df=4, P=0.04) and understanding concepts. However most high SES parents agree with the view that the computer enhances language development while the other group disagrees with it (X^2=36.60, df=4, P=0.00).

As show in Table 4 most parents of higher SES disagree with the view that computers will remove educators from their leading and teaching role or that they will limit their communication with children. On the other hand, most parents of lower SES believe that the computer will remove the educator's leading role in teaching (X^2=15.20, df=4, P=0.04) and limit his/her contact with children (X^2=20.94, df=4, P=0.00), but they disagree that it will reduce his/her teaching status.

Table 3. Parents' views on using computers at preschools according to family's socioeconomic status

Subject of teaching	Parents %	Totally disagree	Disagree	Uncertain	Agree	Totally agree
Information	HSES	0%	1.4%	7.9%	52.1%	38.6%*
	LSES	5.7%	13.6%	15%	51.4%	14.3%
Mathematics	HSES	1.4%	7.1%	19.3%	47.1%	25%*
	LSES	10%	20%	17.9%	43.6%	8.6%
Entertain-ment	HSES	3.6%	10.7%	17.1%	42.1%	26.4%*
	LSES	12.2%	15.1%	8.6%	47.5%	16.5%
Linguistics	HSES	1.4%	12.9%	20%	45.7%	20%*
	LSES	13.6%	30%	17,9%	32.1%	6.4%
Concepts		12.9%	23.6%	25.7%	34.3%	13.6%
		10%	21.4%	23.6%	37.1%	7.9%

*P<0.05

Table 4. Parents' views on the effects of computers' use in the role of the educators according to family's socioeconomic status

Consequences of the computer	Parents %	Totally disagree	Disagree	Uncertain	Agree	Totally Agree
Limits teacher' role	HSES	15.7%	35%	16.4%	27.9%	5%*
	LSES	5.7%	30%	19.3%	29.3%	15,7%
Limits contact with children	HSES	15.7%	26.4%	23.6%	25.7%	8.6%*
	LSES	4.3%	20.7%	18.6%	35%	21.4%
Reduces teacher' prestige	HSES	20%	32.1%	25.7%	20%	2.1%
	LSES	6.4%	34.3%	28.6%	17.9%	12.9%

*P<0.05

Discussion

This research investigated the views of Greek parents on integrating the computer as part of the teaching process in preschool centers. It was found that most Greek families, regardless of socioeconomic status had a computer at home. This is inconsistent with findings from previous studies in which only families of higher socioeconomic status owned a computer (Linebarger & Chernin 2003, Vryzas & Tsitouridou 2002). It was inevitable, though that computers would be part of the Greek household as the rapid growth of ICT is apparent in many areas of everyday life. This has led to an important increase in the use of computers at preschool age too.

Results of this study indicated that most preschoolers were involved in computer use and the parents –especially those of higher SES were positive about it. This is consistent with previous research findings that showed that most parents support the use of a classroom computer, especially those who do not own one at home (Linebarger & Chernin 2003, Marsh et al 2005).Greek parents thought that the biggest gains from this use were entertainment and active participation in learning. These findings are in accord with previous research linking computers to a recreative rather than an educational means, used as such mainly by parents of lower SES (Linebarger & Chernin 2003). They also confirm and extend the observations of Natsiopoulou & Bletsou (2011) and Stephen & Plowman (2008) with preschoolers who perceived the computer as a recreational game or they positively related it to joy and entertainment. Others researchers (Tsantis, Bewick & Thouvenelle 2003) though, are skeptical about such a view because it can cancel its role as an educational tool. Moreover, preschoolers who used media (TV and computer) as an educational medium were able to learn and retain more messages from a program when compared to children

who perceived them as entertainment (Linebarger 2001). On the other hand, research (Nikolopoulou 2009) shows that by taking advantage of the preschoolers' predisposition for playing by using educational games on the computer can enhance their cognitive development as well as their familiarity with letters and numbers.

In our research, we found that parents of higher SES stated that computers contribute to preschoolers' creativity and imagination, most probably because they valued more these two cognitive dimensions. On the other hand, parents of lower SES had more traditional values on their children's upbringings and thus, they expressed that computers will limit their free playing or book reading and they are skeptical about computers' contribution in increasing initiative or respecting kids' learning rhythms. The above findings might show parents' lack of information on appropriate educational software for this age or their ignorance in how to intervene expanding children's computer experiences. However, new research data show that the time (about two hours) children spend in front of a screen (TV, computer) is the same with the time spend playing other games (Rideout, Vandewater & Martella 2003). Also it has to be taken into consideration that children's play has changed form and nowadays it is electronic, providing another form of entertainment, that can not be compared to that of traditional toys and board games (Zevenbergen 2007). Parents showed not to be so concerned about book reading, because even though a diminished tendency in book reading is observed in adolescents and young people (National Endowment 2007, e-paideia. net 2011), in preschool age, books remain a pleasurable everyday activity (Natsiopoulou & Bletsou, 2011, Rideout, Vandewater & Martella 2003). It is true that there is some competition from e- books and lovely sites for preschoolers but appropriate educational programs and sites (eg. The National Book Center: the young reader www.mikrosanagnostis) can enhance book reading.

In our study, parents from all SES have stated that the integration of a computer in preschools will bring kids in contact with technology, with parents from lower SES stressing that this will operate in compensation for children who have no computer at home. This gives preschoolers the opportunity to maximize new technology skills as their parents wish and on the other hand, it could limit the form of educational inequalities or technologically illiterate kids (Zevenbergen 2007, Vryzas & Tsitouridou 2002). Computers can create a renovating educational environment, that can eliminate handicaps faced by kids living in disadvantaged SES, as it was found that kids from lower SES had low quality experience with computers compared to kids from higher SES (Judge et al 2004).

It seems that Greek parents of lower SES are not well- informed about the use of computers in preschool age because they consider it inappropriate for this age, even though they believe that it provides information and enhances math and verbal skills. Furthermore, they fear that it can diminish the educators' teaching role and their communication with children.

These findings are at odds with those that emphasize the guiding role of the educator in teaching preschoolers to operate the computer successfully, and as a supplement to the other classroom activities (Nikolopoulou 2009, Doliopoulou 2006).

In summary, the results of this study demonstrate that early childhood programs serve diverse populations and have different schedules, curriculums, staffing patterns and resources.

Thus, goals for computer use and the steps that preschool centers take to integrate computers into their classrooms may be completely different but equally successful. As far as parents are concerned they should focus on learning together with their preschoolers.

They should decide on safety rules and time limits, in order to use media time for interaction and togetherness (Melissa-Halikiopoulou, Natsiopoulou & Obessi 2011).

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