

Technology use in elementary education in Turkey: A case study

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Abstract

Background: As countries continue to invest in technology and place educational technology in schools, teachers are expected to make use of technology in their teaching. At this point in time, we can say that technology will stay in schools. Many countries have already included the integration of technology into education in their agenda for educational development. The success of this integration depends mostly on the teachers. Teachers need to use technology effectively in classrooms. Technology in education offers many potential benefits. However the adoption of technology is a major challenge to teachers in many countries.

Aims: The purpose of this study is to examine teachers' use of available technology using a case study approach. More specifically, this study will try to answer this question: In what ways is available technology being used?

Sample: This study was conducted in a very typical elementary school in Ankara, Turkey. This school houses around 1900 students and 60 teachers. 29 of the teachers completed the survey. Also, ten teachers and three principals were interviewed.

Method: The research design employed both qualitative and quantitative methods. The data sources included structured and open-ended interviews, a survey, classroom observations and an examination of relevant documents.

Results: The results show that teachers are mainly using technology and computers for the following purposes (a) instruction in the use of technology (b) administrative purposes (c) instructional purposes and (d) non-educational tasks.

Conclusion: This study further reveals that teachers tend to use simpler technologies (e.g., TV) more than computers, if they are available. Classroom teachers use computers mainly for administrative purposes, and computer labs are mainly utilized for instruction in the use of computers.

Keywords: Technology, teachers, elementary education

土耳其初級教育在技術使用的個案研究

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摘要

背景：當各國持續投資在科技方面和在學校設置教育科技，預期老師會利用科技教學，我們可以說學校在這時刻，會繼續使用科技。在許多國家的教育發展議程已經包括科技融入教育，成功的融入主要依靠老師，需要老師在教室有中效地使用科技。教育科技提供許多潛在的好處，然而對採用科技，在許多國家的老師仍是一個重大的挑戰。

目標：這項研究的目的是使用個案研究法，考查老師對現有科技的使用。更加具體地，這項研究將設法回答問題：老師怎樣使用現存的科技？

取樣：這研究在土耳其安卡拉一所非常典型的小學進行，這所學校有1900名學生和60位老師，29老師完成了勘測。此外，採訪了十位老師和三位校長。

方法：研究設計使用了定性和定量方法。數據來源包括結構性的和開放式的面談、一次勘測、教室觀察和相關文檔的考究。

結果：結果顯示，老師主要使用科技和計算機在以下目的：（a）作使用科技時的指示；（b）行政目的；（c）教學目的；和（d）非教育方面的用途。

結論：這項研究更加進一步顯示老師如果是有現成可利用的器材，傾向於使用比計算機更加簡單的科技（例如電視）。老師在教室主要為行政目的使用計算機，並且在計算機實驗室主要使用計算機作為教學用途。

關鍵詞：科技、教師、初等教育

Introduction

Today, in many countries, policy makers and educational authorities are trying to integrate technology into their educational systems. They expect teachers to integrate instructional technology into their daily teaching activities. Decisions about using instructional technology in classrooms are ultimately made by teachers. Therefore, teachers play a key role in the adoption of technology. In fact, the Office of Technology Assessment (1995) of the United States reported that helping teachers “effectively incorporate technology into the teaching and learning process is one of the most important steps the nation can take to make the most of past and continuing investments in educational technology” (p. 8). Likewise, Sheingold (1991) stated that:

It is now well understood that the challenge of integrating technology into schools and classrooms is much more human than it is technological. What’s more, it is not fundamentally about helping people to operate machines. Rather, it is about helping people, primarily teachers, integrate these technologies into their teaching as tools of a profession that is being redefined throughout the incorporation process. (p. 1)

Teachers must be able to use technology effectively in their teaching and learning activities. According to Harris (1996) “information age citizens must learn not only how to access information, but more importantly how to manage, analyze, critique, cross-reference, and transform it into usable knowledge” (p. 15); and technology in education can help make that happen. “Technology has now

changed or altered how people access, gather, analyze, present, transmit, and simulate information. Today’s technologies provide the tools, applications, and processes that empower individuals of our information society” (See, 1994, p. 30).

Numerous research studies have documented the advantages of using technology in education. Muir (1994) stated that using technology as a tool for meaningful projects seems reasonable as a method for engaging students in problem solving and critical thinking. Technology was identified as the catalyst for restructuring and redesigning the classroom to create an environment that promotes and encourages the development of the higher-order thinking skills (Hopson, Simms, & Knezek, 2002). Cradler (1994) pointed out that technology increases student collaboration on projects. McGrath (1998) found that technology leads to greater cooperation and collaboration among elementary school students. Coley (1997) reported that technology lowered student drop-out rates and had a positive impact on students’ independence and motivation. Wellburn (1996) reviewed research studies about educational technology and found that the majority of studies demonstrated a positive impact of technology on student learning outcomes, including increased standardized test scores.

However, it is essential to emphasize that the positive impacts of technology depend on how teachers use technology in their classes (Kozma, 2003). A number of studies found that elementary school teachers were using technology mainly for non-instructional activities (Becker, 2000). For instance, Cuban (2001) found that preschool and kindergarten teachers mainly used computer for administrative tasks. Cuban also found that teachers were using technology for communicative purposes

like sending emails to parents. Likewise, McCannon and Crews (2000) discovered that the majority of elementary school teachers were using computers to do administrative tasks and not as an integral part of the student learning process. International studies also discovered similar results. In Australia, for instance, Oliver (1994) revealed that even though there was easy and adequate access to hardware and software, the majority of novice teachers did not use the available resources for instructional purposes.

Studies showed that teachers are not fully incorporating technology into their teaching practices. Some studies documented little effect or even a negative effect of technology in education. For instance, Pelgrum and Plomp (2002) compared 41 countries in terms of technology and mathematics education. They concluded that students who used technology “frequently for mathematics learning had much lower achievement scores than students who hardly used or did not use” technology (p. 327). Likewise, in the U.S., Cuban (2001) examined computer use in Silicon Valley schools. He looked into the preschools, kindergartens and secondary schools. He stated that “in the schools we studied, we found no clear and substantial evidence of students increasing their academic achievement as a result of using information technologies,” (p. 133) even though “students and teachers had access to computers and related technologies available in both their homes and their schools” (p. 132). Cuban found little evidence of resistance by teachers to using technology. However, Cuban pointed out that “less than 5 percent of teachers integrated computer technology into their curriculum and instructional routines” (p. 133). In fact, “the overwhelming majority of teachers employed the technology to sustain existing patterns of teaching rather than to innovate” (p. 134).

Some researchers have attempted to figure out why different studies find these conflicting results about the relationship between education and technology. For example, Wenglinsky (1998) argued that many studies which revealed negative effects of technology in education overlooked how the technologies were being used. Likewise, Bernauer (1995) stated that “it is not technology per se that has resulted in improved student outcomes, but rather how the technology was used and integrated into instructional processes” (p. 1).

Turkey, Education and Technology

The structure of the present Turkish education system consists of preschool education, elementary education, secondary education, and higher education. In 1997, the length of compulsory education was increased from five years to eight years. The Turkish educational system is heavily centralized. Many decisions related to curriculum, policies, text books, appointment of teachers, governance of schools etc. are made by the government. Nationwide, teachers and curricula in all grades are heavily influenced by the curriculum guides including general guidelines for teachers published by the Ministry of National Education (MONE).

Teacher education in Turkey is a four-year program. There are a total of 65 courses in the elementary teacher education program. The courses are organized into three different categories: field education courses (e.g., basic mathematics, general physics, general chemistry etc.), teaching and pedagogy courses (e.g., teaching methods, special education, Turkish education system etc.) and general knowledge courses (e.g., foreign language, computer, research methods etc.).

Every elementary teacher education program

has two technology courses. These courses are “Basic Computer” and “Design and Construction of Instructional Resources.” The first course focuses mainly on how to use computers and the internet. The second course focuses on developing and/or using different instructional technologies such as video, projectors and related materials, etc. This elementary teacher education curriculum is offered in every education college in Turkey. The only freedom that the education colleges have is to offer different elective courses. The offer of elective courses depends on the availability of faculty members in different areas and their interests. Approximately twenty percent of the curriculum consists of elective courses. Some of them are distance education, art history, human rights and democracy, economy and critical thinking.

In Turkey, Gursimsek, Kaptan and Erkan (1997) identified little focus on educational technology as one of the biggest current problems in teacher education. They argued that the integration of new technologies into teacher education has not been achieved. They stated that this affects teachers’ use of technology in schools in a negative way. Likewise, based on her research on pre-service elementary school teachers, Sahin (2003) concluded that technology education in teacher education is not adequate. She agreed that “uses of technology are important for teacher education and so student teachers must learn about technology and its effect on education” (p. 73).

In Turkey, like many other countries in the World, the implementation of educational technology is the central focus right now. Technological reforms are currently underway to integrate technology. In the “Long Term Strategy and 8th Five Year Development Plan 2001-2005” of the Turkish State Planning

Organization (2001), the desire for the incorporation of new technologies in all areas of education, especially in elementary education was clearly stated, “initiating computerized education at all levels of education with a special emphasis on primary education, providing internet access for every school and producing curricula as software programs bear great importance” (p. 88).

Methodology

The purpose of this study is to examine teachers’ use of available technology using a case study approach. More specifically, this study will try to answer this question: In what ways is available technology being used in Turkish elementary schools? For this study, I used mixed-methods as “mixed-method evaluation offers much promise for increased understanding of social programs, which in turn helps to improve practice” (Greene et al., 2001, p. 41). I employed document analysis, structured and open-ended interviews, a survey, and classroom/ computer lab observations.

I conducted this study in an elementary school in Ankara, Turkey from March to June in 2006. This school houses around 1900 students and 60 teachers. The school has 2 ICT classrooms established through BEP. As stated before, recently, compulsory elementary education in Turkey was increased from 5 years to 8 years. In this school, like any other elementary school in Turkey, the first five years are taught by classroom teachers, while the last three years are taught by subject area teachers. So the school’s education can be divided into two parts. The first part is five years of primary education and the second part is three years of middle school and together they constitute the eight years of Turkish elementary education. For this research, I studied

teachers' use of technology in the first five years. The school has one principal, three vice principals, two psychologists, two clerks and two janitors. There are sixty teachers, thirty-five of them are teaching grades 1 to 5.

Quantitative data comes from my survey results. twenty-nine teachers completed the survey. Qualitative data was collected through interviews with teachers and school principals. At the school, I conducted 14 interviews with ten elementary grade teachers and one computer teacher. There was at least one teacher from each grade level. I also interviewed the school principal and two of the vice principals. Data were also collected through classroom and computer lab observations. A total of 13 class sessions were observed.

To analyze the quantitative data gathered from the survey, for each survey question, frequencies and percentages, means and standard deviations were computed to determine variation and the appearance of the distribution. Qualitative data from the interviews, observations and informal communications were analyzed to show, if any, meaningful patterns or themes. Shortly after the interviews, the data were transcribed and then summarized. Pseudo names were used to protect the privacy of the subjects. Observations took place in classrooms and computer labs. Observations and interviews were reviewed and coded on a continual basis. All data were compared in a search for similarities and differences.

Findings

In the survey, teachers were asked whether they believe they use instructional technologies enough in their teaching activities (see Table 1).

Table 1

Mean Scores of Educational Technologies Use (N=29)

Survey questions	M	SD
I believe I use instructional technologies enough in my teaching.	2.43	0.79
I use computers for instructional purposes	2.29	0.78
I use the internet for instructional purposes	2.57	0.98

Note. Response Range (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree).

It seems that teachers believe they use instructional technologies enough in their teaching activities. However, the mean of the responses was very close to neutral.

Teachers were asked whether they use computers and the internet for instructional purposes. The majority of teachers stated that they use computers

and the internet for instructional purposes. However, again, the mean of the responses was very close to neutral. It appears that teachers are using the internet a little less than computers as shown in Table 1.

This school has many different technological tools for teachers to use. Some of the available technologies are computers with an internet

connection, TVs, VCDs and projectors. Certainly teachers use some technologies more than others. In the survey, I asked the teachers to rate their use of different technologies. I asked teachers to indicate

how often they use various technologies. Table 2 presents the mean scores of different technologies used by teachers.

Table 2

Mean Scores of Different Technologies (N=29)

Survey questions	M	SD
Computer	1.71	0.49
VCR-Video-VCD	2.86	0.69
DVD	1.43	0.79
Camcorder	1.14	0.38
Digital Camera	1.25	0.46
Projector	1.57	0.53
The Internet	2.29	0.49
Fax	1.08	0.29
Cassette Player	3.14	0.69
Television	3.29	0.76

Note. Response Range (1 = not at all, 2 = a little, 3 = sometimes, 4 = a lot).

It seems that teachers are mostly using television, cassette players and VCD – video. The less used technologies are fax, camcorder and digital camera. It is important to note here that although the school has an adequate number of televisions, cassette players and VCDs, the school does not have any fax machines, camcorders or digital cameras. Therefore, if teachers want to use these tools, they have to bring their own machines.

I asked the teachers how often their students have taken advantage of different technologies in the classroom for learning purposes in the month before. A large majority of teachers selected once or twice (79.31%). Further, none of the teachers said they were using different technologies every day. Three teachers selected once a few days and another three teachers selected once a week.

To examine teachers' use of technology, I asked

the teachers and school administrators in what ways they use technology. From my survey, observations and interviews, it seems that technologies in this school are used for (a) instruction in the use of technology (b) administrative tasks (c) instructional purposes and (d) non-educational purposes.

Instruction in the Use of Technology

All my participants emphasized the importance of technological literacy. Teaching regarding the use of computers seems to be the main focus. I asked one of the computer teachers regarding her responsibilities in this school. The computer teacher stated that:

I am the only permanent computer teacher in this school. Therefore I am primarily responsible for teaching computer classes.

I think my job in this school is to introduce computers and the internet to children and to teach them basic computer literacy. (Ms. Yesim, Interview, March 10, 2006)

As stated earlier, the school has two computer labs and two computer teachers (one permanent and one temporary). After numerous lab observation sessions, examining lesson plans, and interviewing one of the lab teachers, it seems that the main point of lessons in the computer labs is to teach the use of technology. Lab teachers are focusing on how to use the internet and computers.

One thing I noticed in the computer labs was that the students seemed very excited and happy to be in the labs. They gather outside the lab long before the session begins. They are all bouncy and excited. In the lab, the students' excitement continues. During the entire time I was in this school, there was no other instance or place that I have seen children so excited (other than in the play-ground).

In the computer labs, there are sufficient computers for each student. No sharing is necessary. One main computer is reserved for the teacher. Using this computer console, the teacher can control the other computers. With the help of a projector, the teacher can show how to do things on a large screen visible by all students. The computer lab sessions are very similar to one another. Basically, in each lab session, the computer teacher first shows how to do something on the big screen, then students do the same things, followed by questions and answers. Before the session ends, if students have finished the work they are supposed to complete, they can do whatever they want. Usually they play educational

games available on the internet.

One of the sessions I observed was a fourth grade session. In the class, the teacher first explained what they were going to do that day. The topic was finding images via searching on images.google.com.tr. Students were supposed to copy the images that they like and paste them on Windows Paint (Windows Paint, also known as Paintbrush for Windows, is a very simple graphic painting program included in almost all Windows versions). Using Windows Paint, students were supposed to organize the images and create a picture. A few search words to find the images were picked by the teacher. The search words were butterfly, tree, fish, bird, house, star, kid, horse, and flower. Children could search words of their own choice. The teacher went around and checked all the students' work. The main points that the teacher emphasized were how to do a search on the internet, and how to edit, move, copy, delete and paste on Windows Paint.

Administrative Tasks

Using computers for administrative purposes was common among teachers. School principals ask teachers to submit students' grades in a computer file at the end of each semester. In fact this is the only way to submit grades. The school administration does not accept grades submitted on paper. Perhaps, entering the grades is the widest use of the computers by the teachers.

It is important to note that some teachers, especially older teachers, would find a way to avoid doing it. For instance, one of the teachers said:

I am in my fifties. I don't know how to use computers. I asked one of the computer teachers last semester to enter the grades on the floppy disk. She was nice and did it for me. I don't know what I am going to

do this semester. I cannot ask the computer teacher to do it for me every semester. But I will ask somebody again. (Mr. Mehmet, Interview, March 28, 2006)

Another teacher said something similar:

Our son who is in college now enters the grades for me and for my wife. She, my wife, is an elementary school teacher at another school. It is really difficult for us to enter the grades on the computer. I really wish that we could submit the grades on paper like we used to. (Mr. Bulent, Interview, March 30, 2006)

The school administration admits that some teachers have difficulties in using the computer to submit grades. Here is the response from the vice-principal, when I asked about entering grades:

Most of our teachers are over 40. This is really making a lot of things difficult for us. Asking the teachers to enter grades on the computer is torture to us. Of course we also need to understand the teachers. They have a lot of problems to deal with. (Ms. Sebnem, Interview, April 6, 2006)

Despite some exceptions, it seems that the majority of teachers are using computers to enter grades. In fact, except only two teachers, all teachers were able to enter grades via computers. As I stated earlier, many of the teachers and the school administrators were happy about entering grades via computers because it makes clerical work more efficient.

Computers were heavily used by the principals for a variety of administrative purposes. "I use

computers all the time for school business" said the principal (Mr. Huseyin, Interview, April 3, 2006). As I stated earlier, the school administration uses computers to ease official procedures with MONE. Other uses of computers by the principal and vice-principals include, but not limited to, (a) designing and printing out official documents and announcements, (b) teacher management (e.g., keeping track of teachers' records), (c) school management (e.g., managing school security cameras), and (d) student management (e.g., preparing student progress reports).

Instructional Purposes

In this school, computer technologies are employed for instructional purposes at a limited level. The most commonly used technologies are VCD and TV. As Table 3 (Mean Scores of Teachers' Technology Use) shows, the survey revealed that the majority of teachers indicated that they use TV and VCD frequently. Most teachers are using these if they can find the appropriate CDs to play (CDs are video CD, not audio; audio tape players are more common in this school). When I asked the teachers whether they could easily find the educational CDs, the answers I received were mixed. A few said they could and the majority of the teachers said they could not. It is important to note that those who said they have problems with finding educational CDs seem to be the same ones who are, not only older and already strongly resisting using educational technologies, but also using VCD and TV less than the majority of other teachers. They may not have that the actual experience of finding CDs since they are not utilizing these tools.

There were two teachers who were very interested in educational technologies. These two teachers were using educational technologies the most. They seemed to try to include many diverse

educational technologies in their lessons. As mentioned before, this school has four overhead projectors and teachers can check them out when they want to. I checked the records and found these two teachers frequently use the overhead projectors, unlike most of the other teachers.

Further, these two teachers have good professional relationship with one of the computer teachers. During my time in this school, I observed that these three teachers spend a lot of time together. I asked them about their work relationship and their active involvement regarding use of technology. One of them stated:

We talk about everything. We are close friends. We also talk a lot about teaching. We are trying to help each other. Sometimes we do things together. For instance, at the beginning of this semester, the three of us designed a self-report card for students. We took pictures of students, and then printed the pictures on their report card. The report cards include many things: homework, readings, class responsibilities, checking physical things (hair, fingernails etc). Mostly there are checkboxes. When students complete something, they check the box. The three of us worked together. I, for instance, was responsible for pictures. I took the pictures with a digital camera. (Ms. Olcay, Interview, April 4, 2006)

As I explained earlier, the computer labs are very busy. Most of the time, there is a class in session. However, there are usually one or two hours every week when the computer labs are available. Classroom teachers are free to use the labs when available for their classes. Teachers just need to arrange it with the

computer teacher. "I sometimes take my students to the computer labs" said one of the third grade teachers. "I usually show some information from useful online resources such as afancocuk.com, altincocuk.com, atlikarincam.com, and kulturcocuk.gov.tr," she continued. The internet sites this teacher used are children's web sites similar to kids.yahoo.com. When I asked about why she does this, she answered, "Primarily because that is what kids want, and they seem more interested and more focused in the lab" (Ms. Sinem, Interview, March 17, 2006).

It seems that showing web sites and making the instruction centered around this was very common when teachers use the computer lab. In fact, this is the only use of the labs by classroom teachers I joined two class sessions conducted by classroom teachers in the computer labs. The classes were mostly teacher-centered, and students were following the teachers' direction: visiting the web sites, reading information and asking/answering questions. I asked teachers why they only use web sites to teach in the computer labs. "What else can I do?" said a fourth grade teacher (Mr. Osman, Interview, March 23, 2006). It is important to note that lab computers do not have any educational software installed, and teachers use only one lab (unlike in regular lab sessions where students use two labs) and each computer is shared by two or three students.

The copying machine located in the library was also frequently used by teachers for instructional purposes. "I think all teachers use the copy machine very often" stated one of the vice-principals (Mr. Tamer, Interview, March 10, 2006). Teachers were using the copying machine primarily for the purpose of preparing instructions. Copying quizzes before the class for students to do in class was the most common use of the copying machine.

Employing various technologies for instructional purposes seems to be occurring at a limited level.

More teachers are using the tools that are less complex. In the next part, I will talk about the non-educational use of technology.

Non-Educational Purposes

This school was one of the few schools in the area that have computer labs for holding meetings. It seems that MONE reserves the labs for some meetings. I do not know the nature of these meetings. During these meeting times, the labs are closed to school staff and students. If there is a scheduled class during this time, the class is to be cancelled. I am told by the principal that these MONE meetings are very often (at least once a month for 2-3 hours) and become more frequent at certain times of the year.

Also, I did not see any teachers using the computer in the teachers' lounge for educational use. During my time there, I observed that this computer was used nine times by three different teachers. One teacher used this computer five times. The other two teachers used this computer two times each. Common uses were chatting, playing games, reading newspapers and checking email.

Further, it seems that the computers in the principal's and the vice-principals' offices are often used for non educational purposes. It appears that these computers are heavily used for administrative purposes during certain times, such as at the end of the semesters. Other times these computers are mostly used for other purposes. I frequently visited the principals in their rooms. Most of the time, they were reading newspapers on the internet.

Discussion and Conclusions

Clearly, studying just one school does not provide material for a comprehensive understanding of Turkish teachers' use of technology. However, some conclusions may still be drawn. My findings

revealed that teachers are mainly using technology and computers for (a) instruction in the use of technology (b) administrative purposes (c) instructional purposes and (d) non-educational tasks. My data further revealed that teachers tend to use simpler technologies (e.g., TV) more than computers, if they are easily available. While classroom teachers use computers mainly for administrative purposes, computer labs are mainly utilized for instruction in the use of technology.

In Turkey, there is little accountability. If teachers prepare their lesson plans and come to work every day on time, they are considered to be doing their job adequately. I think we need more accountability in Turkey. Although we cannot force teachers to adopt technology, we can definitely guide them into a step by step change process through setting up standards for them.

Research findings supported that appropriate teacher training (in-service and pre-service) is essential to the appropriate use of technology. As I mentioned in my findings section, teachers have little expertise and knowledge of educational technology and computer technology in general. It appears that more focus on educational technology is needed in pre-service education.

There are some in-service training opportunities regarding educational technology in Turkey. I asked teachers about this when I was doing my research. Almost all of them stated that they really did not learn anything since the training offered was very short (2 weeks) and very basic (turning off and on computers). It seems that these training opportunities were very limited in helping teachers to use technology. It may be a good idea to devise new and effective educational training opportunities for teachers.

In Turkey, the majority of elementary school teachers are using traditional methods in classrooms.

By traditional methods, I mean instruction is teacher-centered and didactic; teachers are viewed as knowledge dispensers. Traditional methods are inconsistent with effective technology use. Integrating technology requires some changes. Honey and Moeller (1990) argued that traditional teaching methods are incompatible with methods that support technology integration. To integrate technology fully into teaching and learning, teachers must use new instructional strategies (Jones et al., 1996). Therefore, technology adoption in schools will not be successful unless teachers are willing to change. Change is a long process. There are many factors influencing change. As Fullan (2003) says, "There are no hard-and-fast rules, but rather a set of suggestions or implications given the contingencies specific to local situations" (p. 3). Most of the research on change is done in the western world. Turkey functions as a bridge between the west and east. To understand the change process in Turkey, more studies focusing on change should be conducted. Specifically, longitudinal studies may allow us to better understand the change process.

Integrating technology into schools can be called an innovation. Rogers (1995) cautioned that the diffusion of innovations might cause social injustice among different socio-economic groups. He said, "When the issue of equality has been investigated, we often find that the diffusion of innovations widens the socio-economic gap between the higher and lower segments of a system" (p. 125). Rogers argued that this is especially correct for under-developed and developing countries, because these countries "tend to provide assistance especially to their innovative, wealthy, educated and information-seeking clients" (p. 128) and this leads to lower degrees of equality.

In Turkey, social injustice is a big problem. The gap among socioeconomic groups is sharp and wide.

In terms of technology, it is essential to find out whether technology in schools is causing any social inequalities. A large majority of Turkish elementary schools are public schools. Although they receive the same amount of funding from the State, there are big differences among schools. Urban schools in economically rich areas usually provide better learning opportunities. It can be argued that these schools were more ready than others to embrace technology. Most of them, unlike most of the rural and suburban schools in poorer neighborhoods, were already trying to integrate educational technologies even before the Turkish Government's invitation. Some other schools in low socio-economic areas, however, are probably facing a lot of severe problems in adopting these technologies; as my research school is facing. This is beyond the scope of my research. More research should be conducted to examine the problems.

In Turkey, politics guide education. After every election, we see some changes in education (usually in laws and regulations) that are supposed to better our education system dramatically. Politicians refer to these changes as big reforms and they say it is what we need desperately. In the end, nothing really changes. Research studies should guide educational decisions. However, it is important to mention that the number of educational research studies is limited. Furthermore, many of these research studies seem to be focusing on quantitative problems. Most of the studies are ignoring school culture, diversity and the connections between the school and society. More independent research studies are necessary. I believe more qualitative research studies, democratic evaluations, case studies and action research inquiries should be conducted.

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Received:18.7.09, accepted 16.9.09, revised 19.9.09, further revision 5.10.09