World Applied Sciences Journal 4 (3): 406-417, 2008
ISSN 1818-4952

The Evaluation of the Use of Computer and Teaching Technologies in Educational Environments Within the Context of Equal Opportunities

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Abstract: One of the most problematic areas for the educational service is the provision, on an equal basis, of instruments to improve the quality of those services, to all groups receiving such educational services. Providing the instruments to improve the quality of educational services, to all groups receiving such educational services, on an equal basis is regarded as an important variable in improving the quality of the education service. Teaching technology is a systematic approach used in designing, implementing and evaluating the teaching-learning process by using human and other-than-human resources. Computer and teaching technologies used in educational environments are generally financed by external resources and families tend to buy PCs according to their levels of income. Thus, some inequities in "information sources" and "access to such sources" exist between schools where students from an upper-socioeconomic environment are enrolled and schools where students from a lower-socioeconomic environment are enrolled, and between the families of the upper-income group and the families of the lower-income group. The concept of "equal opportunities in education" refers to the provision of equal conditions and opportunities for all students in any teaching-learning environment. This study evaluated the use of the computer and teaching technologies in educational environments from the perspective of "equal opportunities in education" and in line with the views of school administrators and teachers. A qualitative research method was used in this study. The Criteria Sampling Method was applied in the selection of study samples. A total of nine primary schools in the Central District of Giresun Province were selected: three each from each socioeconomic environment. One school administrator and one teacher from each school, 18 people in total, were interviewed. "Being a classroom teacher" and "seniority" were the criteria in the selection of interviewee teachers. In this study, all of the study participants believed that the use of computer and teaching technologies in the educational environments create an inequality of opportunities between schools, and even between the classrooms of the same school, since schools do not have the same number and rate of such technologies. Schools obtain an important part of the financing required for purchasing teaching tools from the resources of School Family Boards, NGOs and benefactors. Nearly all of the study participants pointed out that these mainly external financial resources (parents, School Family Boards and benefactors) are used to obtain computer and teaching technologies. The majority of the school administrators and teachers of schools in the upper and middle-socioeconomic environments stated that their schools have a sufficient number and rate of computer and teaching technologies when compared to other schools in their environment. One of the most problematic issues that must be addressed by the shareholders producing policies about the use of computer and teaching technologies is the distribution of computer and teaching technologies among schools, and the ways to access such technologies.

Key words: Computer and teaching Technologies · Equality · Opportunity

INTRODUCTION

One of the most problematic areas for the educational service is the provision, on an equal basis, of instruments to improve the quality of those services, to all groups receiving such educational services. Providing the instruments to improve the quality of educational services, to all groups receiving such educational services, on an equal basis is regarded as an important variable in improving the quality of the education service. There are many factors that affect the quality of education. These factors include quantitative factors such as the number of students per teacher, the number of students per class and the number of computers per

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student, as well as qualitative factors such as the quality of the teacher, access to teaching technologies and the ability to use such technologies. The number of computers and teaching technologies utilized within the educational system, and the efficient use of such technologies can both positively and negatively affect the quality of education service provision.

Teaching technology is a systematic approach used in designing, implementing and evaluating the teaching-learning process by using human and other-than-human resources and by taking into consideration the "communication and learning" studies conducted to ensure effective learning in achieving special targets [1]. According to Eisele [2], on the other hand, it is a systematic approach which is adopted in designing, implementing and evaluating the teaching-learning processes related to achieving special targets in such a way as to ensure a more effective teaching process, by using human and other-than-human resources and by taking into consideration the "learning and communication" studies conducted [2]. Teaching technologies includes mass media that can be used for educational purposes, along with teachers, books and blackboards. Cameras, copiers, overhead projectors, diascopes, data projectors, cassette-players, VCDs, DVDs and computers used in schools can also be listed as teaching technologies.

The literature provides a huge amount of data on the contributions of teaching technologies to the education system. The studies which produced such data underline that education technologies have some advantages such as diversifying the ways of accessing information, enabling personal and fast learning, improving the quality of education and providing equal opportunities [3-7].

Computer-assisted teaching is a teaching method which uses the computer as a learning media, which improves the teaching process and student motivation and which integrates self-learning principles into computer technologies [8]. Şimşek [9] defines computer-assisted teaching as the use of computers by teachers in such a way as to utilize the unique potentials of computer technology.

Computers and computer technologies began to be widely used in Turkey from the 1980s in primary schools, as well as at any level, and in any type of education. A "hegemonic" suggestion that "the education provided with the help of computer technologies produces better results compared to conventional education methods" has been made to policy-makers to force them to implement policies aimed at increasing the use of computer and computer technologies in schools. As these suggestions started to be uttered more and more, families, students, teachers and even educational scientists started to believe that the use of the computer, Internet and other such teaching technology products in the teaching process was a prerequisite for a "high-quality education" [10]. Thus, there is an increasing trend towards more use of computers and the Internet in schools and even in homes.

Table 1: Distribution of "computer possession" on the basis of income groups 2001

Income Groups	Have a PC	Do not have a PC	Total
Lower-income	2.0	98.0	100
Middle-income	24.1	75.9	100
Upper-income	64.7	35.3	100

Source: Tübitak-Bilten [11], Study on the Spread and Use of Information Technologies 2000, Information Technologies and Research Institute, January 2001, Ankara, pp: 35.

Computer and teaching technologies used in educational environments are generally financed by external resources (such as the parents of the students and benefactors) and families tend to buy PCs according to their levels of income. Thus, some inequities in "information sources" and "access to such sources" exist between schools where students from an upper-socioeconomic environment are enrolled and schools where students from a lower-socioeconomic environment are enrolled, and between the families of the upper-income group and the families of the lower-income group.

The "Study on the Spread and Use of Information Technologies" conducted by Tübitak-Bilten [11] revealed that there are income-related differences in the distribution of "computer possession". According to this study, the distribution of "computer possession" on the basis of income levels is given in Table 1.

As can be understood from the Table 1; only 2% of the families in the lower-income group have a PC in their homes, this rate increases to 98% in the upper-income group. The study carried out by Özdem [12] on the school administrators and teachers employed in primary schools in Ankara showed that inequalities arise between schools since these schools try to obtain teaching technologies by using their own resources. These two studies point out that some inequalities are experienced by families and schools in terms of the number and level of access to computer and teaching technologies.

A review of the literature reveals that there are scientists who suggest that the use of computer and teaching technologies has functions other than improving

the quality of education. According to Uluğ [13] and Drucker [14], one of the most important functions of teaching technologies is to ensure the adaptation of the individuals to the new social order (the information-technology society). New social order requires individuals who can use ATM centers and who can shop and even buy educational services via electronic media. It is the duty of the education system to educate individuals to be equipped with the qualifications necessary to meet these requirements. With the increase in the use of technology in schools, this process will speed up and the number of individuals having the capacity to use technology will increase. This approach has been similarly adopted by the Ministry of National Education (MoNE). MoNE makes the following statement in relation to teaching technologies: "Teaching technologies tools are an objective until the individuals have gained IT literacy and technology skills; and merely a tool after this stage."[15].

In the Education Report prepared by the European Union, all Member States were asked to provide their citizens who had completed primary education with the skills required to use basic information and communication technologies [16]. In the Education Report on Turkey prepared by the World Bank [17]; World Bank experts stressed that Turkey needed to improve young people's capacities in terms of computer literacy, and they must have the ability to access global data over the Internet to be able to compete in the global economy.

Despite these different approaches to the use of computer and teaching technologies in educational environments, it has been observed in recent years that the use of teaching techniques and, in particular, computers in schools, has drastically increased. There is no school model in Turkey, concerning the use and spread of computer and teaching technologies in schools. The school model defined as Curriculum Laboratory Schools (CLS) in the literature is defined by MoNE as a re-structuring study applied within the framework of the Improvement of National Education Project. According to MoNE [18], the CLS includes the pilot schools where new curriculum and new teaching-learning approaches are initiated and tested, before spreading to cover all schools.

The Curriculum Laboratory School project aims at providing all schools with the infrastructure present in pilot CLS schools. MoNE declared that CLS schools have to finance their infrastructure needs on their own and that additional payment can only be made by MoNE as long as it has sufficient resources for this purpose [19]. Therefore, government financing in education is being replaced by private and individual finance. It can be deduced that the failure of parents to provide the financial resources required for achieving CLS standards will have a negative outcome. While this infrastructure will be provided in some schools where the parents from the high-income group send their children, schools where the parents from the low-income group send their children may not be able to realize such an infrastructure. This situation will create an inequality between such schools in terms of the number of technological sources present in schools and the degree of access to these sources. However, the literature shows that one of the objectives of the use of computer and teaching technologies in educational environments is to ensure equal access to teaching technologies for anyone, and in turn, enable equal opportunities in education [6].

The concept of "equal opportunities" means providing the conditions which will ensure equal terms and conditions, and offer opportunities for anyone to participate in any initiative or to have equal access to election in any field. The concept of "equal opportunities in education" refers to the provision of equal conditions and opportunities for all students in any teaching-learning environment. The "Equal opportunities" concept envisages giving an "open and easy-to-access" education to every level of the society, in line with the specified conditions and without discrimination [13]. It requires that educational opportunities be open to any individual and on an equal basis. According to Uluğ [13], "equal opportunities" should be nation-wide and there should be equal use of the common standards developed for educational environments, and equal utilization of such educational environments. Ensuring access to teaching technologies and the provision of these technologies to everybody on an equal basis is closely related to the concept of "equal opportunities in education".

This study evaluated the use of the computer and teaching technologies in educational environments from the perspective of "equal opportunities in education" and in line with the views of school administrators and teachers.

Aim of the Study: This study aimed at evaluating the use of computer and teaching technologies in primary schools from the perspective of "equal opportunities in education" and in line with the views of school administrators and teachers.

METHOD

A qualitative research method was used in this study. Qualitative research uses qualitative data collection tools such as observation, interview and

Table 2: Information on the Study Interviewee

Order of Interview	Name and Environment of the School	Title	Sex and Seniority
1. Interviewee	Cumhuriyet Primary School, Upper-socioeconomic environment	School Administrator	Male, 24 years
2. Interviewee	Cumhuriyet Primary School, Upper-socioeconomic environment	Teacher	Female, 18 years
3. Interviewee	Gazipaşa Primary School, Upper-socioeconomic environment	Teacher	Male, 32 years
4. Interviewee	Gazipaşa Primary School, Upper-socioeconomic environment	School Administrator	Female, 25 years
5. Interviewee	19 Eylûl Primary School, Middle-socioeconomic environment	School Administrator	Male, 20 years
6. Interviewee	19 Eylûl Primary School, Middle-socioeconomic environment	Teacher	Male, 29 years
7. Interviewee	23 Nisan Primary School, Lower-socioeconomic environment	Teacher	Female, 15 years
8. Interviewee	23 Nisan Primary School, Lower-socioeconomic environment	School Administrator	Male, 31 years
9. Interviewee	Yeşilgiresun Primary School, Upper-socioeconomic environment	Teacher	Male, 29 years
10. Interviewee	Yeşilgiresun Primary School, Upper-socioeconomic environment	School Administrator	Male, 31 years
11. Interviewee	Aksu Seka Primary School, Lower-socioeconomic environment	Teacher	Male, 25 years
12. Interviewee	Aksu Seka Primary School, Lower-socioeconomic environment.	School Administrator	Male, 30 years
13. Interviewee	Kanuni Primary School, Middle-socioeconomic environment	Teacher	Male, 30 years
14. Interviewee	Kanuni Primary School, Middle-socioeconomic environment	School Administrator	Male, 30 years
15. Interviewee	Sayca Primary School, Lower-socioeconomic environment.	School Administrator	Male, 28 years
16. Interviewee	Sayca Primary School, Lower-socioeconomic environment	Teacher	Female, 18 years
17. Interviewee	Namik Kemal Primary School, Middle-socioeconomic environment	School Administrator	Male, 32 years
18. Interviewee	Namik Kemal Primary School, Middle-socioeconomic environment	Teacher	Male, 28 years

document analysis and introduces perceptions and events in their natural environment and in a realistic and integrative manner [19].

The aim of qualitative research is to analyze the object of study in an integrated and detailed way and to examine and understand it in its own complex context. Qualitative research is sensitive to the context and the process and to the current experience and the local features [20]. Data obtained in qualitative research can not be used for generalization; rather, they can only be utilized to reveal the already present phenomena [21]. The increasing trend towards using qualitative research methods to better reveal social reality is reflected in this study.

The Criteria Sampling Method was applied in the selection of study samples. The main principle of the Criteria Sampling Method is to work with a group of samples meeting the pre-defined criteria. The criterion or criteria mentioned here can be developed by the author as well [19]. The criterion taken into consideration in forming the sample group for the study was the social environment of the primary schools concerned. The socioeconomic situation of each school was considered in the selection of study schools (higher, middle and lower socioeconomic environment). Accordingly; a total of nine primary schools in the Central District of Giresun Province were selected: three each from each socioeconomic environment. TSI **(2006)** data were taken as the basis for determining the socioeconomic level of these schools. One school administrator and one teacher from each school, 18 people in total, were interviewed. "Being a classroom teacher" and "seniority" were the criteria in the selection of interviewee teachers. Information about the study schools and interviewees is listed in the Table 2.

Looking at the table, it can be seen that while eight of the nine school administrators are male, only one school administrator is female and that they have been working for 20-32 years, and that five teachers are male and three are female, and they have been teaching for 11-32 years.

A five-question interview form was developed for use in the interviews with school administrators and teachers. A semi-structured interview technique was used to collect qualitative data for the study. In this technique, the researcher prepares the questions in advance; however, during the interviews, s/he allows a re-structuring of these questions and the discussion of other issues to provide a flexible atmosphere for the interviewee [22].

After the questionnaire had been prepared and the advice of specialists asked, a pre-interview was conducted with a teacher and a school administrator. Following this step, the interview process started. The required permit was acquired from the Provincial Directorate of National Education. Moreover, interviews were recorded with the prior permission of the interviewees.

All the interviews were conducted by the researcher. The first interview was conducted on 11.02.2008 and the last one on 27.02.2008. Interviewees were asked to be free

Table 3: Repeated statements about the effects of the use of computer and teaching technologies in primary schools on the "equal opportunities in education" and the frequency of these repetitions

Statements	Frequency of repetition	
	Administrator N=9)	Teacher (N=9)
1. Since schools do not have equal number and rate of computer and teaching technologies, the current situation does create an inequality in terms of the opportunities provided in education.	9	9
2. Generally external financial resources (parents and benefactors) are used to meeting the computer and teaching technologies needs of schools.	8	9
3. The computer and teaching technologies used in our school is adequate when compared to the other schools in the same area.	6	4
4. The use of computer and teaching technologies in educational environments has improved the quality of education.	8	8
5. Teachers generally use the Internet to download annual teaching plans and e-school applications.	8	6
6. Teachers use computer and teaching techniques efficiently.	7	8
7. Students can benefit from using computer and teaching technologies efficiently.	7	8

in expressing their views and offering their opinions, there was no time limit, any questions that were not understood were explained again. Thus, detailed data was collected.

To increase the internal validity and reliability of the study, a "member control" method was applied. "Member control" refers to the control made by the subjects of the study who provide its data. In this method, the transcribed interview written down is delivered to the appropriate interviewee to confirm the accuracy of the written record before the reporting process starts [20]. In this study, the interviews recorded by the author were written down and delivered to interviewees for control before the reporting process. The data was used in the study only after the interviewees had approved the written texts.

Descriptive analysis technique was used in analyzing the data obtained during interviews. In the description process, the data collected in the scope of the study was analyzed in terms of content and the results were put forward [19]. Data obtained at the end of interviews was presented by taking into consideration the questions asked during interviews. Translations of the exact interviewee expressions are presented here so as to ensure the reliability of the qualitative data obtained.

FINDINGS AND COMMENTS

This part of the study presents the findings and comments related to the study data.

Reviewing the literature reveals that there are some concerns about possible negative results from the use computer and Internet-related teaching technologies as the main learning tools in schools. For instance, there are suggestions that the wide-spread use of teaching technologies in some specific schools might bring some negative results in terms of "equal opportunities in education".

The study interviewees were asked semi open-ended questions about the effects of the use of computer and teaching technologies in primary schools on "equal opportunities in education". The frequently repeated statements of the school administrators and teachers interviewed are listed in Table 3.

Nearly all of the study interviewees emphasized that the use of computer and teaching technologies in educational environments results in an inequality of opportunities in education environments since the schools do not have an equal levels of computer and teaching technologies.

Related statements are as follows:

Not every school has such opportunities. Schools and students having such opportunities will be one step closer to educational achievement... Schools do not have equal numbers of teaching technologies. However, we should not avoid such technologies because of the inequalities they result in. What we should do is to raise those schools that have insufficient number of such technologies to the level of those who have a sufficient number and rate of computer and teaching technologies (1st interviewee, school administrator working in a school located in an upper-socioeconomic environment).

Inequality starts at the very beginning for those schools and classes not equipped with computer and teaching technologies (3rd interviewee, teacher working in a school located in an upper-socio economic environment).

Since we do not have computer and teaching technologies in our school, there are inequalities in terms of teaching-learning environments between our school and the ones that have such technologies (7th interviewee, teacher working in a school located in a lower-socioeconomic environment).

With such limited opportunity, we do not have any chance to compete with other schools. Unequal distribution of computer and teaching technologies between schools naturally results in educational inequalities (8th interviewee, school administrator working in a school located in a lower-socioeconomic environment).

This finding suggests that the study participants think that education policies related to the use of computer and teaching technologies result in an inequality of educational opportunities between schools. It is significant that nearly all school administrators and teachers working in schools located in upper, middle and lower-socioeconomic environments suggest that computer and teaching technologies result in an inequality of educational opportunities within the current system.

The "Trends in Teaching Technologies" study conducted by Donald Ely *et al.* in the USA (1992) produced similar results [23]. The aforementioned study showed that teachers felt the opportunities presented by teaching technologies had started to differ from one school to another. Giddens (2000, 456) stated that many schools in England are deprived of teaching technologies since they do not have sufficient financial resources, which results in inequalities in the use of teaching technologies in schools. In Turkey, the study "Evaluation of Social Impacts of Primary Schools" carried out by the Research and Implementation Centre (EUAM) of the Faculty of Educational Sciences, Ankara University [24] revealed that school administrators and teachers had concerns about the differences between the schools (in their environments) in terms of teaching technologies.

In general, financial resources other than government finance (e.g. contributions from parents, benefactors, NGOs and School Family Boards) are used to provide schools with computer and teaching technologies. Contributions and grants made by parents used, prior to 2005, were to be collected on behalf of the National Education Foundation. This practice ended with an amendment made by MoNE on the "Regulation of School Family Boards". With this amendment, School Family Boards were entitled to collect and spend money. With the enactment of the new Regulation on School Family Boards, published in the Official Gazette No 25831 and dated 31.05.2005, a legal framework was established to regulate the implementation of financing by parents. As per this Regulation, the main aim of establishing School Family Boards is to provide financial resources for schools. The duties of these Boards include (Article 6, e-g) "to repair and maintain buildings, facilities, classrooms, laboratories, workshops, technology classes, rooms, gardens and premises of the school; to renew and improve the technological equipment of the school; to build additional facilities; to make financial contributions for the purchase of tools and publications supporting the teaching-learning process and; to purchase goods and services necessary to meet the requirements of the school". The costs related to the establishment of technology classes; the renewal and improvement of the technological equipment and the purchase of tools and publications supporting the teaching-learning process are to be met then by the resources obtained by the School Family Boards.

Nearly all the interviewees of the present study stressed that, in general, external financial resources (parents, school family boards, benefactors) are used to provide schools with computer and teaching technologies. Relevant statements made by interviewees are presented below:

Since the parents are quite conscious of the needs we can meet our financial resource requirements. *Seventy per cent of the financial resources used in purchasing computer and teaching technologies are met by people, while the remaining 30% is met by the Government (1st interviewee, school administrator working in a school located in an upper-socioeconomic environment).*

We try to find financial resources from businessmen and benefactors as well as by the Government. The Government makes no contribution other than the development of information technologies (7th interviewee, teacher working in a school located in a lower-socioeconomic environment).

The Computer laboratory has been built through our Lottery Club. Only small amounts of resources are provided by the Government. Even the computers used for administrative and educational procedures are bought by our own efforts (8th interviewee, school administrator working in a school located in a lower-socioeconomic environment).

Computer and teaching technologies being provided to schools using external financial resources creates inequalities in terms of educational environments, not only between schools, but also between classes within

Table 4: The number of computers and projectors in the classrooms of the study schools

Name of the School	Financing Resource	No of computers/projectors
1. Gazipaşa Primary School (upper-socioeconomic environment)	External resources	6/ 0
2. Cumhuriyet Primary School (upper-socioeconomic environment)	External resources	20/20
3. Yeşilgiresun Primary School (upper-socioeconomic environment)	External resources	9/9
4. Namik Kemal Primary School (middle-socioeconomic environment)	External resources	2/0
5. 19 Eylül Primary School (middle-socioeconomic environment)	External resources	3/2
6. Kanuni Primary School (middle-socioeconomic environment)	External resources	2/0
7. Sayca Primary School (lower-socioeconomic environment)	External resources	1/0
8. Aksu Seka Primary School (lower-socioeconomic environment)	External resources	6/6
9. 23 Nisan Primary School (lower-socioeconomic environment)	External resources	1/0

the same school. This situation is also emphasized by some interviewees. Relevant statements made by the interviewees are presented below:

Despite the fact that there are sufficient numbers of computer and teaching technologies at the school level, the distribution is not sufficient at the classroom level (6th interviewee, teacher working in a school located in a middle-socioeconomic environment). We are at a better level than the average school in our area in terms of access to computer and teaching technologies; however, we have problems at classroom level. There is neither a computer nor a projector in my classroom (3rd interviewee, teacher working in a school located in an upper-socioeconomic environment).

There is an increasing inequality (in terms of the provision of and access to computer and teaching technologies owned by the school) between the schools located in upper-socioeconomic environments and lower-socioeconomic environments, both of which try to obtain computer and teaching technologies by using external financial resources. Relevant statements made by interviewees are as follows:

We do not have any chance to compete with other schools in the field of computer and teaching technologies. There are inequalities between schools. For instance; we do not have any projector in any of the classrooms (8th interviewee, school administrator working in a school located in a lower-socioeconomic environment).

It can be sad that inequalities arise in the school where students from lower-socioeconomic environments attend. While some schools have only one projector, some other schools –such as ours- have five or six projectors. While the students in some schools take turns with this device, any student in our school can use this device for the whole lesson (10th interviewee, school administrator working in a school located in an upper-socioeconomic environment).

It results in inequalities. And this situation is directly reflected to the achievement. Students in some schools have access to any resource, while this is impossible for another student attending t a different school (11th interviewee, teacher working in a school located in a lower-socioeconomic environment).

The number of computers and projectors in the classrooms of the study schools are listed in Table 4.

By examining the table, it can be seen that all the primary schools included in the study try to purchase computer and teaching technologies for their classrooms by using external financial resources. Schools with a high number of students from upper-socioeconomic environments have a higher number of computers and projectors when compared to the schools with a high number of students from middle and lower-socioeconomic environments. While 20 classrooms in Cumhuriyet Primary School located in an upper-socioeconomic environment are equipped with both computers and projectors, Sayca Primary School located in a lower-socioeconomic environment has only one classroom equipped with a computer. Interviewees stated that this "one computer" is not used for teaching purposes.

The computers we use in our classrooms are not efficient. It takes 15 minutes to run a CD. It is completely out-of-date (15th interviewee, school administrator, 16th interviewee, teacher working in a school located in a lower-socioeconomic environment).

Table 4 shows that, when compared to the other schools in its own group, and even to the schools in the middle-socioeconomic group, Aksu Seka Primary School which is located in a lower-socioeconomic environment is in a relatively better situation in terms of computers and projectors. Six classrooms of Aksu Seka Primary School are equipped with both computers and projectors. Aksu Seka Primary School has more computer and teaching

technologies than even schools in middle-socioeconomic environments. Interviewees stated that this situation is the result of the efficient use of external financial resources, obtained with the help of school administration, teachers and parents.

Although our school is located in the lower-socioeconomic environment, it is in a good position in terms of teaching technologies. We have computers and Internet connection in each classroom. We purchased 2nd hand computers with the contributions from parents. Then we built an information technology classroom with the resources provided by the Government. So, we distributed the 2nd hand computers to the classrooms as we had no more need of them after building the information technologies classroom. Six of our 10 classrooms are equipped with projectors.. Two more projectors will be delivered soon; then there will be no problem in the 1st – 5th grade classrooms. We have purchased computers for the 6th -8th grade classrooms by using our own financial resources, these we obtained, by our own efforts, from external financial resources. Each teacher and specific parents are assigned a classroom. We established a model classroom. This implementation has been appreciated by the people around and the parents. The School Administration has provided every kind of support to us in this process (11th interviewee, teacher working in a school located in a lower-socioeconomic environment).

As long as parents see successful implementations and as long as we make the right suggestions, they will not hesitate to make contributions to the process of providing computer and teaching technologies to schools (3rd interviewee, teacher working in a school located in an upper-socioeconomic environment).

Although most of the parents are of low-income and low-education group, we regularly explain to them the importance of the teaching technologies. Most of the parents support our efforts and have made contributions towards the purchase of computers for classrooms. Most of the students do not have PC in their homes (11th interviewee, teacher working in a school located in a lower-socioeconomic environment).

However, some teachers and school administrators stated that some parents are aware of the importance of computer and teaching technologies but can not make any financial contribution to the School Administration due to economic circumstances; in turn, these schools can not obtain financial resources from external resources.

Parents want to make financial contributions towards meeting the needs of the school in purchasing teaching technologies; however, they have economic problems. It is enough to collect 50 YTL from each parent to buy this technology. But they can not even afford this amount (15th interviewee, school administrator, 16th interviewee, teacher working in a school located in a lower-socioeconomic environment).

Some interviewees stated that, in addition to the inequality of opportunities arising from an unbalanced distribution of computer and teaching technologies, another inequality rises between classrooms (in terms of computer and teaching technologies) because of the difference between the levels of the skills of teachers using computers and teaching technologies.

Teaching technologies create inequalities. Some of the teachers can use these technologies very efficiently. Some can not. This situation results in inequalities in terms of adopting and teaching learning-teaching behaviors (6th interviewee, teacher working in a school located in a middle-socioeconomic environment).

This finding can be interpreted as follows: In addition to the inequality of opportunities arising between schools and classrooms in the use of computer and teaching technologies, the varying levels of computer skills of teachers also can result in an inequality of opportunities. The study titled "Digital Inequalities in Education" and conducted by Becker [25] on 70382 students in 3479 schools in 40 states showed that the computer skills of teachers can also lead to educational inequalities.

All of the school administrators and more than half of the teachers employed in the schools located in high and middle-socioeconomic environments stated that their schools were equipped with a sufficient number of computer and teaching technologies when compared with the other schools in their environment.

Our school has quite good economic conditions for a public school. We utilize computer technology in 20 classrooms. Eighty per cent of our students benefit from such facilities (1st interviewee, school manager working in a school located in an upper-socioeconomic environment).

I believe that we have good facilities when compared to other schools (18th interviewee, teacher working in a school located in a middle-socioeconomic environment).

This finding can be interpreted as follows: when compared with the school administrators and teachers working in the schools located in lower-socioeconomic environments, school managers and teachers working in the schools located in high and middle-socioeconomic environments think that their schools are equipped with sufficient numbers of computer and teaching technologies compared to the other schools in the same environment. This finding points out, once again, that there are inequalities between schools in terms of their having teaching technologies.

Nearly all of the school administrators and teachers pointed out that the use of computer and teaching technologies in educational environments improves the quality of education. The following statements were made by study participants:

Students are provided with many ways of accessing information. They are no more limited to the library while searching for information. It can be said that the quality of education thus improves (3rd interviewee, teacher working in a school located in an upper-socioeconomic environment).

By using computers and projectors while lecturing in the classroom, we shorten the learning process and increase its effectiveness. We used to exert more efforts in the past while lecturing. Now, we can be more efficient by spending less time lecturing (9th interviewee, teacher working in a school located in an upper-socioeconomic environment).

The use of computer and teaching technologies in the classroom environment has improved the quality of education. Students have a wider vocabulary now. In the past, it was difficult to explain a concept or an issue to students; however, it is much easier now with the help of computer and teaching technologies. When a student asks what a palm tree is, I can easily show him/her the picture of the palm tree by making a search in the Internet. We watch documentaries about the Battle of the Dardanelles. I can not imagine a better way than using a projector to help explain this issue and to share feelings on it (11th interviewee, teacher working in a school located in a lower-socioeconomic environment).

This finding can be interpreted as follows: school administrators and teachers think that the use of computer and teaching technologies in educational environments improves the quality of education. The findings of the study,"From Textbooks to Computer-Based Teaching", conducted by Clark [26] revealed that computer-based lecturing has long-lasting effects on students, thus, the quality of the education improves.

The OECD report, "Issues, Views, Facts and Recommendations relating to the Turkish Education Sector" [27] found out that students who have a PC in their homes are more successful than the students who do not. The students who have a PC in their homes have been 20% more successful in the PISA examination than the students who do not have one. However, the high scores of the students should not only be attributed to a single factor such as "having a PC or not" as there are many other factors to be considered.

Nearly all of the school managers and teachers who participated in the study underlined that "teachers use computers and Internet mainly for downloading annual teaching plans and e-school applications", "teachers can efficiently use computer and teaching technologies" and "students can utilize computer and teaching technologies efficiently". Interviewees made the following statements on this issue:

Teachers download their plans over the Internet and they can spare more time for themselves. They also reduce the burden of bureaucracy by using e-school applications (9th interviewee, school administrator working in a school located in an upper-socioeconomic environment).

Teachers can use computer and teaching technologies in an efficient manner and students can efficiently use these technologies (1st interviewee, school administrator working in a school located in an upper-socioeconomic environment).

This finding can be interpreted as follows: school administrators and teachers use computers and the Internet generally for downloading annual teaching plans and for e-school applications, teachers can use computer and teaching technologies in an efficient way and students can efficiently utilize computer and teaching technologies. In the study "Competence and Objectives of Primary School Teachers Relating the Use of Computer Programs and Internet" conducted by Baştürk and Işikoğlu [28] the authors revealed that teachers working in primary schools in the Denizli Province use the computer and the Internet for technical works such as "entering student scores" and "making lesson plans" however they user the computer and the Internet in the classroom environment at a minimum level.

RESULTS AND SUGGESTIONS

As of 1980, the world-wide development and use of information and communication technologies has rapidly increased. Rapid developments in communication and

information technologies have also brought together a qualified workforce that can easily adapt to different conditions. Over the years, technological tools, the computer in particular, were introduced into the education system, and in turn, into teaching-learning environments so as to improve the quality of the education. Nearly all school administrators and teachers believe that the use of computer and teaching technologies in educational environments improves the quality of education.

The rapid introduction of computer and teaching technologies into schools has brought not only positive, but also negative results for the education system. It was emphasized that the use of computer and teaching technologies in educational environments should ensure access by everyone to teaching technologies so as to improve the quality of the education system and to ensure equal opportunities [6, 1]. On the other hand, teaching technologies obtained by using financial resources other than governmental resources, results in inequalities between schools. This situation is apparently the result of the neo-liberal education policies pursued in Turkey after 1980. With the 1980s, the approach that suggested that "public services should be free-of-charge" was abandoned and the approach which envisages that "service users should pay for these services" has taken effect across all social policies.

In this study, which aimed at evaluating the use of computer and teaching technologies in primary schools in terms of equal opportunities, and in the light of the opinions delivered by school administrators and teachers, all of the study participants believed that the use of computer and teaching technologies in the educational environments create an inequality of opportunities between schools, and even between the classrooms of the same school, since schools do not have the same number and rate of such technologies.

Schools obtain an important part of the financing required for purchasing teaching tools from the resources of School Family Boards, NGOs and benefactors. Nearly all of the study participants pointed out that these mainly external financial resources (parents, School Family Boards and benefactors) are used to obtain computer and teaching technologies.

Computer and teaching technologies obtained by using external financial resources increase the inequalities in the rate of owning and in the access to information technologies between the schools located in upper-socioeconomic environments and lower-socioeconomic environments. The majority of the school administrators and teachers of schools in the upper and middle-socioeconomic environments stated that their schools have a sufficient number and rate of computer and teaching technologies when compared to other schools in their environment.

The continuous desire of school administrators and parents to equip schools with teaching technologies has brought some negative results. Researcher observed that many teaching technologies which have lost their functions are left idle in schools. This negativity is also mentioned in the report prepared by the Public Supervisory Board of the Prime Ministry. The statements made in the Report are briefly as follows:

(http://www.cankaya.gov.tr/tr_flash/DDK/teb.htm)

"The long period between the preparation of the specifications and the signing of the contract; a failure to reflect on the specifications of the technological developments which took place in this period; the long time between the tender and the commencement of service provision resulted in the huge payment made for such an old technology". One of the given examples is that: 6.503 video players were purchased on 27.07.2001 according to international competitive tender procedures and 834.725 USD was paid for this procurement. Another tender was made on the same date to duplicate 1.096.722 cassettes to be distributed to each project school (one set for each school; each set composed of 174 cassettes) and 778.672 USD was paid for this service. Video recorders could only be distributed on 31.12.2001 with a 57-day delay and the cassettes on 30.04.2002 with a 103-day delay. During this period, video recorder technology was replaced by computers".

One of the most problematic issues that must be addressed by the shareholders producing policies about the use of computer and teaching technologies is the distribution of computer and teaching technologies among schools, and the ways to access such technologies. The provision of these computer and teaching technologies from financial resources other than government resources results in an unbalanced distribution of these technologies between schools and creates new inequalities of opportunity in the educational environment.

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