

Problems Faced By Information Technology Teachers in Schools at High School Level and Solutions to Such Problems

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ABSTRACT

In the century that we live in, information has become one of the resources that are being produced, changing hands and being consumed rapidly. In the present time, in order to be able to move ahead as a society, proper education is required to be provided in our schools. In the general sense, there is a consensus that information and communication technologies are beneficial as a basic requirement of the era the education and that they should be used. The purpose of this study is to identify the problems of information technology teachers working in the schools in the TRNC, which result from institutions and individuals and to conduct studies in order to suggest alternative ways for the solution of those problems. In conclusion, it has been identified that the leading problem among all those faced by teachers with respect to the use of information technologies in the TRNC is lack of technical infrastructure.

Keywords: *Problems, Technology Teachers, Schools*

INTRODUCTION

The period of time that we live in is called the information age or the digital age, which is formed by information and derivatives thereof. In the century that we live in, information has become one of the resources that are being produced, changing hands and being consumed rapidly. One of the dynamics that direct social changes is information. Information is regarded as a means of power and sovereignty, a significant resource and also as capital possessed by developed societies (Toffler, 2008)

In the present time, in order to be able to move ahead as a society, proper education is required to be provided in our schools. It is imperative to improve the quality of education in order to be able to provide it properly. Technology has become one of the significant determinants of quality. Yet, qualitative education cannot be effectuated without qualified teachers. (Toffler, 2008)

The information society denotes a type of society where the ability to produce, access and use information has developed and such information has been transformed into technology and thus institutional transformation of the society has been maintained (Toffler and Toffler, 1996; Toffler, 2008). Computers, data banks and the Internet occupy a significant place in the production, storage and sharing of information. Information has become a commodity accessed and consumed rapidly at the international level by exceeding the boundaries of time and space. The production of information is continuously increasing incrementally. In brief information produced in various scientific fields cause certain changes in the lives of human beings, societies, establishments and school (Akıncı and Seferoğlu, 2009; UNESCO, 2002, Toffler and Toffler, 1996, Toffler, 2008).

As a result of those changes, the world that we exist on is living the age of technology. Societies are being shaped according to their capacities of producing information and the information economy that is formed in

connection therewith is continuously evolving. Producing information and transforming it to technology is eased and a lifestyle without technology cannot be envisaged. Along with the advancement of technology, education has become one of the most important factors in the flourishing and development of societies. Educational institutions undergo changes continuously in line with their relationship with information and technology. Depending on the information technologies used, the development can clearly be seen in qualitative and quantitative terms (Seferoğlu, 2009).

Parallel to such global developments, problems associated with information technologies used in educational institutions in the TRNC, namely the problems encountered in schools where information technology teachers are employed as a result of the researches and examinations as well as solutions to those problems should be analyzed.

In the general sense, there is a consensus that information and communication technologies are beneficial as a basic requisite of the time and education and that they should be used. However, it is not easy to find consensus on implementation as in the case of each novelty. While novelties are integrated into the present system, problems arise naturally. Those problems may result from legal regulations and also institutional and/or individualistic problems may give rise to delays or hitches in putting those novelties into practice.

Especially in the last 15 years, computers have begun to be used to regulate educational services so that those will meet individual needs, to provide educational services more effectively and productively and to create a school environment which is at a contemporary level (Usun, 2000). Since in the present time it has become obligatory to make education acquire a scientific and technological quality, the use of information technologies in schools emerge as an indispensable necessity. As an example, a 100-dollar laptop project led by Nicholas Negroponte was launched in order to introduce information technologies to under-developed countries, which was made public in the World Economic Forum, held in Davos in 2005. This initiative led by Negroponte, the head of the Massachusetts Institute of Technology (MIT) Media Laboratory in the USA, which later on caused a public debate by the action of "One Laptop per Child" (OLPC) aimed at providing laptops for zero dollars is noteworthy as it shows us how indispensable computers are in the modern system of education. As long as education polices do not rely on scientific principles in terms of their overall structures and do not make use of advanced technology, it is not possible for them to respond to social and individual needs (Alkan, 1986)

In the information age that we are in, the growing need of individuals to learning has led to an increase in the applications required to enhance the efficiency of the education process in schools. In parallel to that, there are significant global projects directed at providing more favourable conditions for education in schools and developing and using tools that can be of use during teaching (Seferoğlu and Akbıyık, 2009)

Information technology teachers have duties and responsibilities in various areas. They are faced with diverse problems as they assume additional duties and responsibilities needed by the school administration as well as other teachers beside their own. It appears that information technology teachers are required to deal both with the education of students and the maintenance of the computer laboratory and also with the responsibilities given by the administration as per their identified duties (Seferoğlu, 2001). Therefore, information technology teachers have various problems educationally, administratively, technically and individualistically. Kızılcı and Kabakçı (2006) have, in their researches where they have analyzed the problems experienced by the information technology teachers during their initial years, categorized such problems as problems in educational, administrative, technical and individual areas. In the area of education are found problems associated with issues like the curriculum, course hours and textbooks, planning and assessment, methods and techniques, classroom management, participation in the classroom and the success of the students. In the area of administration, however are problems associated with issues like job description conflicts with school administration as well as upper level management, number of teachers, personal benefits and institutional operation. In the interviews made with teachers during the research, problems have been identified with respect to issues like architectural suitability of classrooms where technical computer training is being provided in the TRNC, tools, technical support, Internet access and information infrastructure and it has been ascertained that problems encountered by teachers individually include time management, stress, lack of adaptation and motivation.

Transferring information technology to educational environments becomes more and more important every passing day. It appears that efficient use of information technologies in education depends on its integration with course programmes and environments of learning (Plomp, Anderson and Kontogiannopoulou-Polydorides, 1996)

In the research made by Hizal (1989), it is seen that teachers give support to computer-assisted education. Also, teachers have delivered opinions that computer-assisted teaching applications should be extended. The fact that most of the teachers have stated that they would like to have computers in this research is an indicator of the positive approach towards the computer and accordingly information technologies.

It is known that in the context of "educational reform" that was made in 2005 by the TRNC Ministry of Education, the issue of expanding the computer assisted teaching applications for teachers and managers is given

importance. Studies made indicate that teachers are working devotedly in extending the new technologies (Hızal, 1989; UNESCO, 2002). When the recent researches that were carried out in educational sciences are considered, it is understood that the researches in question have focused on information technology, which exists in the context of information technologies. That the computer is the basic element in the formation of all other IT practices is given as a reason therefor. For instance, computers play an important role in promoting the interactive video and network systems. Other systems' requiring additional equipment however, brings with it additional costs.

Therefore, it appears that the other information technologies except computers have started to be used in educational institutions recently and are seen fewer in number. Reduction in the costs of equipment due to technological advancements has led to the use of such products and consequently resulted in focusing on the computers as the initial information technology that entered schools.

Especially, young teachers' positive perspective towards the information technology and their use of computers in education are amongst positive developments (Seferoğlu, 2001). In order to use the IT actively in education, teachers are required to be provided both on-the job training and pre-service training and those trainings should periodically be re-provided to the teachers in parallel to the developments. In order to use the information technology for educational purposes, necessary infrastructure should be provided by the experts and be brought into the teaching-learning environments.

In Seferoğlu' study (2001) on the expectations of class teachers, it has been stated that there is a clear need of reform in education system for tackling with difficulties and overcoming problems and trainings should be organized for the teacher's personal and professional development.

In general, similar results have been obtained in the studies that specifically focused on the information technology teachers. As stated above, according to the study of Kiyıcı and Kabakçı (2006), problems that "Teachers of Computer and IT" face have been identified as mostly staffing and secondarily job descriptions in the area of administration; mostly class management and secondarily course plan preparation in the area of teaching. Personal problems however, are identified to be orientation problems.

In Deryakulu's study (2005), it has been found out that the computer science teachers go through a process of exhaustion in the early years of their careers and they especially are faced with serious problems because of their concern for personal failure. It has been found that the level of emotional exhaustion of male computer science teachers or their level of becoming desensitized is higher than the female teachers. It has been found that the aforementioned level is higher in teachers of secondary education in comparison to those of primary education and also higher among computer science teachers who work in official state schools.

Kaçmaz (2002) found that the levels of knowledge and computer usage of teachers who give computer science lessons in secondary education vary with seniority and that primary factors affecting computer science education are lack of management and equipment (computer), specifications of equipment, trained personnel support, school management - family cooperation, student motivation, financial means, resistance to novelties and difficulty of learning. An important ascertainment has been that computer usage levels of teachers who give computer science lessons in secondary education show a parallelism with their knowledge levels.

That teaching is becoming complicated every passing day and that the information to be provided in education has increased have led to using computers as a tool for qualified education. Studies made reveal that the problems that are faced by IT teachers of educational institutions are similar with those in secondary education and there is a need of sharing gained experiences in this field. Because, fast developments in science and technology in our age affect society and educational systems as well as the economic system. Technology plays an important role in developing the educational progress. Therefore, societies are required to follow and adapt to new technologic developments and most importantly should become in a position of developing those new technologies. In the age of information technology that we live in, there is a need for people who do not memorize the information but who are able to access and use information and think productively.

The aim of this study is to define problems of IT teachers who work in schools in the TRNC that result from institutions and individuals and to take action for suggesting alternative ways to overcome those problems. In this study, it has been sought to identify what kind of problems IT teachers in TRNC are faced with. Solving those problems duly is important for our society. For, the IT teachers are the pioneer group who introduce information technologies, which has become the symbol of developing technology to our IT students and provide them with the necessary education. Therefore, the role of IT teachers in the education system is rather important. In order for IT teachers to fulfil their responsibilities in the most productive way and provide continuation of studies, it is required that the problems in educational institutions be analyzed and solved. In this research to be carried out as based thereon, defining the problems of IT teachers that they face while performing their duties forms the main purpose of this study. That the number of such works is few in number in the TRNC is increasing the importance of the project. This project

aims to become a guide for other future studies.

METHODOLOGY

In order to obtain results in the scope of the study, the triplet of observation, interview and questionnaire technique has been used as the data collection method. The population of the research is the schools in the TRNC where information technology lessons are taught. Observation was made for three class hours in a class of each of the schools that form the research population. In observation, an open-ended technique has been used. Based on the outputs obtained from the observation, semi-structured interview questions were designed. Interviews were made with one manager and at least one teacher from each school. Total number of interviews conducted is 41. To support the results of the study, a questionnaire survey was conducted with the students.

Schools in which the interviews were made are as follows; Girne Anafartalar Lisesi (High School), Lapta Yavuzlar Lisesi (High School), 19 Mayıs TMK (High School), Gazimağusa Meslek Lisesi (Vocational School), Gazimağusa TMK (High School), Namık Kemal Lisesi (High School), Gazimağusa Ticaret Lisesi (Business High School), Canbulat Ortaokulu (Secondary School), Çanakkale Ortaokulu (Secondary School), Bülent Ecevit Anadolu Lisesi (High School), Lefkoşa TMK (High School), 20 Temmuz Fen Lisesi (Science High School), Sedat Simavi Endüstri Meslek Lisesi (Business High School), Demokrasi Ortaokulu (Secondary School), Erenköy Lisesi (High School), Atatürk Meslek Lisesi (Business High School), Şehit Hüseyin Ruso Ortaokulu (Secondary School).

The results of the observation made in the scope of the study were recorded in to the observation form. In addition to the information like date, place, time, the name of the course, the name of the school, the subjects of that particular day; the environment and the means of IT technology used were also recorded into the observation form. The observation activity took place between November 2010 and February 2011. Observed events, facts and behaviours were entered one-to-one into forms and subjective observation and comments of the researcher were recorded in a separate document.

Results obtained from the outputs of analyzed observation forms were categorized and each question was designed so as to be represented by a code in the interview question form. The interview work was carried out in March 2011. Answers given to questions were analyzed under themes and while findings were being submitted those themes were used to make the reader understand (Yıldırım & Şimşek, 2005).

The questionnaire used in the research was detailed and prepared as based on the findings obtained from the semi-structured interview. The pilot test of the questionnaire survey was conducted on 10 students and necessary corrections were made in relevant questions. The questionnaire survey on the other hand, was conducted in April 2011 by stratified random sampling with the participation of 35 students from Güzelyurt, 40 students from Girne and 20 students from Magosa region, whose schools were divided into regions according to the quota. The questionnaire was prepared in accordance with the literature review and comprised 17 questions. The introduction part of the questionnaire contained a summary on the work carried out and a written briefing about the purpose of the questionnaire survey. The questions were prepared as close-ended considering the use of mass media in education (television, Internet, computer, radio, etc.), their effects on students, their relationship with daily life and the attitude of families.

In the light of the notes taken during the interviews with teachers, problems will be found out and views and suggestions related to the subject matter have been conveyed within the study. Each of the participants interviewed was given the abbreviated name of a school as well as a code number (e.g. 19 Mayıs Türk Maarif Koleji, 19 Mayıs TMK; Gazi Mağusa Meslek Lisesi, GMML; 20 Temmuz Fen Lisesi, 20 TFL etc.). An example of how the code was applied is the 19 Mayıs TMKögt (2) code used for the teacher number 2 who participated in the interview in 19 Mayıs Türk Maarif Koleji.

DATA COLLECTION AND ANALYSIS

In the research where semi-structured interview techniques were used, it was aimed to receive the views of information technology teachers about the problems they had regarding the use of information technologies. First of all, in order to establish communication with teachers more easily, introductory questions like whether the teachers like their job or not, how many hours they taught and at which fields they had training were asked. In the following questions, the teachers were inquired about their general views on information technologies, the equipment used in the lessons and the problems they had with regard to information technologies. The place of the subject matter in the curriculum, its situation in terms of the education reform and whether school administrations contribute to the subject matter or not were also inquired. Moreover, the teachers were asked the number of years they have been

teaching to analyze whether there is any difference between young teachers and those who have been teaching for a longer time. The comprehensibility and reliability of the questions were asked to the specialists and pilot tests were carried out with five people.

FINDINGS AND RESULTS

As a result of the interviews with teachers, one of the most important and striking points was the relation between regions and questions. To begin with the regions; although there are information technologies in Mağusa and Karpaz (Erenköy) regions, the existing technology cannot be used adequately due to lack of technical infrastructure. According to the statements of the teachers who teach in the region, lack of infrastructure is not the only problem. Especially, “The students who come from villages have problems using the Internet” (GMMLögt 2). Moreover, in the opinion of GMMLögt (2), the use of information technologies has reflected on the education reform partially. GMMLögt (2), who points out to the fact that computers are not being used much except computer lessons as the reason to that, states that problems of infrastructure should be resolved for the education reform to be implemented fully and that the number of computers per student should be distributed proportionately. One other problem has been identified as lack of sufficient number of computer laboratories and the school administrations’ failing to give the desired support due to budgetary problems although they act in good faith. As GMMLögt (2) puts it: “Teachers have to improve themselves because information technologies are being renewed every day and keeping up with the time is only possible by continuous self-improvement”. In other words, GMMLögt(2) indicates how important it is for teachers who teach on information technologies to follow the advancements constantly at a time where information technologies are constantly changing and evolving.

At the interview made in Erenköy Lisesi, ELögt (1) stated that “the desired level cannot be achieved due to the budget problems even though the school administration supports the use of information technologies”. In other words, according to ELögt (1), although the school administration supports the use of information technology, due to the budget problems present in the area of education and in schools, the technology cannot be used as intended. ELögt (1), who have stated that the education reform supports the use of information technology, but that it is not at the required level yet mentioned that another problem is the high turnover of teachers in Erenköy Lisesi.

The most important problem in 19 Mayıs Türk Maarif Koleji (GTMK), Anafartalar Lisesi (AL) and Lapta Yavuzlar Lisesi (LYL), which are schools from the Girne region was conveyed as the difference between the existing number of computers and the number of students. Besides, one other problem which is that computer usage is only limited to computer lessons results from the education system in the TRNC and the elimination of those problems can only be possible by means of incentives to be made by the Ministry of Education both with regard to the budget and also by its encouraging new teachers about the use of information technologies.

In GTMK, a school at Girne region, however, the teachers interviewed have stated that even though the school administration tries to support teachers about information technologies, due to the economic obstacles, the intended results could not be reached. The insufficiency of the education reform is striking as another problem mentioned. Again in GTMK, just like the schools in Mağusa region, the difference between the number of students and the number of computers was mentioned as another problem. GTMKögt (1) stated that “due to crowded classrooms, the information technologies cannot be used in the desired scale”, when his view was asked. Moreover, according to GTMKögt (2) who stated his views about the issue, “the classrooms are very crowded and there are 20 computers for 36 students.” Besides, it was emphasized that technical issues are dealt with by computer teachers and there should be a computer coordinator in charge of maintenance and repair. Another issue that drew attention in the interviews made was that the use of information technologies has come to foreground mostly at computer lessons yet computer usage should be encouraged in other lessons as well.

At Anafartalar Lisesi (AL) in Girne region, the importance of the need for technical support was emphasized and the difference between the ratio of computers used and the number of students was noted. As ALögt(3) stated at the interview, the need for a technical staff member to deal with technical problems is striking as another factor. It has also been emphasized in the interviews made that the school administration fails to give support to teachers both in respect of technical support and also of information technology applications. It was stated that the education reform support the use of information technology and yet the expected progress has not been attained.

In the interviews made at 20 Temmuz Fen Lisesi (20TFL), it was stated that computers are being used both in lessons and in administrative departments and that the use of information technology has always been supported by the school administration. According the 20 TFLögt(1), “there are problems resulting from the structure of the lab and the crowdedness of classrooms” and in order to sort those out, “the lab may be designed in a more practical way and changes may be made in the number of students”. In response to a question about education reform, 20 TFLögt(1) stated that the education reform is encouraging the use of information technologies.

One of the results of the interviews is the assertion that the most important problem faced by the information technology teachers is the number of students. The number of computers and this number's not corresponding with the number of students cause the productivity in education to decrease performance, consequent to which the use of information technology moves away from its target and fails to be of benefit sufficiently. Crowded classrooms that come up as a problem beyond the will of schools may be resolved by an education planning to be conducted by the Ministry of Education. Similarly, the infrastructure and staffing shortcomings (e.g. using computer science teachers for technical support) that exist beyond the will of schools must be identified by the Ministry of Education and steps should be taken to resolve the problem, if applicable.

Another fact that emerged in the light of interviews conducted is that although the educational reform done has gone down well with teachers to a large extent, it is inadequate. The lack of infrastructure in education is distinguished as a cause of this.

The most important development which can be seen as positive is that, as the study points out, many schools and their administrators are positive about the use of information technologies. However, there still are shortcomings in practice because of the reasons mentioned above. Another important point is that, even though teachers think positively about the use of information technologies, some differences are noticed during the stage of use because of the 'generation gap'. What's meant from generation gap is the teachers that begin working in the field of education newly. The teachers, which have been in the field of education for long years, are more "incompetent" about the use of information technologies, in comparison to younger teachers who began working newly. It is well possible to overcome this problem by the Ministry of Education's organizing in-service training courses constantly.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the lack of technical infrastructure constitutes the leading problem teachers face concerning the use of information technologies in the TRNC. What's meant by technical infrastructure is not only the number and technology of computers, but also the current problems of schools. The number of classes constitutes the biggest impediment behind the proper use of information technologies; hence the expected efficiency in education cannot be obtained from the use of information technologies. Similar problems are also indicated in other studies done outside the TRNC. (Akıncı ve Seferoğlu, 2010; Seferoğlu ve Akbıyık, 2009; Hızal 1989; Okinaka 1991; Akkoyunlu ve Orhan, 2003; Nagaran, 1989; Tandoğan, 1998; Yalın 2002). Although the problems existing in the past are partly resolved due to the educational reform made, the educational reform is far from the reaching the desired point because of both the budget and the other reasons mentioned above.

As a positive development, this study found that the school administrations take information technologies seriously and support teachers about this issue. However, it must be stated that this matter should receive more consideration if the positive works done are expected to be fully efficient. The Ministry of Education should make investments on ever-changing information technologies more seriously. As Seferoğlu and Akbıyık (2009) stated, "firstly it is needed to enhance the knowledge of teachers and also environments where they may make use of the skills they gained should be provided to them". The existing communication process between the Ministry of Education, teachers and school managers is important. However, for the solution of both financial problems and problems between administrations and teachers, which are caused by the use of communication and information technologies, the Ministry of Education's share from the budget should be increased and also the communication between the ministry, schools, teachers and students must be healthy and sound.

As a result of the interviews conducted, it has been found out that information technologies are used in computer lessons without any problems, but underutilized in other lessons. For example, using the information technologies in foreign language teaching would provide great benefits both for students and teachers. With the awareness that one of the key points of catching the era is being able to keep up with it, the education budget should be increased, in-service training courses should continuously be organized to convey information related to the matter and the teachers' improving themselves about the use of information technologies should be rendered a requirement by such courses.

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