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ABSTRACT

This study examined Greek parents' perceptions of technology in children's education. A phenomenological research design was necessary for perceiving computer technology from parents' perspective. Interviews were conducted in a sample consisted of 10 Greek parents, who all had experiences with computers. The findings indicated that parents of middle SES have in general positive attitudes towards computers in students' education. Negative attitudes were not identified in middle SES participants, except of some concerns. Two worrying implications were drawing from the findings-regarding the gender stereotypes and parents' participation in children's education. Recommendations are included based on the findings.

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CHAPTER 1: STATEMENT OF PURPOSE

Introduction

Recently, the Greek Ministry of National Education and Religious Affairs directed its efforts toward the implementation of technology in education. The increased number of computers in all schools, the development of appropriate software and the support of teachers are some examples of what the Ministry does in order to meet its technology goals.

In particular, through the project "Pleiades" the objectives of the Ministry are to equip schools with educational software and to suggest activities for teachers. The Greek Ministry also proceeded to a large scale National Plan named "Preparing Teachers for the Information Society". The main aim of this plan is to increase students' achievements in learning with technology by increasing the expertise of teachers in the use of technology as teaching tool (Papadopoulos & Karamanis, 2004).

Additionally, "Odyssey" is an important project of the Greek Ministry to educate the teachers in the use of technology for learning (http://www.ypepth.gr/). The majority of Greek teachers, who participated in the project "Odyssey", considered the use of technology useful, because it offers new pedagogical styles, multicultural approach of the curriculum and improvement of the traditional teaching methods (Kynygos, Karageorgios, Babouraki & Gavrilis, 2004). Greek teachers' perceptions of technology are shaped by their knowledge of computers and by the training they receive. Teachers with extensive knowledge and experience with computers believe that computers have educational benefits for children. However, teachers with rudimentary knowledge have no specific views on the subjects. Additionally, teachers with no computer knowledge believe that the introduction of computers into the classroom as matter of secondary importance (Tsitouridou, 2004).

As a teacher I informed about these changes that took place in Greek schools. I perceived that the goal of the Greek Ministry was to be involved with the information age. But none of the Greek Ministry's plans about the technology in education involve parents in any way, although many researchers (Vryzas & Tsitouridou, 2002, Rocheleau 1995, Shashaani, 1994) discuss the important role of parents' perceptions of technology.

Purpose Statement

Therefore, the purpose of my study is to describe and understand how Greek parents' experiences with technology influence their perceptions of technology as a learning tool in their children's education. I interviewed Greek parents in order to obtain answers to my questions, such as what parents' perceptions of technology are and how those perceptions were formed by their experiences. I obtained also information about how these perceptions of technology reflect on parents' perspective of technology in their children's education. Parents' responses to the interview questions formed an answer to the major question of my study, which is what do Greek parents feel about technology. Finally, as part of my study, I included parents' perspectives about their potential participation in their children' education regarding technology.

In particular, the answers of the parents revealed what kind of variables influence parents' beliefs of technology: such as socioeconomic status, educational level and occupational status. Gender stereotypes were also an important consideration since Greek society is very traditional in its expectation of gender roles.

This study is a small contribution to the discussion about the important role of parents in students' education. In general, parents' role in students' learning is related

to students' positive attitudes and achievement. The more parents are involved in their children's education, the more beneficial are the results for students.

In particular about technology, parents can influence their children's perceptions with their attitudes. Parents with negative or stereotypical perspectives may affect children to develop negative preconceptions of technology. Not all students will have the same approach of technology as learning tool and consequently not all students will succeed in using this tool. The school will just maintain the digital divide that starts from home and continues in the classroom (Becker, 2000). Schools will maintain also the gender digital divide, which refers to the gap in access rates between male and females (Gorski, 2002).

Therefore, my intention is to give to Greek parents the voice to express their perceptions of technology, since their voice is missing from the Ministry's plans about technology in children's education. As Davidson and Ritchie (1994) explain about the reasons that parents' perspective of computers should be acknowledged:

> "when a total school community is being surveyed about attitudes and perceptions towards computers, the complexity of variables is increased and this leads to a richness in information about integrating computers into school environment. By considering parental attitudes in addition to teacher and student, perhaps a better understanding of community support will be established" (p.25)

Parents' thoughts and concerns regarding technology are significant, in order for the Greek Ministry to develop a strong learning community for students. If the Greek Ministry is not informed about parents' perceptions of technology, it will be difficult to succeed in one of its goals. The goal of increasing technology in the education of all Greek students' academic achievement is paramount

(http://www.ypepth.gr/). By becoming familiarized with parents' perceptions of technology, the Greek Ministry could find ways to encounter and resolve possible negative or stereotypical ideas of parents. The Ministry could find ways to support parents in their difficult task of helping their children's education. Furthermore, parents' positive ideas about technology in students' learning may be incorporated in the plans of the Ministry.

Thus, the main action of my study is to report the findings to the Greek Ministry of Education. My report will present to the Greek Ministry some Greek parents' perceptions of technology. This way, the Greek Ministry may develop a deeper understanding of the important role of parents regarding technology in students' education.

My intention of reporting the findings of my study to the Greek Ministry is because of the planning and application of any educational policy in Greece is the responsibility of the state. The state decides on issues such as the objectives of education, the teaching subjects, the curricula, the relations between school and society (Kakavoulis, 2000).

Personal Background

The last two years, each course in the Master of Arts in Education offered me multiple points of view, multiple theories and practical ideas for creating the appropriate learning environment for my students. Each time I was exposed to a new theory, research and practice, I thought about how this new information would influence my teaching methods and how limited my teaching would have been without this additional knowledge I thought about how was I expected to help my students with all this missing knowledge?

I realized that the teaching tools I was using were traditional, and many times incapable of engaging the interests of my students in the curriculum. My teaching methods were based mostly on the traditional lecture-type of teaching, enriched occasionally with visual material.

However, many times when I had to teach specific curricula, not so appealing to students' interests, I struggled to use additional material beyond the traditional lecture. I tried to connect the teaching subject to students' lives in order to enhance their attention. But, many times I realized that the materials I was using were not adequate to hold my students' interest. I perceived that I had to use more innovative methods to succeed in my goals and help all my students learn. But back then, I was struggling without knowing what kind of teaching tools would be appropriate to meet my outcomes.

When I came to the USA and started my Master Degree program, I familiarized myself with new teaching methods and ways to design the curriculum. Part of that knowledge included computer use. Gradually I started to think about how I could use computers in the classroom. I studied literature relevant to what computer use as learning tool in classroom can offer to students. I was impressed by the tremendous potentials of computers in my teaching and in students' learning.

Computer use in education has the power to create technologically rich learning experiences for students, because it allows teachers to combine effective teaching practices with quality resources in order to transform the learning environment (Lamb, 2003). Students learn with computer -based tools because computers offer opportunities for knowledge construction by representing learners' ideas; computers have the power to support, stimulate and encourage learning meaningful real-world problems. Finally, computers increase the collaboration of

students with others through an exploration of technical problem or project problem solving (Jonassen, 2000).

Since education in Greece is centralized and all decision are made by the Greek Ministry, I researched what the Greek Ministry's plans were about the incorporation of technology in schools. My findings were that efforts are made towards the integration of computers as a teaching tool. Consequently, computers can be a tool that I will be able to use in my future position as a teacher in Greece.

Additionally, my research in the literature related to computers as a tool in children's education, emphasize the importance of parents' role. This finding became the guiding theory of my study. This theory is concurrent with my ideology as teacher. Education takes place within a world of interactions. Schools are no longer believed to be the only factor that can provide the whole of children's education. Parents are thought to be an integral part of the education process. Family, which is the initial human group in which children are born, is considered the most important factor for children's education mostly during childhood. Therefore, in order for schools to create the appropriate literacy programs for students, it is vital to engage parents in schools, because they constitute children's background, values and beliefs.

In particular, regarding computers parents may influence their children's attitudes to computers. For that, every action that involves children with computers, should take into account parents. But none of the Greek Ministry plans about technology in education involves Greek parents.

I started to think how difficult it will be for many students to succeed in using computers without the additional support by their parents. Or how difficult it will be for students to develop positive attitudes for computers, when the familial environment is negative. Only my intention to help students achieve with that tool is

not enough. Teachers and parents should cooperate in order to create a learning community that will benefit students. But first of all, I perceived that it is important to learn about what parents believe about technology. Parents' understanding, feelings and beliefs about computers became the purpose of my study. And my action is to inform the Greek Ministry about the findings, since education in Greece is centralized and every plan starts from the Ministry.

In conclusion, two basic reasons direct me to the focus area of my thesis. The first reason is my effort as a teacher to create the best learning environment for my students. Only with traditional teaching methods, I cannot achieve my goal. The second reason is the realization that it will be difficult to offer my students the best learning opportunities, if there is not a close relationship between all those parameters that create a strong learning environment for students. In the case of computers in children's education, the most important variable is parents.

Definitions of terms

Education: education defined as the process of acquiring knowledge. It is divided in formal and informal education. Formal education is classroom-based, provided by certified teachers. Informal education happens outside the classroom, at home.

Parental Involvement: Parental involvement in this paper defined as parents' interaction with their children regarding computer learning. Parents' involvement starts at home as informal education. It continues in children's academic lives and connects with their formal education.

Phenomenology: a phenomenological study describes the meaning of the lived experiences for several individuals about a concept or the phenomenon. Phenomenologists explore the structure of consciousness in human experiences (Creswell, p31).

Perception: - the process of perceiving

-knowledge gained by perceiving

-a way of conceiving something;

- the representation of what is perceived; basic component in the formation of a concept

Technology: from the Greek word "tekhnologia", systematic treatment of an art or craft. In education, technology is a branch of knowledge based on the development and implementation of computers, software, and other technical tools, and the assessment and evaluation of students' educational outcomes resulting from their use of technology tools.

Overview of Thesis

In this first chapter 1, I provided the necessary information that justifies the purpose of my thesis. At first, I listed the background details about the Greek Ministry's efforts regarding the infusion of technology in Greek schools. Those details illustrate the absence of Greek parents in any action regarding technology in their children's education. Then, I stated my purpose and presented the personal reasons that led me to choose the specific study area. Finally, the terms that are used in my thesis and may confuse the audience were explained.

The rest of my thesis is structured in 4 chapters. In Chapter 2, I present the literature related to my thesis. The discussion of various studies provides the theoretical background for supporting my idea. Chapter 3 contains a detailed description of the methodology used. I explain the reasons for following the phenomenology research design. I describe the steps followed in the research for collecting and analyzing data. Chapter 4 is a presentation of the themes resulted from data analysis. The presentation is enriched with statements of the participants. Finally,

Chapter 5 is a discussion of what I have done followed by the reflection of the research findings.

CHAPTER 2: LITERATURE REVIEW

Introduction

The theme of the literature review is that parents' perceptions of technology influence children's attitudes about the importance and usefulness of computers. Parents may have positive or negative expectations about the use of technology in children's lives and education. They may also have gender stereotypes about computer use and convey those ideas to their children.

Sociological variables may be responsible for parents' perceptions, such as socioeconomic status, occupational status, and educational achievement. All these variables influence parents' experiences with computers and helps to shape transparent perspectives about technology. And since the family is the first bridge to education for children, parents' perspectives contribute to children's education.

Every approach that prepares a child in the participation of the digital age should take into account the beliefs of parents, because what parents think about the role of computers affects their children (Vryzas & Tsitouridou, 2002). In education, when computers are added to enrich the regular school program and improve children's education, parents can play significant role (Epstein, 1985).

However, Kakavoulis (2000) indicates that until recently the only legal provision for Greek parents' involvement in their children's education was the enrollment process. In 1985, the parental participation law 1566/1985 was established in Greece. Based on that law, several councils and committees were set up, in which parents participated as members. Although, the planning and application for educational policy in Greece is the responsibility of the state, the policy of education is influenced by other social groups such as teachers' organizations and parent's associations. Nevertheless, neither the laws nor teacher- parent organizations have strengthened the links between school and family.

The literature reviewed in this chapter is structured in three major sections. In the first section, expressing the ideas of many authors (Tsouroufli, 2002 Vryzas&Tsitouridou, 2002, Grimm, 1998) I discuss parents' perceptions of technology. In the second section, I review the different sociological variables discussed by Vryzas and Tsitouridou (2002), Becker (2000) related to parents' SES, gender and children's attitudes about computer use. Finally, in the third section, based on the reviewed literature (Hughes, Coyne & Waddell, 1997, Epstein, 1985,) I quote examples of a close connection between parents and children's education of computers.

In each section of the literature review, the discussion originally refers to researchers, who focus their research in Greece. In addition other researchers in different countries sustain the results of research in Greece. This parallel of Greek and other researchers is important to support the idea of my thesis, since the resources regarding "Greek parents and technology" are limited.

Parents' Perceptions of Technology

Vryzas and Tsitouridou (2002) investigated what are Greek parents' perceptions about the effects of computer use on education, on interpersonal relationships and on future employment opportunities for their children. A questionnaire was used, which was answered by 1,028 parents of children aged 10-11 and 14-15. The findings indicate that, although many parents had uncertain beliefs about technology, negative beliefs were minimal. The only negative belief was about the interpersonal relationships, where many parents expressed technophobic feelings.

On the contrary, Greek parents had optimistic expectations about children using computers for the future professional domain. Regarding education, parents

were very positive about the beneficial effects of computer use, such as new learning methods and the broadening of children's range of interests.

However, Chatzilacos et al. (2001) indicate that Greek "parents are not well informed about the use of ICT in the school" (p10). Parents' believed that computers are introduced in schools in order for students to acquire knowledge and skills in computers' technology. Only one of the four parents in this study was informed about the different kinds of software, although the parent thought that multimedia and Internet was just a powerful encyclopedia.

Furthermore, Healy and Schilmoeller (1985) researched American parents' attitudes toward computers and computer use by preschool and kindergarten children. The researchers used mailed questionnaires, in which 86 parents answered. According to data analysis the majority of the parents viewed computers as being useful but not necessarily vital to a young child's development. Healy and Schilmoeller (1985) indicate "the lack of a significant correlation between parental ratings of computer knowledge and their attitudes toward computers with young children" (p140).

Specifically, parents whose children used computers in schools had more positive attitudes towards the tool than parents whose children were not using computers in preschool and kindergarten. A possible explanation of those attitudes could be that parents, who see their children enjoying computer instruction, feel positively about the use of computers by children of any age. But parents, whose children have not been exposed to computers in schools, may hesitate to suggest the use of computers in early childhood development.

According to Downes and Reddacliff's study (1997) the basic concerns of parents in Australia regarding computers were related to children's "gaining and loosing skills", to children's sociability, use of time and safety. In particular, parents

worried about children's poor handwriting, spelling and reading books as well as children's lack of motivation to be "bi-literate". Regarding children's sociability, parents viewed computers as an individual pursuit. Parents' also considered the computer a time consuming tool. Finally, they were concerned about the access of children to inappropriate information through the Internet.

Grimm (1998) investigated the attitudes of parents in U.S.A and their expectations of the Internet use in education. The researcher interviewed five parents. She also created a website in order to elicit information from parents worldwide. The findings showed that the majority of parents' views fall into the "technorealism", which attempts to examine realistically what technology can do and cannot do. Parents believed that the use of the Internet in education increases access to information and people, moves from the traditional lecture based learning model to more cooperative group learning and facilitates the interaction of student/teacher, parent/teacher through e-mail. Parents' concerns were about the children's ability to analyze the material found in Internet and teachers' experience to use this tool. Only a few parents answered negatively about the effect of Internet on education and only some parents presented lack of understanding of how this tool could improve their children's learning.

A common finding in Downes and Reddacliff's study (1997) and Grimm's study (1998) is that parents considered learning with computers and Internet important for children to function in the modern world. In particular as Downes and Reddacliff (1997) mention about parents' thoughts "gaining computer skills was seen as valuable for personal development and possible future employment" (p12). That is, some parents viewed the use of computer as an educational tool the same as the

means of educational and cultural "capital" that would allow children to attain a future secure socio-economic position" (Sutherland, Facer, Furlong & Furlong, 2000).

In conclusion, parents in Greece and in the other countries present a variety of perceptions about computers. Some parents believe that children's familiarization with computer use is useful for children regarding the acquisition of skills that could lead to a good future employment. Others see the use of computers in schools as a reform that means the movement from traditional teaching methods to more beneficial methods for children's learning. However, parents have some concerns about computers, such as computers as a time consuming tool and as an unconstructive parameter in their children's sociability

Variables Influence Parents' Perceptions of Computers-The Impact of Parents' Perceptions on Children

Introduction

The connection between parents' perceptions and sociological variables, such as family background, socioeconomic status and gender is essential to students' familiarization with computer. Urged by researchers' findings, I included in my interviews with Greek parents, questions for determining the role of SES and gender in parental perceptions about technology.

Family background and SES

Vryzas and Tsitouridou (2002) suggest that parents of lower socioeconomic status and no knowledge of computers have negative beliefs for computer use. Parents of this stratification are more likely to use such computer at work and did not own one at home. The positive perceptions are mainly associated with parents of middle class status, who have some knowledge of computers through work and home use.

Vryzas and Tsitouridou (2002), in a different study, explored under which circumstances a Greek household acquires a home computer. Additionally, they examined the framework in which children are involved in the use of a home computer. The researchers based on a random sample of 993 students, age 11-15, used questionnaires for their data collection. The findings revealed that the possession of a home computer was determined by the socioeconomic status of the families.

The socioeconomic status also influences children's familiarization with the tool. The majority of children, who usually used a home computer, were from a privileged socioeconomic background. At the same time 56. 9% of children from privileged socioeconomic background learned to use the computer from their parents, while only 34% of children from less prosperous background learned from their parents. The majority of children, who first learned about computer use in school, were from lower socioeconomic status. Finally, the researchers emphasized that the use of computers by children at home should not be ignored. The connection between the home and school use of computer, and the transfer of experiences from the home computer access to the classroom, are important.

The large impact of the socioeconomic status in Greece is reflected in Maloutas' study (2004) about the residential and social segregation in Athens. There is a clear division between the eastern and western parts of the city, with the first part being predominantly upper and middle-class and the second part working class and lower middle-class. This situation reflects other forms of social differentiation, such as different social groups have different housing conditions and do not share the same local services, such as education. Private schools and good public schools in different areas are not socially distributed in equitably for all families. Thus, social segregation

influences the distribution and accessibility of knowledge of computers in and out of schools.

Moreover, in his 2000 article, Becker (2000) focuses on the digital divide in U.S.A, which is the separation of children from one side who are benefiting from computer technology and children on the other side who are being left behind. For that, he investigated what factors led to that separation and how computer use is affected by conditions in home. According to Becker's data, children's familiarization with computers in their homes is related to parents' education, SES and parents' occupation. Children, whose parents have a graduate degree, are more likely to have experience with computers. Also, if parents use computers in work, there are more possibilities for children to have functional computers at home. In general, children's experiences with home computer have academic values because they provide skills and knowledge that those without computer experiences are deprived of opportunities to develop (Becker, 2000).

Students in families, who own a home computer because of parents' education and SES, report better grades in school compared to students, who do not possess a home computer. Because of the easy access, those students may become "heavy" users of computers and to use that tool for educational purposes (Rocheleau, 1995). Even children in preschool, who have access to a computer, perform better on school readiness and cognitive development. Computer accessibility offers to children the opportunity to play on a computer and that leads to the development of preschool concepts and cognitive skills (Xiaoming & Atkins, 2004).

To the contrary, low-SES families usually cannot offer their children computer access at home. Those families also tend to live in low-SES neighborhoods, where it young people cannot have computer access through a neighbor or friend either

(Becker, 2000). As Shashaani (1994) mentions "children from low SES families are less interested in computers than those from high-SES families".

Selwyn (1998) also refers that the result for students who have access to a home computer, is that they have more positive attitudes towards computers in school than students, who do not have access at home. Using a computer at home gives students a considerable advantage in their approach to school computers. In similar conclusion ended Sutherland et al. (2000) "children's approaches to home computing evidently have implications for the use of computers in schools". How computers' potentials are perceived in the domestic environment and which computer activities are supported at home, have implications for children's approach to computers at school.

A step further, Downes and Reddacliff (1997) separated Australian families in their study according to the home computing availability in order to understand children's and parents home experiences and views about computers. There were the "technology rich" families, who had computers for many years because of the work needs or interests of one or both parents. Within these families at least one of the parents shared their experience with children. Children engaged in computer activities and used the Internet. There were also the "technology capable" families who had home computer for some years because the purchase was related to the needs of children's education or parents' work. Within these families, even though parents did not have technical expertise, children engaged in computing activities. The next type of family was the "technology emerging", where parents purchased computers only for children's education and had no interest or expertise in using computers. Consequently, children did not have any confidence in computing skills.

Future implications of "familial", educational and social influences on the females' choice in U.S.A to pursue IT careers, are explored by Turner, Bernt and Pecora (2002). Using a survey with short-answer and open-ended questions, researchers gathered the female participants responses about their educational experiences, their initial exposure to computers and their parents' occupation. Regarding parents, fathers described by females as the ones creating the opportunity for their daughters to learn about computer. The high involvement of fathers in technical careers often was an important factor in these females' occupational decisions.

The conclusion is that parents' variables influence their children's attitudes to computers. Parents' education, SES and occupation determine the ownership of a home computer. A home computer gives children the opportunity to familiarize with that tool as well parents' experiences and expertise. Finally, children who use computers at home are more likely to feel positive for computer use in school and more confident in their computing skills.

Gender

In addition to the connection between socioeconomic status of families and children's familiarization with a home computer, another parameter that is associated with computer use is gender stereotypes. In order to examine if there are gender stereotypes in Greece, I rely on the study of Janssen Reinen and Plomp (1997) who investigated the status of gender and computer use in a number of countries including Greece. I support the findings of Janssen Reinen's and Plomp's study (1997) with more recent results established by two Greek researchers: Tsouroufli (2002) explores the existence of gender stereotypes in classroom. Deliyanni-Kouimtzis (2000) explores how the Greek school books reflect a patriarchal society. Allthough, the two

Greek researchers do not talk about computer and gender, but only for gender roles in education, based on their results I assume the persistence of gender stereotypes in Greece.

Janssen Reinen and Plomp (1997) extrapolate their data to a study under the International Association for the Evaluation of Educational achievement in order to investigate the relationship of gender and computer use by students in 10 countries. One of the countries was Greece. Regarding gender differences, the situation for females is less positive than for male students. More females report that they have difficulties in understanding and using computers. One possible influential reason of those differences in males and females is the socialization experience. That is, "the influence of differential socialization of males and females, often resulting in stereotypical sex-specific roles" (p69). In Greece, the researchers denote that males are supported more by their parents than females in regards to computer use.

Additionally, Tsouroufli (2002), who discusses the gender stereotypes of Greek teachers in the classroom, reveals the picture of a traditional patriarchal society in which traditional female and male roles are present. The researcher conducted teachers' interviews, which showed that overall teachers behaved differently towards girls and boys. Teachers' behavior is influenced by their largely tacit assumptions about gender. As part of her study, Tsouroufli also used questionnaires for the students. The female students had stereotypical feminine educational and professional aspirations and the male students had stereotypical male educational and professional aspirations. Generally, the responses of the students reflect their different experiences at home and in the school that generate gender roles.

Deliyanni-Kouimtzis (2000) came to the same conclusion as Tsouroufli (2002) about the existence of gender stereotypes in a different study. The researcher

examined gender equality as it was presented in the primary school reading books and after their replacement by the Ministry in 1980s.the Ministry presented it in the primary school reading books and after their replacement by the ministry in the 1980s. The findings of her study identify the improvement achieved in relation with the ways in which boy and girls' roles are represented in the texts. However this innovation in the reading books has not been carried to adults in the same degree. In particular the new books present a new version of family life. Women are leaving home more often in order to work but they have lost many of their home responsibilities. Women at work are referred to only in relation to the fact that they are not in the home. Men are shown carrying out many domestic tasks considered "privileged" female tasks. The conclusion is that the role of the man has enriched by many new activities, while the female presence "has stripped" of many of its traditional characteristics without the addition of any substantial new role.

Moreover, Shashaani (1994) in her study examined the effect of parents' gender stereotypes on their children's attitudes of computing. Data collected from students of five public schools in Pennsylvania. From the data analysis, the finding is that parental gender stereotypes may cause children to develop similar attitudes. Such stereotypes may be conveyed in various ways. One method of transmission is by the parents' expression of the difficulty involved in learning computers. Another method is how parents may stress a subject's importance to boys. In particular in low-SES families in the U.S.A. the stereotypes for girls to use computers less are more than those from high-SES families. Mothers' SES is correlated with gender-stereotyped views indicating that the higher the SES the lower females are stereotyped towards computer users. The assumption is that in low SES families the gender roles tend to be more traditional.

However, Shashaani (1994) denotes that gender stereotypes do not have the largest effect on children's interest in computing. The researcher, who assessed the impact of SES, parental gender stereotypes, and parental encouragement in children's attitudes to computers, suggests that parental encouragement has the greatest effect on students' interest in computing. The researcher also emphasizes that "students who are encouraged to take computer courses are more interested in computing, had less stereotypical views of computer users, and had more confidence in working with computers".

Furthermore, there are consequences of the gender roles at home in the different ways male and female students approach computer in classroom (Young, 2000, Selwyn, 1998). Selwyn (1998) offers that because of the home "computer culture" male students are more likely to use home computer on a frequent basis, whereas females use it irregularly. When girls use computers at home, this is only of necessity rather than ethnousiasm. On contrary, males consider computer at home as a mental and social activity. In that case the use at home increases the gender differences. Selwyn (1998) concludes that "for many girls, who have not grown up within a culture of home computer use, a computer is just a tool for some purpose in a school context" (p224).

In addition to Selwyn's implications (1998), Young (2000) states that males are more likely to claim computers as a male area, while females are more likely to consider that they are "not the type to do well with computers". Even though there is no difference in computer accesses at home or at school, males spend more time using a home computer. And according to the researcher, the females still do not feel confident with computers, although teachers encourage them to do that. Computers are considered a male domain from both the male and female students (Young, 2000).

Parental Involvement in Children's Education

Students who succeed are almose always supported by their families. Yet many other students struggle without help or support at home (Epstein & Jansorn, 2004). How parents interact with their children is very important to predict a child's academic outcomes. Positive parenting style is good predictor of child achievement. A higher level of parent school involvement is related to students' better test scores and fewer learning problems (Zellman & Waterman, 1998).

Therefore, students can benefit when there is a home-school connection. Even though there are families that do not possess a home computer, it is necessary for schools to consider what kind of cooperation can exist between parents and teachers. Parents can learn how to support their children on school-related uses of home computers in basic skills, enrichment activities and computer literacy. Through that support, children and parents can become "co-learners" or even a child could be "teacher of parent". So, the child may improve skills and attitudes that carry over to school activities (Epstein, 1985).

Parents can assist their children and their children's schools to recognize the value of technology. Parents can be a strong advocate of computer literacy as a major component of the school curriculum. Computer literacy may offer their children the potential to broaden their horizons and may prepare them for the demands of real life (Markham, 1995, Schwartz, 1995).

According to Davidson and Ritchie (1994) it is important for teachers, students and parents to share same perceptions and attitudes towards computers as tools in education. By considering parental perceptions of technology in addition to teachers' and students' attitudes, it leads to a deeper understanding of what is needed for a successful implementation of new technologies in schools. This can happen

through the collaboration of parents and teachers on a computer committee or parents' participation in school-sponsored computer training sessions.

As Epstein (1985) indicates, in order for a successful participation of parents in education to take place, parents may need the appropriate training. They need help to understand the capabilities of their home computer or maybe a computer borrowed from the school. Just as schools expect parents to know about their children's textbooks, schools should provide to parents information about the new learning materials that become part of a school's instructional program (Epstein, 1985).

An example of a program that involves parents in computer education is the one described by Hughes, Coyne and Waddell (1997), in a Head Start Parent Center. The purpose of the project is focused on connecting parents and schools for meeting children's needs. Specifically, parents and teachers attend training sessions together in order both of them to support children's computer skills

Marvelle (1992) also indicate the parents' involvement is important to children's school learning. He suggests different projects that teachers can use to help teachers, parents, students and community members become partners in the education process of computers. One of the projects, called A Computer for Every Student (ACES), required students to use computers both at school and at home. ACES in order to help those students, who did not have a home computer, arranged with local retailers special discounts for families who afforded to buy one and computer loan from school for families unable to purchase computers. ACES also organized one Saturday morning per month students who had troubles with computers, and their parents to attend a 3 hours class that involved computer tasks.

To conclude, there are many benefits associated with parent involvement in students' education, such as improved academic performance, improved school

behavior and greater motivation. There are also benefits for the parents, who are involved in their children education, such as increased knowledge about their children's development, positive rapport with the school and new ideas for helping their children learn (Manitoba Department of Education and Training, 1994 as sited in Fager & Brewster, 1999).

It is important for schools to create school learning communities, not professionals. A professional learning community includes teamwork of principals, teachers and staff. A school learning community includes educators, parents, students and community partners, who all work together to improve the school and to enhance students' learning opportunities. The home, school, and community connections make school subjects more meaningful for students (Epstein & Salinas, 2004).

CHAPTER 3: METHODOLOGY

Research Design

A phenomenological research design was the most appropriate for my study, because of the philosophical approach of the topic. My purpose was to understand how Greek parents' experiences with technology influence their perceptions of technology as learning tool in their children's education. For understanding this interaction between parents' experiences and their perspective of technology in education, it was important for me to learn about Greek parents' thoughts and feelings. My role as researcher was to enter the "field of perception of the participants", examine how they perceive technology and look for parents' experiences that interpret those perceptions (Creswell, 1998).

Each individual shares different perspective about the same concept, because of different lived experiences. There are many variables that may influence an individual's experiences and consequently his or her perspective. Accordingly, by interviewing the Greek parents, I was able to understand from their perspectives the concept of technology. In particular, I analyzed the data to collect descriptions of parents' perceptions, as they have formed from their experiences. In the entire process of the study, my role as researcher was that of an active learner, who expressed the participants' views and not an expert who judged their perspectives.

In conclusion, my interest in this study was not the event of "the entrance of technology in children's education" but how the participants made sense of this and how their understandings influence their behavior.

Methods of Data Collection and Analysis.

The participants in my study were sampled based on the purposeful sampling method "criterion", according to which the participants should meet some criterion. The criterion for my selection was individuals who are parents and have experienced

in some way technology as a tool. I interviewed 8 individuals- 4 males and 4 females- who are Greek parents and live in Greece. The interviewees belonged to one ethnic group, since the purpose of my study is to describe the Greek parents' perception of technology formed by their lived experiences, in order to understand parents' perceptions of technology in their children's education.

The age of the males ranges from 35 to 45. The females' age range from 30-40. The educational level of females and males varies from university degrees to Master's degrees. Their occupational status also varies. Parents' knowledge of computer differentiates from some knowledge to advanced knowledge. Finally, they all have children from ages 4-12 years old. This information was obtained from personal knowledge and relationship with the participants.

The phenomenological research design entailed in depth-interviews with the participants in order for me to collect information. For that reason, I interviewed 8 Greek people who were accessible by telephone in Greece. The telephone interviews provided the best source of information since I did not have direct access to Greek parents. The interviews with 8 parents were conducted over a period of two months. My intention was to interview each parent at least two times during the period of the two months. Each interview lasted at least 45 minutes each time.

I initially communicated with the existing contacts in Greece, who led me to further contacts. I contacted the identified parents and asked them to participate in my study. I explained to them that their participation entailed at least two interviews in a period of two months. I assured them about their anonymity. Any information that was obtained in connection with this study and that could be identified with the participant would remain confidential and would only be disclosed with his/her written or verbal permission or as required by the law. Finally, I assured them that in

order to protect their anonymity, I would use a coding system based on pseudonyms instead of their name and only I would have access to this coding system.

I also asked them to sign the consent form as the Human Subjects' Committee (CPHS) defines. I permitted Greek parents to set up the day and the time to sign the consent form and participate in in-depth interviews. At the arranged day of the interviews, I sent the consent forms directly to the participants via e-mail since they all have e-mail experience and computer knowledge. Additionally, I had a family member pick up the Human Subjects' forms, made copies for the participants and mail the originals forms to me.

After all the above arrangements, I proceeded to data collection through my interview process. The interviews were audio-taped, when the interviewees agreed to that. I used also an interview protocol, which included the interview questions, and took notes on the interview comments.

In order to minimize the risk of my inexperience as a researcher, I conducted semi structured interviews. This type of interview allowed me to build interview questions prior to the interviews with the Greek parents (see appendix for questions) In particular, my intention was to develop descriptive questions based on Spradley's ethnographic technique (Spradley, 1979). The questions were the same for all parents, males and females.

Through those questions in the first interview, I created a frame for the informants to describe their perceptions of technology. After each telephone interviews, I transcribed the data from the tape-recorder and reviewed the interview answers. This review, which was part of my data collection process, helped me develop clarifying questions that I used in a secondary interview with the Greek

parents. The review also allowed me to develop structural questions which complemented the descriptive.

After the data collection, I proceeded to data analysis following specific steps. As a researcher I held my own perceptions about computers that did not always coincide with the ones held by the participants or in other cases were absolutely consistent. For that, initially I tried to acquire awareness of my own perceptions of technology in education. My preconceptions focused on my positive attitude towards technology, because of my experiences with computers. After acquiring consciousness of my perspective, during the interviews I expressed ignorance about the study area in order to understand the concept of technology from parents' perspective.

Setting aside all my preconceived perceptions of technology I was able to proceed with subjectivity to data analysis. I was able to best understand the perceptions' of Greek parents regarding technology, specifically what experiences have formed those perceptions, and how those experiences influenced their perceptions of technology in their children's education.

The next step in my analysis was to read all interviews. Non-repetitive statements were extracted from the interviews and became the raw data for analysis. The statements were formulated into two groups of meanings after a close reading, rereading and reflection upon the significant statements in order to reveal parents' perspective of technology.

Subsequently, I clustered the formulated meanings into three groups of themes. The first group presents what Greek parents' perceptions of technology are and what different experiences create the structure of their beliefs. The second group of themes includes parents' perceptions of computers in their children's education. The

third group is a description of how Greek parents view their participation in children's education regarding computers.

Once I did that, I was ready to proceed further. Based on all the previous steps, I tied together all information to a description. This step involved my reflection upon various emerged themes. The description describes what the Greek parents' perceptions of technology are and includes specific examples. The description also explains how those perceptions were formed. Finally, a resulting overview provided the opportunity to compare experiences of parents with technology and perceptions of technology in their children's education in a descriptive format.

Succeeding the credibility of my study, I validated with the informants the findings of my data analysis. I sent to them via e-mail my interpretations and conclusions so that they could judge the accuracy of the account.

Conclusively, the process of data analysis provided me a rich description of the Greek parents' perceptions of technology and a better understanding of technology from parents' perspective. I tried to provide a rich insight of the Greek parents' perceptions in order to report all my conclusions to the Greek Ministry. Hopefully, Greek Ministry will learn to capture and utilize parents' influence on children's ability to learn and use computers in school.

CHAPTER 4: FINDINGS

Introduction

The data was analyzed as described in the previous chapter. The chapter is divided in three sections according to the three identified categories of themes. The first category of themes presents parents' perceptions of technology in their children's education. The second category includes the different variables that influence parents' perceptions of technology. The third category refers to parents' perceptions of their participation in their children's education regarding computers.

Parents' Perceptions of Technology in Children's Education

Introduction

Questions were asked to determine parents' perceptions of technology in their children's education. Parents' responses indicated what they view as benefits in computer use and what concerns them. The themes found are:

Themes

1. Benefits:

- Children's familiarization with computers.
- New learning methods for children.
- Internet utilization
- Preparation of children for future employment.

2. Concerns:

- Children's sociability.
- Teachers' role in teaching with computers.
- Internet (access to inappropriate material etc.)
-Reaction of children in the use of computer as learning tool.

Parents' perspective of the benefits of computer use in children's education

Familiarization with computers

Parents influenced by their own experiences with technology feel that it is a more natural process for a child to acquire computing skills during childhood than in adulthood. For example, "Οι εμπειρίες μου με τον υπολογιστή με δίδαξαν πώς είναι καλή η εξοικείωση σε νεαρή ηλικία." (Translation: "My experience with computers taught that familiarization in childhood is a good thing".)

According to a few parents, children's approach to computers in early years will lead children to cope with any technology fear and overcome it. Children will consider the use of computers as an ordinary tool in their academic lives, similar to the use of television or telephone at home. Consequently, children will feel more confident in computer use than their parents do, as a female parent state:

> Τα παιδιά καλό είναι να εξοικειώνονται με τον υπολογιστή. Έτσι δε θα φοβούνται όπως εγώ "τώρα πιό κουμπί να πατήσω, μην κάνω κάποιο λάθος και προκληθεί αναστάτωση.
>
> (Translation: It is good for children to be familiar with computers. That way, they will not be afraid-as I do "which button to press, or as I am constantly afraid that maybe I'll do something wrong and mess up everything".)

According to a number of female parents, another positive reason for children's early familiarization with computers is to avoid having to force themselves to learn it later. Parents do not wish for their children to learn computers the way they did in adulthood. Parents acquired computing skills in their adulthood forced to computer use for the needs in their education or ooccupation and not because of an interest to learn, as stated by a female parent, "Γιατί αν εγώ έφτασα 18 χρονών να μάθω να χρησιμοποιώ υπολογιστή, θα ήθελα το παιδί μου να εξοικειωθεί νωρίτερα."

(Translation: "I was 18 when I learned how to use the computer. I would like to see my child become familiar with its use earlier than me.")

The consequences of the pressure to acquire computing skills in adulthood are that parents never felt confident of their computer knowledge. For that, they feel that they never excelled in that area. A parent corroborates the above perspective with this statement:

> Δεν πιστεύω για τα παιδιά σήμερα οτι πρέπει να είναι, όπως στην εποχή μου, ότι "έπρεπε" κάποια στιγμή στη ζωή μου να μάθω. «Πρέπει»... Όταν κάτι έρχεται μέσα από πίεση, και όχι ως φυσική πορεία, τότε είναι πολύ πιθανό να μην πετύχεις ποτέ εξ ολοκλήρου σ'αυτό. Μπορεί μάλιστα να φτάσεις στο σημείο να αντιπαθήσεις αυτό που κάνεις...
>
> (Translation: I do not believe that it should be for my children, as it was for me, that I "had" to learn. When something is the result of pressure and not a natural process, then it is possible for someone to never succeed completely in that area; it is possible even to hate what he does...)

The consequences for a few parents are further acknowledged. It will be more difficult for an adult to oblige himself to the acquisition of those skills than it would be for a child, if the adult is not interesting in that knowledge. A parent expressing such sentiments for the acquisition of early computer skills, stated:

> Είναι πιό εύκολο για ένα παιδί 8 ετών να μάθει, παρά ένας έφηβος 18 χρονών. Αυτό το παιδί που θα αρχίσει να μαθαίνει από τόσο νωρίς, θα το συνεχίσει αυτό σε όλη του τη ζωή. Και έπειτα ποιός θα καθήσει τόσο πολύ σε μεγάλη ηλικία να μάθει, αν δεν τον ενδιαφέρει αυτός ο τομέας. Ενώ αν από μικρή ηλικία όλα τα παιδιά αρχίζουν να αποκτούν βασικές γνώσεις, θα είναι πιο εύκολο.

(Translation: It is easier for an 8 years old child to acquire knowledge than for a teenager. A child, who will begin to acquire computer skills, will continue this process for the rest of his live. So, how will a person learn the computer use at adulthood, if this area is not appealing to him? But, if children begin to acquire basic skills now, it will be easier for them than later.)

New learning methods

Both male and female participants agreed that computers in children's education indicate the detachment of teachers from the traditional lecture type-teaching method. Computers can offer a visual approach to the curriculum. For that, computers create for students the opportunity of a better understanding of a subject than when teacher use only traditional methods. Students become more interested in learning. A parent's statement confirms the above perspective:

> Αν ο καθηγητής κάνει χρήση του υπολογιστή ή και άλλων μέσων, και όχι απλά μάθηση με τον παραδοσιακό τρόπο διδασκαλίας, τότε μπορεί ευκολότερα να προσελκύσει το ενδιαφέρον των μαθητών. Όχι πλέον στη μάθηση μονότονα με την παραδοσιακή διδασκαλία...
>
> (Translation: If a teacher uses computers or other tools and he does not teach only with the lecture-type method, then he can easily engage students' interest. Stop the monotonous learning with the traditional method...)

A parent referred to the example of the curriculum of history, where students can use an on-line library to explore deeper a historic issue. In physics, children can use different software programs for applying theory and doing their experiments. Consequently, students become interested in various subjects as stated by a parent:

Μ'αυτόν τον τρόπο η μάθηση γίνεται πιο ελκυστική και οι μαθητές δείχνουν μεγαλύτερο ενδιαφέρον στα διαφορα μαθήματα, ακόμη και αν αυτά αρχικά δεν τους ελκύουν την προσοχή."

(Translation: "In that way learning will be more stimulating for students and they will be more interesting in the different school subjects, even in those subjects they primarily are not very interesting in.")

A female, who is an English teacher, referred to a personal example of her using computer at work. She explains how computers engage students and enhance their interest in the curriculum:

Τα παιδάκια μπροστά στο ίδιο πρόγραμμα, μαθαίνουν λέξεις. Για παράδειγμα τη λέξη «γάτα». Το πρόγραμμα τους δείχνει την εικόνα μιας γάτας, τα παιδιά λένε "cat" και αμέσως εμφανίζεται κάτω από την εικόνα της γάτας και η λέξη. Χρησιμοποιούμε τέτοιου είδους προγράμματα στον εκπαιδευτικό τομέα, γιατί τα παιδιά εντυπώνουν καλύτερα τις λέξεις. Δεν τους ζητάμε απλά να μάθουν 10 λέξεις να τις πουν και να τις γράψουν. Το βλέπουν σαν παιχνίδι.

(Translation: Children use a software program to learn words. For example, the word "cat". The computer program shows them the picture of a cat, children say "cat" and instantly appears down of the picture of the cat the analogous word. We use such programs in education, because children memorize better words. We do not ask them just to learn 10 words and write them down. They perceived learning as a game.)

Furthermore, a male participant with extended knowledge of computers indicates that computers are an "interactive" teaching method. Students acquire a deeper understanding of the curriculum, because they apply the knowledge when they use software programs:

Υπάρχει το σύστημα που μπαίνει ο δάσκαλος μέσα στην τάξη και μιλάει χωρίς να ρωτάει τον μαθητή αν έχει καταλάβει. Και υπάρχει και το άλλο, που είναι "interactive". Ο υπολογιστής είναι interactive, πχ στο μάθημα της αριθμητικής ο δάσκαλος να πει 1+1=2, 2+2=4. Το παιδί για παράδειγμα, όταν δεν καταλαβαίνει κάτι, δεν ρωτάει. Με τον υπολογιστή, πρέπει να πατήσει το κουμπί και εκεί θα είναι ή σωστό ή λάθος το αποτέλεσμα που θα έχει. Έτσι θα ξέρει ότι δεν έχει καταλάβει κάτι. Αυτό για μένα σημαίνει interactive.

(Translation: There is the system, where a teacher walks into the classroom and talks without asking students, if they understand what he is talking about. And there is the system, which is interactive. Computers are interactive. For example in mathematics, a teacher may say 1+1=2, 2+2=4. But a child, when he/she does not understand something, does not ask. When the child is using computers and must press the right button, the result could be wrong or right. In that case, the child will know if he/she has not understood. This is for me "interactive".)

Internet

For some parents, computer use in school is connected to Internet use and what that access can offer to children. Internet use is a continual access to knowledge, for example, "Η γνώση στις διάφορες επιστήμες συνεχώς ανανεώνεται και ο υπολογιστής μπορεί να δώσει τη δυνατότητα στο μαθητή να ακολουθήσει τις εξελίξεις." (Translation: "Knowledge in scientific disciplines is continually replaced with new knowledge. Computers can offer students the opportunity to follow that progress.")

Through that tool, children can have a richness of on-line libraries and dictionaries. Teachers are not able to know everything that a child may ask and

answer all students' questions. Books also are not replaced as often in school in order to include the new knowledge in curricula, such as mathematics or physics.

Preparation of children for the future employment

All parents agreed that computer knowledge would offer children a more secure future employment. Some parents emphasized that most of the jobs nowadays are technical and call for expert skills. One of those skills was computer knowledge. Because schools acknowledged the needs of employment, they prepared children with special skills, such as computer familiarization, as stated:

> Οποιοδήποτε επάγγελμα ακολουθήσουν τα παιδιά μου στο μέλλον, σίγουρα πρέπει να ξέρουν υπολογιστές. Είμαστε στην εποχή της απόλυτης εξειδίκευσης Το σχολείο φροντίζει να εφοδιάσει το μαθητή με αυτό που ζητάει η σύγχρονη κοινωνία.
>
> (Translation "Any future employment for my children, calls for computer knowledge. Nowadays, all jobs are technical. Schools provide students with what the modern society demands.)

According to the majority of parents, if children become competent in computing during their childhood, this knowledge will facilitate them later in their professional lives. Children would be able to follow the progress in computer technology and renew their knowledge. A parent confirmed the above sentiment with his statement "Τα παιδιά θα αποκτήσουν από νωρίς κάποια πράγματα γύρω από τον υπολογιστή, και αυτό θα τους διευκολύνει αργότερα στον επαγγελματικό τους τομέα." (Translation: "children would acquire computer knowledge in their early years. This would facilitate them later in their employment").

Otherwise, according to some parents, for children who are not skilled in computer use may have extremely difficult in succeeding professionally. And based

on one parent's perspective, these children will encounter psychological consequences additionally to their professional. Children without computing skills will feel disadvantaged compared to children with computing skills.

Parents' concerns regarding computers in children's education

Children's sociability

One major concern for most of the parents was their children's sociability when using computers. Parents fear the isolation derived from the use of computer in a child' every day live. Computers for parents are an individual pursuit.

The consequence is that children may develop a dependence of computers and spend too much time using it. Children may grow away from their friends or classmates and become isolated. Children also may avoid playing with their friends. Playing is, according to parents, a major educational tool, that helps children learn to communicate and share with other people.

The consequences in children's sociability are corroborated in one parent's response:

> Εκείνο που με ανησυχεί πάνω απ' όλα είναι η εξάρτηση του παιδιού από τους υπολογιστές; η απομάκρυνση επίσης από άλλους τομείς, όπως το παιχνίδι ή την παρέα με συμμαθητές και φίλους. Πώς τα παιδιά θα κοινωνικοποιηθούν, αν δεν παίξουν και δε μοιραστούν στο παιχνίδι;
>
> (Translation: "What worries me above all, is the dependence of my child for computer use and the disconnection from other fields, such as playing or friendships with other children or his classmates. Then, how will children socialize, if they do not play and they do not share while playing?")

However, some parents stated that computers are not the only cause of isolation. Living in the current society there are many factors that may contribute to

the insociability of people. Computers intensify the problem and threaten children's sociability, as TV does. A parent presented her personal experience of insociability to communicate with friends"Για παράδειγμα πολλές φορές και εγώ αντί να τηλεφωνήσω σε κάποιον για να του πω «Χρόνια Πολλά», θα του στείλω ένα e-mail. Πώς το παιδί μου να μην κάνει το ίδιο;" (Translation: "For example, many times instead of calling someone to wish them for a happy birthday, I send to them an e-mail. How can I expect my child not to do the same thing?"). Parents state that although there are consequences from using computers, children should learn to live with computers, since they are part of their way of living. Another parent addresses the insociability of computers:

> Υπάρχει επίσης και κάποιος κίνδυνος αντικοινωνικότητας, αλλά και ο σύγχρονος τρόπος ζωής δεν το προκαλεί αυτό; Μόνο οι υπολογιστές μας φταίνε; Σίγουρα επιδεινώνει την κατάσταση. Αλλά κατά βάση το θεωρώ μύθο, αυτό που λένε ότι ο υπολογιστής σε κάνει αντικοινωνικό. Η τηλεόραση δε σε κάνει αντικοινωνικό; Ο υπολογιστής για μένα κάποια άλλη ευκολία, όπως είναι και η τηλεόραση, το τηλέφωνο. Το παιδί πρέπει να μάθει να ζει με αυτό. (Translation: There is the danger of insociability. However, and the current way of living does not cause that? Only computers are responsible for that? I agree that computers worsen the problem. But I consider the idea of, what people say about computers cause someone to be insociable, a myth. TV does not make you insociable? Computers are for me another convenience, such as TV or radio. A child should learn to live with that tool.)

Teachers' role in teaching with computers

The majority of parents agreed that teachers' role would change with the infusion of technology in schools, for example, "Δε θα μειωθεί ο ρόλος του, αλλά

σίγουρα θα αλλάξει. Ο καθηγητής θα είναι πάντα ο καθηγητής. Ο υπολογιστής θα είναι ένα εργαλείο στα χέρια του καθηγητή." (Translation: "Teachers' role will not diminish, but it will definitely change. A teacher will be always a teacher. Computers will be a tool for a teacher.")

Parents were questioned about the extent they worry for the change in the teacher's role. The majority of the participants supported the necessity for teachers to change their role. What worries Greek parents is that possibly older teachers will not be willing to adopt new teaching methods, which require their familiarization with computers. For example, "Φοβάμαι ότι υπάρχουν δάσκαλοι που ακολουθούν τον παραδοσιακό τρόπο διδασκαλίας και δεν είναι διατιθεμένοι να ξεφύγουν απ'αυτόν. Συντηρητισμός." (Translation: "I am afraid that there are older teachers, who follow the traditional way of teaching and there are not willing to take a leave of that. Conservatism.")

Greek parents explained their perceptions providing possible reasons for the conservatism of Greek teachers. The first reason was that computer implementation in education will be a huge change for older teachers. They would not be eager to dedicate the time needed in order to acquire computing skills. The second reason was the difficulties for an older person to gain the new knowledge. It is much easier for those teachers to hold onto the traditional lecture type- teaching method.

The unwillingness of teachers to adjust in new learning methods that promote students' learning was not the only concern of parents. Furthermore, parents fear that Greek teachers may not be trained enough to incorporate that tool in their teaching, for example, "Φοβάμαι μήπως οι δάσκαλοι δεν είναι αρκετά εκπαιδευμένοι να χρησιμοποιήσουν αυτό το μέσο διδασκαλίας.Θα πρέπει πλέον ο δάσκαλος να διαθέτει κάποιες ειδικότερες γνώσεις για να μπορεί να χρησιμοποιήσει σωστά το νέο αυτό

μέσο." (Translation: "I am afraid that teachers will not be trained enough to use that teaching too. A teacher should have special knowledge for being able to use correctly that tool.")

Additionally, according to a number of parents, teachers' reluctance to move from traditional teaching methods and the nonexistence of well-trained teachers may reflected on students. It is possible that teachers will have negative attitudes towards computer use and convey their perceptions to students, for example, "Φοβάμαι μήπως οι δάσκαλοι με τον τρόπο τους μεταφέρουν τις αρνητικές τους αντιλήψεις στα παιδιά." (Translation: "I am afraid that teachers will in some way carry their negative perceptions about computer use to children.")

Then, instead of benefiting students, teachers may develop in children negative preconceptions about computers. Instead of creating a better learning environment for students, teachers may convert a positive change to a negative one. Also a bad usage of computers in teaching methods may be harmful to students' ability to learn, as any other teaching method that is not used in a right way. A parent summarizes her worries:

> Δεν ξέρω οι δάσκαλοι πως αντιδρούν σ'αυτό το εργαλείο ή πώς θα αντιδράσουν.Δεν ξέρω αν ο υπολογιστής θα είναι κάτι θετικό στην εκπαίδευση, αλλά φοβάμαι μήπως οι δάσκαλοι λόγω της αρνητικότητας τους το μετατρέψουν αυτό το θετικό, σε κάτι αδιάφορο. Ή δεν λόγω ότι δεν ξέρουν, κάνουν κακή χρήση του υπολογιστή και αυτό έχει επιπτώσεις στους μαθητές.
>
> (Translation: I do not know how teachers react or how they will react with that tool. I do not know if computers will be something positive in education. But I am afraid that maybe teachers because of their own negativity, will convert

this positive change in something uninterested. Or teachers maybe because of their ignorance of computers will do a bad use and that will have negative consequences to students.)

Only an older parent trusts unconditionally the teachers' role in classroom and how they would use computers. Although he has a few concerns for computer use in children's education, he feels confident that teachers will overcome all possible hazards of computers and create a secure learning environment for students.

Finally, some of the parents expressed the fear of the alienation between teachers and children that computer use may hold. If children learn in front of a computer, then the interaction of children with the teacher will be limited. Such a consequence eliminates the dialogue between a teacher and a child. The statement of a parent reveals the same sentiments:

> "Αν το κάθε παιδί βρίσκεται μπροστά σε έναν υπολογιστή, τότε δε θα υπάρχει διάλογος μεταξύ μαθητών και δασκάλου. Ο διάλογος είναι κατά την άποψή μου η βάση της μάθησης." (Translation: "If each child is in front of a computer, then there will not be a dialogue between students and teachers. According to my opinion, dialogue is the basis of learning.")

Furthermore, the parents stated their fear of a future classroom, where the absence of a teacher will be a fact. Such a picture is very frantic for the parents, for example, "Δε θα ήθελα να δω το ρόλο του δασκάλου να περιορίζεται, γιατί θα με φόβιζε μια τάξη, όπου το ανθρώπινο στοιχείο περιορίζεται και ο ρόλος του υπολογιστή αυξάνεται." (Translation: "I would not like to see the role of teachers to be reduced. I would be terrified to see a class, where the human element would be limited and the role of computers would be increased".)According to parents there should be some terms for the use of computer in classroom. The presence of a teacher

in the classroom should be active. Computers should be a tool for a teacher and not the opposite.

Internet

The majority of the Greek parents were concerned about the use of the Internet for their children. In particular, they were concerned about the access in material inappropriate for children's ages and how to protect their children, for example, "Επίσης η ανησυχία μου είναι ότι δε θα μπορώ πάντα να ελέγξω με τί είδους θέματα ασχολούνται στο Ιντερνετ, που μπορεί να είναι ακατάλληλα για τα παιδιά."(Translation: "Also, my worry is that I cannot always check on what kind of material they research in Internet that can be inappropriate for children.")

A parent addressed the concerns about the Internet use from his children with this example of unattended Internet use:

> Μου έρχεται τώρα στο μυαλό το περιστατικό ενός 16 χρονου μαθητή που είχε μια ερωτική απογοήτευση και ήθελε να αυτοκτονήσει. Είχε ηλεκτρονική συνομιλία με κάποιον στην Αθήνα, μεγάλο άνθρωπο, στον οποίο εκμυστηρεύτηκε την επιθυμία του και αυτός τον καθοδήγησε που να προμηθευτεί ένα φάρμακο μέσω ενός site. Το παιδί τελικά αυτοκτόνησε.
>
> (Translation: It crosses my mind the incident of 16 years old student who had a love crush and wanted to commit suicide. He had e-mail communication with someone in Athens, who was older than him. The student confessed his intention to that man, who directed the student where he could get the poison through a site. Finally the student committed suicide.)

However, a parent, who is an expert in technology fields, emphasized that when a parent gives to a child the freedom to incorporate computer in his/her education, then the parent should be prepared to accept the negative sides of that use.

A few parents acknowledged that there are concerns regarding the Internet use for their children-such as inappropriate material- but the benefits are more from the negative consequences. Technology provides ways for parents to check constantly their children in order to protect them from the wrong use of Internet.

Reaction of children in the use of computer as learning tool

A few male and female participants worry about the reaction of children using computers as learning tool. Some children may not be interested in a learning environment, where computers are a basic component. They also worry that computers will not allow the cooperation between students and may promote an individualists atmosphere. And there is a possibility that there will be children that prefer a more cooperative learning method. In that case, computer use instead of benefiting students will harm them "ίσως στα παιδιά μου να μην αρέσει η διδασκαλία με υπολογιστές και προτιμούν ένα διαφορετικό τρόπο διδασκαλίας. Τότε αυτός ο τρόπος διδασκαλίας δε θα είναι αποδοτικός για τα παιδιά μου". (Translation: "maybe my children will not like that kind of learning with computers and prefer a different teaching method. Then that way of learning will not be effective for my children.")

Variables Influence Parents' Perceptions of Technology

Introduction

The purpose of the questions asked, was to determine to what extent parents' perceptions of technology have been influenced from their education and occupation. Parents' responses about their educational and occupational status formulate their SES and therefore no additional theme about SES was examined. Finally, questions related to gender were necessary to investigate the existence or non-existence of stereotypes in parents' perceptions of technology. As a whole, the themes discussed in this section are:

Themes:

1. The influence of family (informal education) and education (formal education) and parents' perceptions of technology:

- Lack of interest in home computers because of lack of motivation, knowledge or support from parents.
- Lack of interest in school computers because of the correlation of computers with mathematics and because of teachers' lack of skills.
- Interest in school computer because of teachers' skills.
- University education as the determinant factor for parents' interest in computers.
- Acquisition of computing skills because of personal interest. (males)

2. The influence of parents' occupational status in their perceptions of technology:

- Computer knowledge as qualification for work.
- Computer use as a tool for work.
- Computer use as a tool to communication.
- Computer use as tool for access in information (Internet).

3. Gender and technology according parents' experiences.

- Educational level eliminates gender stereotypes.
- Females and males lack of stereotypes.
- Females explain their limited interest in computer use and correlate males' interest of computers with technical knowledge.
- Computer knowledge is a necessity for both males and females.

Family and Education

The majority of female participants agreed that, although they have had some experience with technology in early school years, their education in University was

the main reason they became truly interested in computer use. For half of the females, their family had the socioeconomic background to purchase a home computer in order for children to have access. Most of the female students had experienced computers in experimental schools. However, neither the informal education at home nor the formal education in classroom developed in females the interest to acquire further knowledge. Neither family nor school engaged females to use computers.

In particular, for the two females, who owned a home computer, they had not presented any reasonable decision for their children to be engaged in using computers. The females did not feel any motivation from their parents to acquire computing skills. The only motivation for girls was the purchase of a home computer. Additionally, the parents of the females had no knowledge of computers to support their children in computer use. For that, females perceived the acquisition of computing skills as a difficult task. They also considered computers as another game without any educational potential.

A female discussed her disinterest in computer use:

> Υπολογιστή μας πήρε ο πατέρας μου όταν είμασταν στην έκτη Δημοτικού. Όμως επειδή εμείς ασχολιόμασταν περισσότερο με παιχνίδια. Επειδή για να κάνω ένα απλό πρόγραμμα χρειαζόμουν πολύ χρόνο, δεν το θεωρούσα και τόσο σημαντική γνώση. Βέβαια και ο πατέρας μου δεν είχε καμία εμπειρία από υπολογιστές για να μας βοηθήσει και εμάς μας φαινόταν δύσκολο και χρονοβόρο.
>
> (Translation: My father bought a computer, when we were at elementary school. However, we used the computer to play games. Because of doing a simple program in computers, I needed a lot of time; I did not think that it was such an important knowledge. Of course my father had no experience with

computers to help us and for that it was for us a difficult and time consuming task.).

Furthermore, even though most of the female students had computers in experimental schools, they didn't share the same experiences. A female suggested that computer use in school was connected with mathematics and numbers and for that the engagement with computers was not very appealing for girls. Another female stated that the teaching environment was not very engaging in learning computers because of the teacher's lack of computing skills:

> Στην Τρίτη γυμνασίου είχαμε υπολογιστές. Ό,τι κάναμε εκεί όμως, ποτέ δε τα θυμήθηκα. Έμπαιναν από εδώ και έβγαιναν από εκεί. Ήταν η καθηγήτρια, η οποία ούτε αυτή ήξερε τί έκανε.Στο τέλος μπερδευόταν τόσο η καθηγήτρια, που έλεγες «τώρα να μάθω τί;
>
> (Translation: In middle school, we had computers. But what we learnt there, I never remember it. Our instructor did not have knowledge of the teaching subject. She was so confused some times about what she was teaching, that I was saying to myself "now what I can learn in such a learning environment, where the instructor herself do not know what she teaches"?)

To the contrary, only for one female the use of computers in school was somehow interesting, because of the instructor. The teacher was very informed about computers and developed in children the aspiration of learning more about computer use, for example, "Είχαμε έναν νεαρό καθηγητή, που γνώριζε πολλά από υπολογιστές, μας μάθαινε ενδιαφέροντα πράγματα και μας κινούσε το ενδιαφέρον να μάθουμε περισσότερα για τους υπολογιστές." (Translation: "We had a young teacher, who knew a lot about computers, he taught to us interesting subjects and he engaged our interest to learn more about computers.")

Computer knowledge became important for the majority of the females, when they entered University. The requirements of their classes enhanced the need for computer knowledge. The acquired knowledge of females ranged from simple acquisition of computer skills, such Word processor, Excel and Power point, to more specialized knowledge of software programs connected to the females' majors. Females' familiarization with computers increased their realization of the tool's potentials. Computer use helped them organize the assignments of their classes. In some cases, the teaching subjects became more appealing to students, because they used programs to apply the theory.

Only one female continued to have negative feelings about computers while attending the University because of her bad learning experiences in school. Her negative feelings were concentrated in the phrase "Αν μου έλεγαν ότι έχω την επιλογή να μάθω ή οχι, τότε δε θα επέλεγα τη χρήση υπολογιστή στο Πανεπιστήμιο. Οι εμπειρίες μου με τον υπολογιστή στο σχολείο μου άφησαν αρνητικά συναισθήματα." (Translation: If someone could tell me that I have the choice to learn a lot of computers or not, then I would have chosen not to use computers. My experiences with computers at school created negative feelings for that tool.").

For the majority of males, their interest for computers started in their teenager years and increased during their University years. For the majority of males the familiarization with computers came from their curiosity to learn more about the tool. It started in their school years in combination with their preferences in exact sciences, and continued with their choice of majors in university classes. Their personal craving also to learn more about computers endorsed their familiarization with computers. A male states the reason of his interest of computers:

Στο σχολείο υπήρχε στα αγόρια μια τάση προς τις θετικές επιστήμες και ό, τι συνδεόταν μ' αυτές π.χ engineering και τέτοια.Εγώ ξεκίνησα ηλεκτρολόγος και ο υπολογιστής ήταν το μέσο αυτού του επαγγέλματος. Δηλαδή μάθαινα το hardware στη σχολή, το πώς δούλευε ο υπολογιστής εσωτερικά αλλά δεν ήξερα πώς λειτουργεί ώς μέσο. Είχα την εξειδικευμένη γνώση, δεν είχα τη γενική του υπολογιστή. Και μου δημιουργήθηκε η επιθυμία να δώ πώς δουλεύει στο σύνολό του. Έτσι ξεκίνησα μόνος μου να μαθαίνω.

(Translation: In school, boys liked exact sciences and everything that had to do with that. I started as engineer and computer was the tool of that occupation. I first learn the hardware in University –how computers worked inside but I did not know how it worked as a tool. That is, I had a more specialized knowledge but I did not have the general information about computer. And for that reason, I wanted to learn how computer works inside and outside. I started to learn by myself).

For one male, whose familiarization with computers started at University, his feelings were very positive. He emphasized that the change computers brought to his life were:

Μέχρι τα 18 μου δεν είχα καταφέρει να μάθω ούτε Αγγλικά. Μόλις όμως μπήκα στο Πανεπιστήμιο και έμαθα υπολογιστές, κατάφερα μέσα σε 2-3 χρόνια, να μάθω την ξένη γλώσσα χωρίς κόπο. Χρησιμοποίησα προγράμματα στον υπολογιστή και πλέον δεν ήταν μια απλή θεωρία, αλλά εικόνες, που τις συγκρατούσα στη μνήμη μου.

(Translation: Until my 18 birthday, I could not learn English. However, when I entered University and became familiar with computers, I managed to learn

English. I used software programs, and suddenly knowledge was not just theory, but pictures, which I held in my memory.)

Occupational Status

Occupation was a determinant factor for parents' perceptions of technology. Because of occupation the majority of parents acknowledged the necessity of computers. Two were the basic reasons. The first reason was that for all parents computer skills were a required qualification for obtaining a secure professional future. And since all careers are in well paid and successful work are in the computer industry computing skills is a crucial qualification, for example "Σε όλες επίσης τις δουλειές θεωρείται απαραίτητο προσόν, όλοι σου ζητάνε τουλάχιστον στοιχειώδεις γνώσεις". (Translation: "In all works computer's knowledge is a required qualification; everyone asks you to have at least the basic skills").

The second reason that parents perceived the necessity of computers in their occupation was because of the potentials of that tool. Parents indicate that computers help them organize their work and do more interesting work, for example, "Ο υπολογιστής κάνει τη δουλειά σου απλούστερη και ευκολότερη."(Translation: computers make your work simpler and easier". E-mail is also for parents a way of communication in their work, although some times parents feel that is an isolating way of communication with other people.

Only for a few females and for one male, the limited use of computers in their occupation leads to a moderate perception of computers. They stated that although they appreciate the potentials for computers, they are not engaged in using it, because in their occupation it's use is not demanded, for example, "Βέβαια ακόμη και τώρα οι γνώσεις μου σχετικά με υπολογιστή είναι περιορισμένες, διότι η φύση της εργασίας μου δεν απαιτεί επιπλέον εξοικείωση." (Translation: "Even now my knowledge of

computer use is limited, because the nature of my occupation does not demand further familiarization).

Additionally, Internet use offers to the majority of parents, access to information and helps them refresh their knowledge in their work. A parent refers:

> Είμαι γεωπόνος και όπως καταλαβαίνεις η εξέλιξη των θετικών επιστημών συμβαδίζει με την εξέλιξη της τεχνολογίας. Αν θέλω να θεωρούμαι ενημερωμένος στο χώρο του επαγγελματός μου, ξέρω ότι πρέπει να ακολουθώ τις εξελίξεις. Και όλες οι εξελίξεις σχετίζονται με την εξέλιξη της τεχνολογίας, μέρος της οποίας είναι ο υπολογιστής.π.χ η γενετική μηχανική." (Translation: "I am an agriculturist and as you can see, the development of exact sciences follows the development of technology. If I want to be informed in my work, I know that I have to follow the development, which is related to technology. Part of technology is computer. For example, genetic engineering").

Gender

The majority of males and all females supported that stereotypes about computer use do not exist. According to parents' perceptions the educational level eliminates such perceptions. Educated people consider computer knowledge and use a necessity for any gender, for example, "Δεν πιστεύω ότι υπάρχουν στερεότυπα στη σύγχρονη εποχλή. Εννοώ ότι οι άνθρωποι που είναι μορφωμένοι, δεν έχουν στερεότυπα." (Translation: "I do not believe that there gender stereotypes nowadays. What I mean, is that people who are educated, do not have stereotypes."). A secure profession requires computing skills from women and men. The personal development of all individuals is supported by computers, since computers have great potential.

Females state that there is no distinction in computer knowledge and use according to gender. One of the females referred to an example of her workplace, where younger women have further knowledge of computers than older male employees. She describes her experiences in her workplace:

> Παρατήρησα κάποιους ηλικιωμένους συναδέλφους στην τράπεζα, οι οποίοι δεν έχουν γνώση υπολογιστή ή έχουν περιορισμένη. Είναι πολύ δύσκολο γι' αυτούς να εκτελέσουν κάποιες εργασίες στην Τράπεζα, διότι όλα σχεδόν είναι αυτοματοποιημένα. Γι'αυτό συχνά αναζητούν βοήθεια στις νέοτερες εργαζόμενες, οι οποίες έχουν μεγαλύτερη εξοικείωση με τους υπολογιστές, για να ανταποκριθούν στο ρόλο τους.
>
> (Translation: I notice some older co-workers at bank, who have not any computer knowledge or have limited knowledge. It is very difficult for them to do some of the tasks around the bank, since almost everything is computerized. In order to respond to their role at bank, they often asked for help from the younger employees, who know more about computers)

Although females do not agree with the existence of gender stereotypes, separate computer knowledge according to the criterion of "the range of interest male and female express for that tool". Two females connect computers with technical knowledge, which draw more of the men's interest than women's, for example, "Απλά επειδή πολλές φορές ο υπολογιστής συνδέεται και με τεχνικές γνώσεις, νομίζω ότι είναι πιο εύκολο για άνδρα να δείξει ενδιαφέρον για τον υπολογιστή παρά για την γυναίκα." (Translation: "In simple words, because computers are related with technical knowledge, I think that is easier for a man to have an interest for computers than for a woman.") In general, according to a few females, men are more interested in new electronics than women.

Because of the technical knowledge, there is no equivalent between males and females that choose a profession related to computers. Additionally, for women, technical knowledge is related with mathematics, for example, "Ο υπολογιστής συνδέεται με τεχνικές γνώσεις, νομίζω ότι είναι πιο εύκολο για άνδρα να δείξει ενδιαφέρον για τον υπολογιστή παρά για τη γυναίκα." (Translation: Computers are connected with technical knowledge; I believe that is much easier for a man interested in computers than women).

For half of the females, technical knowledge was a discouraging factor of interest as more demands in computer work are required. A female stated for that issue, "Εγώ έμαθα ότι χρειαζόμουν να μάθω για τη δουλειά. Αν ήταν αναγκαίο να μάθω κάτι παραπάνω, θα το έκανα. Έμαθα excel, γιατί χρειαζόταν να μάθω. Δεν έμαθα κάποιο άλλο πρόγραμμα" (Translation: "I learnt what I was needed for my work. If I was needed something else, I would have done it. I learnt excel because it was necessary. I did not learn any other program").

On the contrary, the majority of the males did not express any kind of separation in male and female' knowledge of computers. All of them consider that such knowledge is equally significant for men and women to survive in their occupation. A male confirms the above with his statement:

> Ο υπολογιστής είναι εξίσου απαραίτητο εργαλείο για άνδρες και γυναίκες. Πριν μερικά χρόνια ίσως η κατάσταση να ήταν διαφορετική, αλλά οι σύγχρονες απαιτήσεις απαιτούν εξειδίκευση και από τους άνδρες και από τις γυναίκες.
>
> (Translation: Computers are an equitably necessary tool for males and females. Maybe a few years back, the situation was different, but the needs nowadays demand specialization from both men and women.)

Only one male answered positively about the existence of gender stereotypes, "Κατά την άποψή μου υπάρχουν τέτοιες αντιλήψεις. Υπάρχει η νοοτροπία ότι τα αγόρια έχουν καλύτερες επιδόσεις στο χώρο της Πληροφορικής και γενικότερα στις σχολές θετικές κατεύθυνσης." (Translation: "According to my perspective, such stereotypes exist. People believe that boys do better in the information area and in general in exact sciences").

Finally, two males mentioned that their interest of computers is not limited to their work. Beyond their work, they usually use computer at home for personal reasons, for example, "Οι υπόλοιπες εμπειριες μου πανω στους υπολογιστες στηριζονται σε προσωπική δουλειά και ενδιαφερον." (Translation: "my experiences with computers are supported by my personal effort and interest")

Parents' Participation in Children's Education regarding Computers

Introduction

Looking at parents' participation in children's education, participants were asked how they contribute in their children's learning in general and specifically how they view their involvement in children's learning with computers at home and at school. From parents' responses, the following themes were formulated:

Themes

1. Ways parents participate in children's education
2. Relationship of parents and teachers regarding students' education:
    - Parents' perceptions of the relationship between teachers and parents
    - Reasons for parents' perceptions
3. Parents' potential participation in children's education regarding computers

Ways parents participate in children's education

All parents stated that their participation in children's education is mainly at home. From statements, such as "Μαζί ψάχνουμε σε ένα λεξικό ή σε μία εγκυκλοπαίδεια να βρούν αυτό που θέλουν και να λυθούν οι απορίες τους" (Translation: "Together we search in a dictionary or an encyclopedia to find what they need in order to solve their queries"), "Αφιερώνω χρόνο στο παιδί μου για να ερευνήσουμε μαζί για κάποια εργασία του ή να του εξηγήσω κάτι που δεν καταλαβαίνει." (Translation: "I dedicate time to my child to help her research for a paper or to explain her something that she does not understand."), it is indicated that parents perceive participation at home as the help they give to their children for school homework.

A parent in his statement was influenced by his own experiences from his parents' participation when he was a student. For that, he stated that participation for him means the occasional checking of his children about their educational progress:

> Οι δικοί μου γονείς δεν ασχολούνταν ιδιαίτερα, αν διαβάζω και πόσο διαβάζω τελικά. Απλά κοιτούσαν εκ του αποτελέσματος. Το ίδιο κάνω και εγώ με τα παιδιά μου. Το βλέπω ως μια καλή τακτική. Δεν θεωρώ ότι αυτός ο τρόπος είναι ο ιδανικός, αλλά πιστεύω ότι είναι εξίσου αποτελεσματικός με κάποιον άλλο τρόπο. Βέβαια ανά πάσα στιγμή, αν χρειάζονται κάτι, το ξέρουν ότι μπορούν να με ρωτήσουν για να τις βοηθήσω. Όχι όμως ό,τι πηγαίνω εγώ από μόνος μου να τους λέω «διάβασε αυτό, κάνε εκείνο...
>
> (Translation: My parents have not participated particularly in my education, if I was studying or how much I was studying. They simply judged my progress from the results. There was nothing else. I do the same with my kids. I perceive that as good way. I do not consider this way ideal but I believe that it is equally effective as any other way. Of course, my children know that

anytime they need something, they can ask for my help. But I do not consider that it is not good to constantly check on them and order them to "read this" or "do that.)

Relationship of parents and teachers regarding students' education

For some parents there is a strict separation between teachers' and parents' role in children's education, for example, "Το παιδί κάνει ό, τι κάνει στο σχολείο και μετά η συμμετοχή μου είναι στο σπίτι" (Translation: "A child do what he has to at school and then my participation is at home"). Another parent's statement confirms the above idea, "Ο δάσκαλος κάνει το καθήκον του στο σχολείο, και ο γονιός στο σπίτι" (Translation: "A teacher does his/her job at school and a parent does his/her at home.)

A few participants supporting the above sentiments stated that the only obligation from teachers towards parents is to inform them about any problems that children may have at school. Then, it is the parents' duty to find ways to help their children at home, for example, "Πάνω απ' όλα με ενδιαφέρει η ενημέρωση από τους δασκάλους. Από εκεί και πέρα δε νομίζω ότι υπάρχει κάτι άλλο. Μετά, θα βρω τρόπους να βοηθήσω το παιδί μου." (Translation: "First of all, I am expecting teachers to keep me inform. I do not think there is anything else. Then, I will find ways to help my child."). Another statement corroborated the previous:

> Δάσκαλος και γονιός για το καλό του παιδιού δουλεύουν. Το θεωρώ δεδομένο ότι η επικοινωνία ανάμεσα στο δάσκαλο και στο γονιό πρέπει να είναι συνεχής και ουσιαστική. Γι'αυτό πολυ συχνά ο δάσκαλος εκφράζει τις απόψεις του για το παιδί, ενημερώνει για τυχόν προβλήματα του παιδιού και ζητά τη συνεργασία του γονιού στο σπίτι.

(Translation: Teachers and parents work for children's benefit. It is a fact for me that communication between a teacher and a parent should be continual and substantial. For that, frequently a teacher expresses his thoughts about a child, informs parents for possible problems and asks for parents' cooperation at home.)

One of the reasons that a parent views her cooperation with teachers strictly in the update field is that teachers do not allow further participation for parents, "Επίσης πολλές φορές σε περιορίζουν και οι δάσκαλοι να συμμετέχεις περισσότερο, γιατί πιστεύουν ότι τα ξέρουν όλα και δε θέλουν κανένας να επεμβαίνει στη δουλειά τους." (Translation: "Also, many times, teachers restrict parents from participating further. Teachers believe that they know everything and do not want anyone interfering in the way they do their job.").

Additionally, according to another parent's statement, teachers are not willing to try further to engage parents' interest in a more active participation in children's education. Teachers do not perceive the importance of their role in enhancing parental participation in children's education:

Ακόμη και οι δάσκαλοι, πέρα από το στερεότυπο ρόλο τους «πάω και κάνω τη δουλειά μου», πληρώνομαι όπως σε οποιοδήποτε άλλο επάγγελμα, δεν είναι διατιθεμένοι να κάνουν κάτι περισσότερο για να πετύχουν μια πιο ενεργοί συμμετοχή των γονιών. Ακολουθούν το πρόγραμμα του Υπουργείου, πληρώνονται γι'αυτό και τελειώνει εκεί ο ρόλος τους.

(Translation: Even teachers, besides their stereotypical role "of doing my job, get paid for that as in any other job", they are not willing to do further movements for enhancing a more active participation of parents. Teachers just follow the program coming from the Ministry and at that point their role ends.)

A parent explained that many times she does not agree with the ways that a teacher may suggest for educating a child. For that, she suggests that a teacher should do his work at school and a parent at home. For the same subject, one more participant referred that the major reason, she does not pursuit further participation at school, is because all committees or councils for parental participation exist typically. Parents have the right to participate to educational councils and committees, which promote close links with the school and the teachers of their children. However, those links are very weak. Because of that, even she does not agree with teachers in an educational matter, her voice cannot be heard:

> Επειδή κατά την άποψή μου όλοι αυτά τα όργανα συμμετοχής των γονιών στην εκπαίδευση λειτουργούν τυπικά, η συμμετοχή μου περιορίζεται στο σπίτι, όπου πραγματικά μπορώ να βοηθήσω το παιδί μου. Από εκεί και πέρα, δε νομίζω ότι οι γονείς μπορούν να αλλάξουν κάτι ουσιαστικά. Δε νομίζω ότι οι γονείς μπορουν να παρέβουν σε κάτι, ακόμη και αν δε συμφωνούν.
>
> (Translation: Because according to my opinion, all committees for parents' participation in education exist typically. My participation is at home, where I can really offer my help to my child. I do not believe that parents can actually change something. I do not believe that parents can interfere, even thought they do not agree.)

A final reason for the restraints in participation by parents at home, according to the majority of parents is the constraint of their time. Parents stated that the current way of living limits their free time. For that they have time only for participating in children's education at home. In rare cases, they may be present in a meeting of the parents' committee.

Parents' potential participation in children's education regarding computers

A parent appears that he perceives his participation at home regarding computers, the same way he views his participation in education generally:

> Σχετικά με τους υπολογιστές πιστεύω ότι θα κάνω το ίδιο, που εφαρμόζω και αυτή τη στιγμή. Θα ελέγχω το παιδί μου αν έχει κάποιο πρόβλημα να το βοηθήσω πχ. Να ψάξουμε μαζί για κάποια εργασία του στο Ίντερνετ, να της εξηγήσω κάποιο πρόγραμμα που δεν καταλαβαίνει.
>
> (Translation: Regarding computer I believe that I will participate in the same way I participate now. I will check my child if she has any problem in order to help her. For example, I will search with her in Internet for a paper or to explain to her a software program that she does not understand.

Another parent based on his own experiences, believes that what children need more that computer knowledge, is the support and the continual awareness that their parents are able to assist them with any problem in their education. The same applies for computers. Part of parents' statement is:

> Το ίδιο και με τους υπολογιστές.Αν το παιδί μου έχει κάποιο πρόβλημα, περιμένω να έρθει και να μου ζητήσει βοήθεια. Δε θα βρίσκομαι συνεχώς δίπλα τους να τους ρωτάω αν χρειάζονται κάτι. Περισσότερο θα είναι η νοητική επίγνωση ότι ο πατέρας τους έχει κάποιες γνώσεις με τον υπολογιστή και ότι μπορεί να τους βοηθήσει σε κάποιες λειτουργίες του ή ακόμη και να τους εξηγήσω κάποιες τεχνικές λεπτομέρειες, ώστε να μη νιώθουν κανένα φόβο γι'αυτό το εργαλείο.
>
> (Translation: The same is with computers. If my children have a problem, I expect them to come to me and ask for help. I will not constantly check them and ask if they need help. It will be more the perception that their father has knowledge of computers and can help them with the functions of a computer;

or explain them some technical details. In other words, I can help children to avoid any fear for that tool.)

Furthermore, half of the parents referred to ways parents can use, to overcome possible problems that their children will encounter in learning with computers. Parents indicated that if they reach the point of not being able to help their children, then they will seek outside assistance, for example, "Αν δεν μπορώ να βοηθήσω το παιδί μου, τότε θα αναζητήσω βοήθεια. Υπάρχουν διάφορες σχολές ή αρμόδιοι άνθρωποι που μπορείς να καταφύγεις." (Translation: "If I cannot help my child, then I will seek help. There are several tutoring schools or experts.").

Another male supporting the same perspective, stated about his weakness and school's weakness to help his children:

> Αν έρθει κάποια στιγμή που οι γνώσεις μου πλέον δε θα μπορούν να προσφέρουν στο παιδί, θα βρώ κάποιον άλλο πιο ειδικό για να το βοηθήσει. Το σχολείο ίσως δε θα είναι αρκετό να καλύψει τις ανάγκες τους.
>
> (Translation: If I'll reach at the point of my knowledge not being enough to contribute to my child's education, then I will find for some expert to help him. School may be not enough to cover children's needs.)

Additionally, a female parent believes that even though the role of parents in children's familiarization with computers is important, parents are not the only source of help for children. If children have problems with computers in learning, then there will be friends or classmates to help them:

> Δεν πιστεύω όμως ότι απαραίτητα μόνο οι γονείς μπορούν να βοηθήσουν το παιδί. Πόσες φορές δεν έχουμε ακούσει ένα παιδί να λέει «Ά, έχει ο φίλος μου έχει υπολογιστή στο σπίτι και εκεί έμαθα». Αν εγώ δεν μπορώ να το βοηθήσω

σε κάποια λειτουργία του υπολογιστή ή σε ένα πρόγραμμα, ίσως να μπορεί ένας φίλος του.

(Translation: I do not believe that only parents can help a child. How many times have we heard a child to say "A, my friend has a computer at home and there I learned how to use it"? If I cannot help my child in a function of the computer or in a software program, then maybe their friends could do it.)

Finally, a parent responded to the same subject indicated that he is afraid that his knowledge regarding computers is limited and he needs help:

Θα ήθελα να συμμετάσχω στην εκπαίδευση των παιδιών μου σχετικά με τη χρήση υπολογιστών, αλλά δυστυχώς οι γνώσεις μου είναι περιορισμένες, και δεν ξέρω πώς μπορώ να το κάνω. θα ήθελα να υπάρξει μια ενημέρωση από το σχολείο ή από το Υπουργείο επί του θέματος για τους γονείς εκείνους που θέλουν να βοηθήσουν τα παιδιά τους αλλά δεν ξέρουν πώς.

(Translation: I would like to participate in my children's education regarding computers. But unfortunately my knowledge is limited and I do not know how to do it. I would like the school or the Ministry to inform parents, who would like to help their children in that area but they do not know how.)

Summary of the Findings

Parents' perceptions of technology are strongly influenced by sociological variables. Having their own experiences with computers, because of their work, education or personal initiative, parents view positively computers in children's learning. Parents' also denoted the absence of any experiences related to gender stereotypes. Nevertheless, the females considered computers as a male area related to technical knowledge, while the males did not expresses any separation between men and women. Finally, regarding their participation in children's education, parents feel

that their contribution is valuable for students' learning. They stated that having computer knowledge, they will be able to offer assistance to their children. However, parents emphasized that their participation is restraint at home, since they are many obstacles for further cooperation between schools and parents.

CHAPTER 5: DISCUSSION OF FINDINGS AND RECOMMENDATIONS

"I cannot teach anybody anything, I can only make them think..." (Socrates)

Introduction

As stated in Chapter 1, the purpose of this study was to examine parents' perceptions of computers in their children's education. The researched questions focused on the sociological variables that influence parents, such as socioeconomic status, educational level and occupational status. Gender also was included as an important variable. Further, it was investigated how parents view their participation in education regarding computers.

Following a phenomenological research design, it was attainable for me to understand computer technology from parents' perspective. The findings indicated that parents influenced by their SES- which was measured by their education degree and their education- acknowledge the potentials of technology. For that, they applaud the entrance of that tool in children's education, although they have some concerns. Some worrying findings were emerged in relation with gender and parental participation that may need further exploration.

The theoretical background of this study was provided in the literature review chapter. Three main sections were discussed and developed a broader perspective of the study. One main idea emerged, was that parents feel positive about the beneficial effects of computer use in children's education and future employment. Concerns were identified in relation with children's sociability, use of time and access in inappropriate material through Internet. Next in the literature, it was revealed the idea that parents' perspectives are influenced by their SES and gender and that reflects on children' computer use. Finally, regarding parental participation, the main idea was

that a close relationship between parents and schools is necessary for creating the best learning environment for students.

In general, this chapter includes a discussion on the relationship of findings in the study to the reviewed literature. The discussion is divided in sections in order to explain computer technology in children's learning from parents' perspective. The division in sections helps also to underline the implications emerged from the analysis of parents' perceptions. Finally, in this chapter some recommendations are included.

Discussion

The importance of SES in parents' perceptions of computers

Parents' perceptions of computers in children's lives are related to their SES. The positive expectations are associated with parents of middle socioeconomic status who have some knowledge of computers because of studies, work or their own initiative. The negative expectations are associated with parents of low socioeconomic status with no knowledge of computers (Vryzas & Tsitouridou, 2002).

The findings in this study concur with the literature. Based on parents' interviews, I reached to the credible conclusion that all participants have a middle socioeconomic status, since all hold a degree and are active members of the workforce. According to that ascertainment, it was revealed that the middle SES parents, who participated in this study, have experienced computer technology because of their education, work or their personal interest. Parents of middle SES have in general positive attitudes towards computers in students' education. Negative attitudes were not identified in middle SES participants, except of some concerns.

Additionally, according to Vryzas and Tsitouridou (2002) the SES of families determines the possession of a home computer. In those families children use more the home computer and parents help them in the acquisition of computing skills.

Rocheleau (1995) in his study concludes that students, who have experiences with a home computer because of parents' SES, report better grades in school comparing to students who do not possess a home computer.

Similar results were obtained in this study. All participants own a home computer, because of their SES. They denoted that they are going to support their children in the acquisition of computer skills, since they have the knowledge to accomplish that. Parents also recognized that if their children become familiar with computer in home, then the explicit conclusion would be that the children will transfer that experience at school. Their children will be in an advantageous position compare to students, who will not be familiar with that tool.

Parents' perceptions: The benefits of computer use in children's education

Parents perceive the value of computer use in children's education in two areas. Firstly, they expect the development of a better learning environment for children with the infusion of technology in schools. Next, the acquisition of computing skills during childhood will prepare children for a secure future employment.

Education

Parents, who are familiar with computer technology, feel positive about the beneficial effects of that tool in education, such as new learning methods and the broadening of children's range of interests (Vryzas & Tsitouridou, 2002, Downes & Reddacliff, 1997). Parents, who are more likely to have experience with computers and influence positively their children, have usually a graduate degree (Becker, 2000).

The above literature is related to the findings in this study. Parents, who have computing skills, are able to perceive and examine computer use technorelastically. Influenced by their experiences in education during their school years, the participants

in the study have great expectations of the beneficial educational effects of computers. The adoption of new learning methods from teachers, the enhancement of students' learning and the development of a better learning environment for students-than the one currently exists-, are some of the benefits parents perceive as the outcomes of using computers in education.

Consequently what emerged as important in parents' positive perspective is what Markham (1995) emphasizes in his study. When parents feel positive about computers, then they can assist their children and their children's schools to recognize the value of technology. Parents can be a strong advocate of computer literacy as a major component of the school curriculum.

Occupation

Vryzas and Tsitouridou (2002) in their study ended to the conclusion that parents, who have experience technology use, are positive about the beneficial effects of computer in children's future professional domain. Parents recognize the necessity for their child to know how to use a computer in order to find employment later on, and the opportunities that computers offer for the child's professional success. Furthermore, as Becker (2000) discusses in his study, parents' work experiences with computers can help young children with applications, such as e-mail and Internet. Parents with more expertise knowledge of software can help older children with complex applications, such as desktop publishing.

Additionally to the literature, the findings in this study indicate that parents' work experiences of computers led them to view favorably that tool in their children's lives. All participants in the study understand that computing skills are a necessary qualification for the majority of professions. An early familiarization with computer

can help children develop their computing skills in a future employment or obtain a more profitable employment.

The positive outcome of parents' believes is that having experiences with computers the majority of parents feel that they will be able to support their children acquiring computing skills. It is possible also for parents to enhance children's occupation with computers by emphasizing the need of that knowledge.

Parents' concerns regarding computer use in children's education

According to literature, parents' basic concerns in computer use are related to children's sociability, use of time and safety (Downes & Reddacliff, 1997). Another concern for parents is the access of children to inappropriate information through the Internet. They afraid about children's ability to analyze the material found in Internet and teachers' experience to use this tool (Grimm, 1998).

In this study it was found that parents have the same concerns about children's sociability and children's access to Internet as the one discussed in the literature. Furthermore, for some parents the negative experiences with computers during their childhood provoked to them additional concerns for their children using that tool. One concern for parents is about their children's teachers not being trained enough to use computers. Another concern for parents is the possibility for older teachers to be negative towards computer use and transmit those perceptions to their students.

Subsequently, it is possible for children, instead of benefiting from that learning tool, to develop unenthusiastic preconceptions. If what parents believe about teachers' role in students' familiarization with computers, stands in reality, then the Greek Ministry will not succeed one of its goals, which is according to Papadopoulos and Karamanis (2004) the increase of students' achievements in learning with technology.

Parents' perceptions regarding gender and computer use

In Greece males are supported more from their parents than females as regards the computer use (Janssen Reinen & Plomp, 1997). The findings in this study indicate the possibility of the participants to display a similar mentality regarding gender. The Greek parents in this study, who belong in the middle SES, declared that they do not have any gender stereotypes associated with computer use. All participants emphasized that computing skills are a necessity for all children in workplace and offer more opportunities for a secure employment.

Those statements came both from male and female participants. However, one alarming observation was made. Despite the fact that female parents recognize the imperativeness of computer knowledge, state that computer use is not very appealing for them. Most of the females do not feel comfortable with computers because they connect that tool with mathematics and technical knowledge.

The alarming implication of this ascertainment is that it is likely for females to transmit subconsciously those perceptions to their children-especially their daughters- and create gender roles regarding computer use. This possibility is supported by the literature. Shashaani (1994) in her study indicated that mothers' beliefs affected their daughters' interest in computers, confidence in working with computers, and stereotyped views. Then, as Young (2000) states that males are more likely to claim computers as a male area, while females are more likely to consider that they are "not the type to do well with computers".

Parental involvement in children's education

Epstein (1985) denotes that students can benefit when there is a home-school connection. It is necessary for schools to consider what kind of cooperation can exist between parents and teachers. Parents can learn how to support their children on school-related uses of home computers in basic skills, enrichment activities and

computer literacy. So, the child may improve skills and attitudes that carry over to school activities (Epstein, 1985).

However, the participants in the study do not perceive the importance of the close relationship between school and home, as Epstein (1985) emphasizes. Parents in the study separate their role and school role in children's education. They believe that teachers' duty is located at school and parents are responsible for children at home. According to Greek parents, there are many obstacles for a close rapport between teachers and parents, such the restraint of time and teachers' unwillingness or inconsiderateness for enhancing parental participation. For that, parents feel that their current involvement is sufficient for children's welfare.

What emerged as encouraging result from the data analysis is that parents consider their participation in education valuable for children's learning. They denote that children need parental support in their education and assistance to their homework. Regarding computers, the majority of parents feel that they are able to contribute to children's learning with their experience. Zellman and Waterman (1998) specify that how parents interact with their children is very important to predict a child's academic outcomes. Positive parenting style is good predictor of child achievement.

Recommendations

Introduction

My main action is to report the findings of this study to the Greek Ministry of National Education and Religious Affairs, since according to Kakavoulis (2000) any educational policy in Greece is the responsibility of the state. This report will assist the Greek Ministry to capture and utilize parents' influence on children's ability to

learn and use computers. Specifically, the report will include the positive and negative outcomes resulting from the data analysis.

Based on the positive findings of the study, it is apparent that parents are able to provide a valid argument for what computers can do or cannot do. Vryzas and Tsitouridou (2002) emphasized that parents' views of computer can be a valuable component in any movement that attempts to incorporate computers in children's lives. Davidson and Ritchie (1994) emphasize that parents' perspective of computers should be acknowledged, because it offers a richness of information about integrating computers into children's education.

Two worrying implications were drawn from the findings-regarding the gender stereotypes and parents' participation in children's education. Although parents denoted that they do not have stereotypes about computer use for their children, the females' statements provoked some concerns. Most of the female participants consider computers a male area and may convey those perceptions to their children. Shashaani (1994) in her study confirms the assumptions about females' gender stereotypes and the consequences on girls.

Regarding participation in children's education with computers, the participants perceived many problems for a close relationship between schools and parents. Parents do not consider teachers as the partners who will help them in computer problems with their children. Parents look for help in other sources beyond the school, such private tutoring or family friends with more experience in computer use.

Recommendations

Furthermore, although the purpose of this study was not to develop an action plan based on the findings, but to report the findings to the Greek Ministry, it is

imperative to include some recommendations. The recommendations are based on the outcomes of the study and the ultimate intention is the development of a successful learning environment for all students.

Since the focus of this study was on parents the most important of all recommendations is the enhancement of parental involvement in children's education regarding computers. Only then the positive perceptions of Greek parents about computers can support the Greek Ministry with reforms that infuse computer technology in schools. And only then the Greek Ministry can encounter obstacles, such as gender stereotypes, that may have negative consequences on students' learning with computers.

The parental enhancement can take place through a wide variety of activities, such as the collaboration of the parents and the teachers in a computer committee, parents' participation in school-sponsored computer training sessions or parents' volunteering to support parents with limited or no knowledge of computers.

The organization of those activities can be responsibility of the existent parental committees in cooperation with school teachers. For that responsibility, two are the requirements for the Greek Ministry to consider. Parental committees' role should be increased, if the objective is to improve parents and school relationship. Teachers also may need training in order to learn how to enhance their relationship with parents.

For teachers' training, Epstein's six types of parental involvement could be very useful. Teachers should learn how to apply those six types of involvement. Concisely, there is the parenting type, which is the assistance of families with parenting skill, understanding of the child and setting conditions to support learning at each age and grade. Communicating type is the communication with families about

school programs and student progress. There is the volunteering type that includes training, activities and schedules for involving families as volunteers and as audiences at the school. The learning type of parental involvement is the home learning that involves families with their children in academic learning at home, including homework and curriculum-related activities. It is important also the involvement of families in school decision through school councils or parent organizations. Finally, there is the parents' and schools' collaboration with community (Epstein, Coates, Salinas, Sanders & Simons, 1997).

Conclusion

In a personal level, this study was a contribution to my knowledge about research technonics. I experienced the research process and acquired valuable information for data collection and data analysis. This knowledge could have future application. I was successfully able to conduct my interviews with Greek parents and select my data. But, as a new researcher I encountered some difficulties during the interviews. It was not always easy for me to keep the discussion with the informants focused on the study area. For that, I was trying hard to be focused in my questions and avoid drifting aimlessly in different subjects. Based on that experience, I will be able in a future research, to handle better my interview process.

In general, this study was a small contribution to the discussion about the important roles of parents in students' education. Parents' perceptions of technology were investigated, since parents' role in students' learning is related to students' positive attitudes and achievement. The more parents are involved in their children's education, the more beneficial are the results for students. This statement is supported by the literature (Manitoba Department of Education and Training, 1994 as sited in Fager & Brewster, 1999).

However, further research is vital to understand the impact of parental gender perceptions in students' relation with computers. It is necessary to examine children's perceptions of computers and how those perceptions have formed. Questions should be investigated, such as, how parents convey their gender stereotypes to children; what different experiences carry children in their classroom regarding computers because of the home environment; what different variables influence parents in their gender stereotypes; and how parents and school can cooperate in order to avoid the digital divide. Research is essential also for understanding what obstacles exist for developing a close connection between parents and schools; and why it is imperative for schools to enhance the development of partnerships with parents.

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APPENDIX

Interview Questions

1. Can you describe your experience with technology?
2. Can you describe your perspective about the importance of computer knowledge in nowadays?
3. Can you tell me what do you believe that has influence your perspective of technology?
4. Can you describe how your work/education has influence your perspective of technology?
5. Can you describe what do you believe about computers in your child/children education?
6. Can you give me an example why do you feel that computer knowledge is necessary (or not necessary) in students' education?
7. Can you explain what experiences do you ascribe to your perceptions?
8. Can you tell me what your child/children's perceptions of technology are?
9. What are the different kinds of benefits that children will have from the use of technology as a tool into the classroom?
10. Can you describe your concerns about the children using computers at school?
11. Can you tell me if you believe that there are gender differences in the use of computer?
12. Can you give me a specific example how the gender differences interfere with technology as a tool in your child/children learning?
13. Can you tell me if you have any experiences involving gender stereotypes?
14. Can you tell me if you consider computing learning as basic component of men's career?
15. Can you describe your participation in your child/children school life?

16. Can you tell me how would you like to participate more in your child/children's education regarding the use of computer?

Ερωτήσεις

1. Μπορείτε να περιγράψετε τις εμπειρίες σας με την τεχνολογία;
2. Μπορείτε να περιγράψετε τις αντιλήψεις σας για τη αναγκαιότητα γνώσης υπολογιστή;
3. Μπορείτε να μου πείτε τί πιστεύετε ότι έχει επηρεάσει τις αντιλήψεις σας για την τεχνολογία;
4. Μπορείτε να περιγράψετε πώς η εργασία σας/εκπαίδευσή σας έχει επηρεάσει την άποψή σας για την τεχνολογία;
5. Μπορείτε να περιγράψετε τί πιστεύετε για τους υπολογιστές στην εκπαίδευση των παιδιών σας;
6. Μπορείτε να μου δώσετε ένα παράδειγμα γιατί πιστεύετε ότι η γνώση των υπολογιστών είναι απαραίτητη (ή όχι απαραίτητη) στην εκπαίδευση;
7. Μπορείτε να μου εξηγήσετε τί είδους εμπειρίες αποδίδετε στις αντιλήψεις σας;
8. Μπορείτε να μου πείτε ποιές είναι οι αντιλήψεις των παιδιών σας για την τεχνολογία;
9. Ποιά είναι τα διαφορετικά οφέλη που τα παιδιά θα έχουν από τη χρήση της τεχνολογίας ως μαθησιακό μέσο μέσα στην τάξη;
10. Μπορείτε να μου περιγράψετε τους φόβους σας σχετικά με τη χρήση των υπολογιστών από τα παιδιά σας;
11. Μπορείτε να μου πείτε εάν πιστεύετε ότι υπάρχουν στερεοτυπικές αντιλήψεις στη χρήση των υπολογιστών;

12. Μπορείτε να μου δώσετε ένα συγκεκριμένο παράδειγμα πώς οι στερεοτυπικές αντιλήψεις συνδέονται με την τεχνολογία ως μαθησιακό μέσο στην εκπαίδευση των παιδιών σας;
13. Μπορείτε να μου πείτε έαν έχετε κάποιες προσωπικές εμπειρίες σχετιζόμενες με στερεότυπα;
14. Μπορείτε να μου πείτε έαν θεωρείτε την γνώση υπολογιστών βασικό στοιχείο στην καριέρα των ανδρών;
15. Μπορείτε να μου περιγράψετε τη συμμετοχή σας στη σχολική ζωή των παιδιών σας;
16. Μπορείτε να μου πείτε πώς θα θέλατε να συμμετάσχετε περισσότερο στην εκπαίδευση των παιδιών σχετικά με τη χρήση των υπολογιστών;