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COMPUTER BASED INSTRUCTION AND COMPUTER ASSISTED LANGUAGE LEARNING IN SCHOOLS IN BURSA*

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SUMMARY

Present research is the pilot study of a larger scale, longitudinal study that's being carried on in Bursa. 20 schools were randomly selected for investigation. A questionnaire that investigates the hardware, purposes of using computers, attitudes of teachers towards computer-based instruction, and possible reasons that prevent the integration of computers, was given either to the principal or the vice principal of each school. Research results show a big difference between private schools and government schools in computer-based instruction. There is a clear superiority of private schools both in the number of hardware they posses and in the use of computers for educational purposes. The results of the study indicate that, although steps are taken both by National Ministry of Education and Local Education Authorities, such as providing computers and offering in-service training, computers are not widely used in education. The majority of schools use computers for reasons other than education such as keeping records and registration. In addition, if computers are used, they

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are used in subjects other than teaching. The main reason, aside from finance, that seems to prevent the integration of computers found to be that teachers and administrators are not aware of pedagogical opportunities that computers provide.

Keywords: *CALL, CBI, Computer, Computers in Education, Language Learning.*

ÖZET

Bu araştırma, Bursa'da yürütülen daha geniş ölçekli ve uzun vadeli bir projenin pilot çalışmasıdır. Bu amaçla rasgele 20 okul seçilmiş ve bu okulların müdür veya müdür yardımcılarına bilgisayar donanımı, kullanım amaçlarını, öğretmenlerin bilgisayar destekli öğretime karşı tutum ve düşüncelerini ve bilgisayarın öğretime entegre edilmesinin önündeki engelleri sorgulayan bir anket verilmiştir. Araştırma sonuçları bilgisayar destekli öğretimde (BDÖ) özel ve devlet okulları arasında büyük fark olduğunu, özel okulların donanım ve uygulamalarda belirgin bir üstünlüğü olduğunu ortaya koymuştur. Sonuçlar ayrıca, Milli Eğitim Bakanlığı ve İl Milli Eğitim Müdürlüğü tarafından bilgisayar temini ve öğretmenlere yönelik hizmet içi eğitim sağlamak gibi bazı adımlar atılmasına rağmen, bilgisayarın öğretimde kullanılmadığını göstermektedir. Okulların büyük bir kısmında bilgisayarlar yazı yazma, kayıt tutma ve öğrenci kayıtları gibi amaçlarla kullanılmaktadır. Bilgisayarın öğretime entegre edilmesinin önündeki en büyük engel, finansal nedenler dışında, öğretmen ve idarecilerin bilgisayarın sağlayacağı pedagojik olanakların bilincinde olmaması şeklinde bulunmuştur.

1. Introduction

Computers are widely used in many fields. They have already become a part of our lives. The number of people learning to use computers are spreading each day and children of the new millennium are born and see computers after they see their mothers' face. Computers are not far reached anymore, especially in business. In developed countries, computers are not only an essential part of business but also education, however, is it so in developing countries? Where do computers stand in the field of education in such countries? How do educators perceive using computers in such countries? What are the drawbacks of using high technology in the developing part of the world? Are they a part of instruction given? Do schools have computer laboratories and if they do can they use them effectively? Lastly, since language teaching and learning is the main interest

of the researchers are they used in language classes? While trying to answer these questions, it needs to be mentioned that the aim of this article is not to find or offer financial solutions that are related to these issues. Rather, it is aimed to state the facts and reasons both financial and non-financial.

In the first part of the study the development of CBI (Computer Based Instruction) and CALL (Computer Assisted Language Learning) is given. In the next section the methodology of the study is presented. Third section introduces the results of the study and the in last section the results are discussed and conclusion is given.

2. Development of computers, CBI and CALL in Turkey

Initial use of computers in education was in the universities. First academic studies were mostly on computer sciences and artificial intelligence; in addition, PROLOG and other programming languages were being worked on. Bigger universities (like ITU and METU) have started working on PROLOG in the 80s and at the first products of these studies were taken in the 90s.[1] First Turkish speaking artificial intelligence program ALI (Mathematical Language Processor), which can be referred as the Turkish version of ELIZA, was developed by Say in 1993.[2] It is after this theoretical work at the universities when computer-based instruction has started. Especially after 80s schools used computers for keeping records and accounts. First computers were bought by individual efforts of families or some institutions.[3]

Although CALL studies have started in the 1960s in developed countries like USA, France, and Britain,[4] it has started much later in Turkey when compared to mathematics and science lessons. In addition to many factors, foreign language teachers' unfamiliarity with computers, the thought that computers can only be appropriate for math and science lessons, and some other cultural factors played and important role in this delay.[5] First official step towards CALL and CBI starts during 1990-1991 academic year when National Ministry of Education bought 12.000 computers for middle

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1 Baray, M., Doğaç, A., Can, F: "5. Kuşak Bilgisayar Sistemlerine Genel Bakış", 1987.

2 Say, C.: "Akla Doğru", 1998.

3 Hürriyet Gazetesi, 2000.

4 Demaiziére, F.: "CALL in France", 1991; Wollf, D.: "CALL in Great Britain", 1991.

5 Alyaz, Y.: Eğitimde Bilgi Teknolojileri ve Bilgisayar Destekli Yabancı Dil Öğretimi, 2000 ; Rüschoff, B.: Fremdsprachenunterricht mit computergestützten Materialien, 1988.

and high schools. However, since no previous preparations were made to use these 12.000 computers in an effective way they become outdated. First use of CALL in Turkey mostly starts with the use of computers as a worktool; that is producing materials for the lesson or exams, duplicating or keeping them or making multimedia presentations without a CALLware. For example, course material was prepared on powerpoint, and presented on LCD-Data-Show-Display. Also, some foreign language teachers have developed a limited number of bilingual dictionary and electronic grammar book by their own efforts and knowledge about programming. However, since these efforts lack pedagogical and technical expertise, it cannot be said that these have important effects on the spread of CALL. According to Levy, computers have four main functions in teaching a foreign language. Computers can be used as a:

1) Worktool
2) Communication aid
3) Subject to talk about
4) Tutor

As with all the other functions of computers, tutor function requires special software. However, it is impossible for language teachers to develop such programs, which enable visual-auditory interaction and provide feedback for individualized education. Developing professional educational software for CBI and CALL in Turkey started during the mid 90's when big software production companies brought their programs to Turkey. Later, it continued with the production of licensed programs in Turkey.[6] Computerization process gained certain acceleration during the late 90s.

3. Methodology

In order to shed light to questions, such as those asked in the introduction, a study was conducted in Bursa. In this study 20 schools were randomly selected for investigation. Thirteen of which are government schools and seven of which are private. The reason why government and private schools are investigated together is to find out the current situation in these two different types of schools.

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[6] For example Logomotif and Syracuse Software Inc: http://www.logomotif.com.tr

Data is gathered through a questionnaire that investigates the hardware, purposes of using computers, attitudes of teachers towards computer-based instruction, and possible reasons that prevent the integration of computers. The questionnaire was given either to the principal or the vice principal of each school. The reason why we preferred principal or vice principal is because we thought that as a director they might have the most and the best knowledge about their schools present situation in using computers. In addition, since they are working or have worked both as teachers and directors they might have a wider perspective on the issue.

4. Results

Research results indicate dissimilarities between private and government schools in computer-based instruction. There is a clear superiority of private schools both in the number of hardware they posses and in the use of computers for educational purposes. Schools were asked about the number of individual computers and laboratories they have. All (7) private schools said that they have at least 1 laboratory and individual computers, ranging between 3-22 in number, for the staff. Whereas, 5 out of 13 government schools have at least 1 laboratory and only 8 out of 13 have individual computers, between 3-22 range, for their staff (Table 1).

Table 1. Number of individual computers and laboratories

PRIVATE SCHOOLS	GOVERNMENT SCHOOLS
All have at least one laboratory + individual computers between 3-22.	5 have at least one laboratory, 8 have individual computers between 3-22.

When we looked at the places where these schools use computers, it was found that computers were mostly used in the offices (80%)*, then in the laboratories (60%), and least frequently in the library (35%) both in private and government schools. However, it is important to make a distinction again between private and government schools. While all private schools use computers in the offices (100%) and laboratories (100%), 69% of

* The respondents were allowed to mark more than one choice, hence the total of the percentages do not add up to 100. Percentages refer to individual choices in the items of the questionnaire.

government schools use them in the offices and 38% use it in the laboratories (Fig. 1).

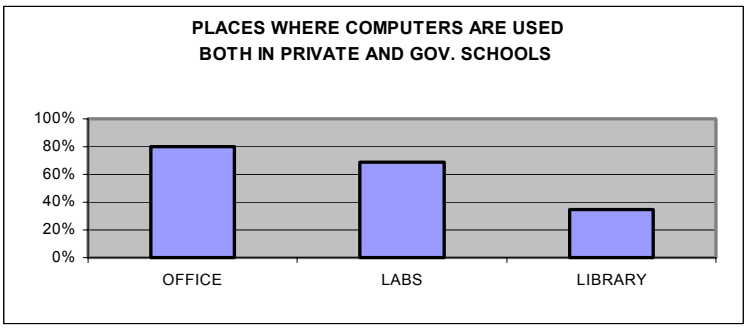

Figure 1. *Places where computers are used*

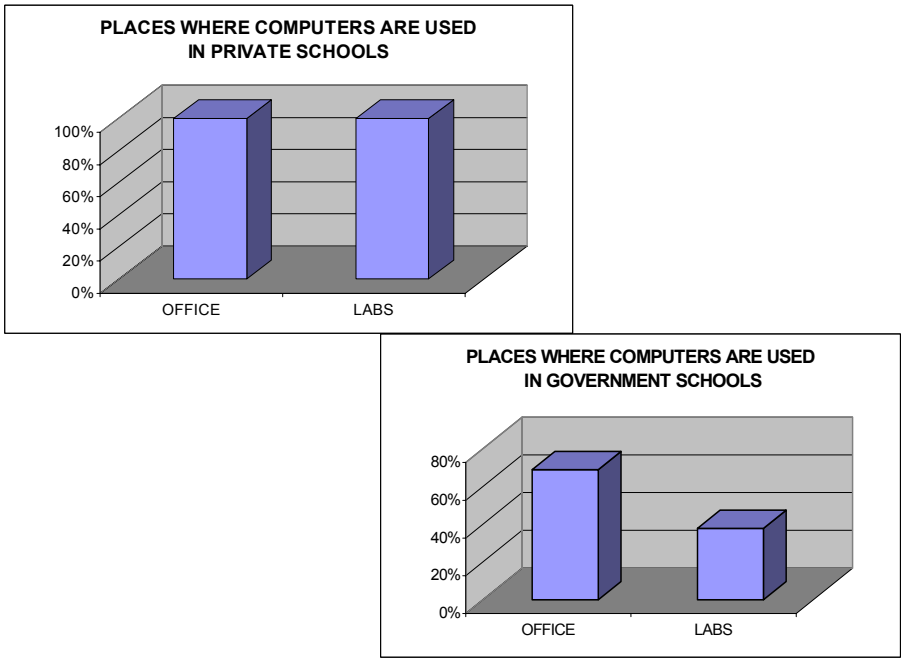

Figure 2. *Places where computers are used*

Schools were also asked about the people who use or have access to computers. The majority of schools (19) said that their administrative personnel, such as the secretariat are using computers at first place (95%). Principles and vice principles took the second place (80%), students use it

next with 70 %, the IT (Information Technologies) personnel (when there is such a person) use it after (50%) and teachers use it last (35%) (Figure 3). In private schools, 100% of the administrative personnel, principal, vice principal, IT personnel and the students, and 86% of the teachers use computers. Whereas, in government schools, administrative personnel with 92% took the first place, principal and vice principals took the second place with 69%, students with 54% use it next and teachers and the IT personnel (when there is one) use it last with 23%. As seen from the percentages there is a clear decrease in the number of people who use computers in government schools.

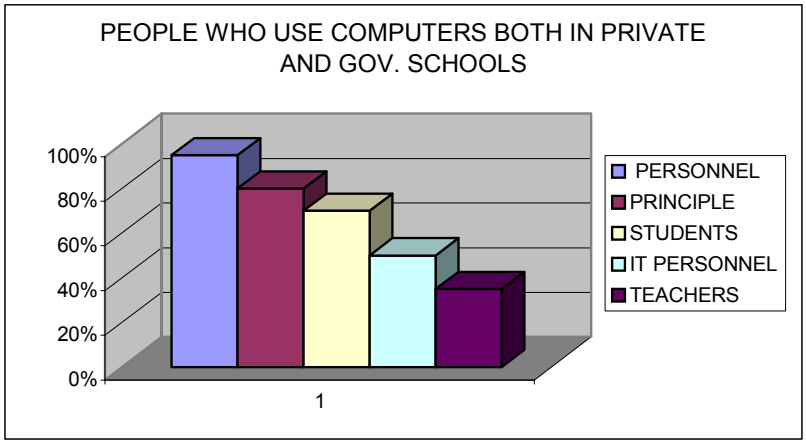

Figure 3. *People who use computers*

Here, it is interesting that teachers do not use computers often. This might be related to three issues: First of all, when schools were asked about the number of the teachers who can use computers, 6 did not answer the question. Out of 14, all of the private schools said that 50 % of their teachers can use computers, however, unfortunately only 16% of teachers working in government schools know how to use computers. These numbers are also related to the in-service training given to the teachers on using computers. 57% of private schools provided in-service training, whereas, only 8% of the government schools had such training for their teacher. 4 government schools did not answer the question about in-service training. Secondly, during the interviews with the principal or the vice principal, it appeared that especially elder teachers are hesitant in using computers, even though some had training about it. Thirdly, most teachers in government schools do not have access to computers and hence cannot use them.

Computers are used firstly for student registration and book keeping (85%). Secondly, they are used for producing classroom material (70%); thirdly, for lesson presentation (35%); fourthly as a teachware (20%). 10% of the respondents said that they are using it for purposes other than the ones that are mentioned. As known, the use of the internet constitutes an important part of computer-based instruction. Therefore, schools were asked if they have an internet connection. It appeared that 65% of schools (13) have access to internet. All of these 13 schools indicated that they are using internet first for information search (100%); next, they use it for lesson purposes (69%), for e-mailing (46%), and lastly, for fun (30%) (See Figure 4). Contrary to the results, it is expected that the internet would be used more frequently for the purposes of enjoyment. However, since laboratory hours are limited to 1-2 hours a week and since the students are not without guidance in the laboratories, the internet is rarely (30%) used for fun.

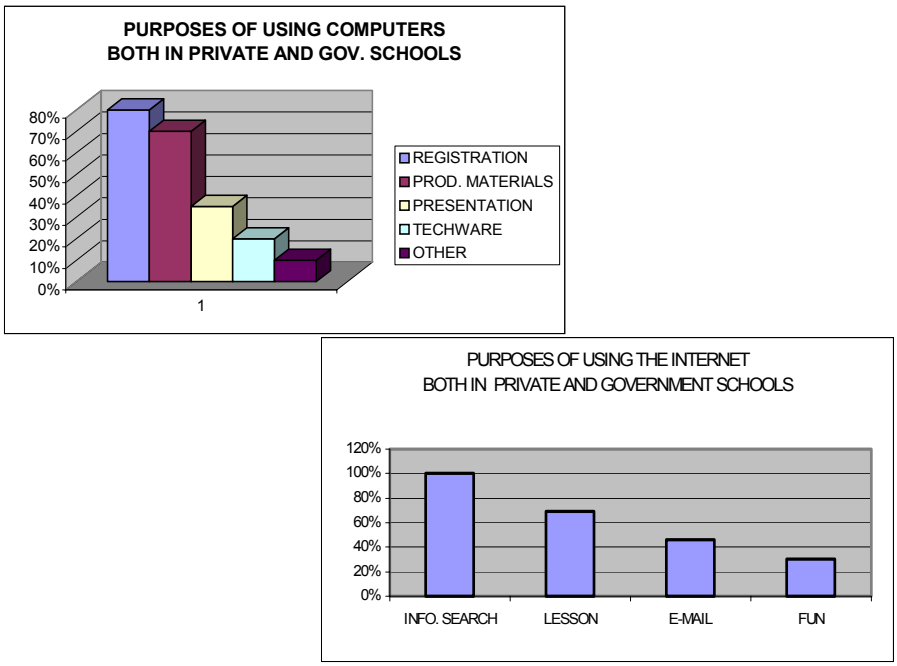

Figure 4. *Purposes of Computer and Internet use*

All of the private schools and 46% of the government schools said that they had a computer course. All schools that have a computer course offer it as an elective. The course length is 1-2 hours a week and the content is teaching basic skills to use computers and the internet.

Aside from determining the general use of computers one of our aims was to find out the number of schools that are using computers for language teaching. Unfortunately none of the government schools are using their laboratories for this purpose; and 57% of private schools use it to teach basic skills (reading, writing, listening, speaking) and/or for dictation and grammar.

In addition, these 20 schools were asked about the possible barriers that slow down this process. According to the analysis, possible barriers can be listed as follows:

- High cost of hardware (65%),
- Fast development in technology (55%),
- High cost of software (50%),
- Not being aware of the opportunities that computers provide (50%),
- High cost of providing technical staff (35%),
- Bureaucracy (35%),
- High cost of providing in-service training for teachers and teaching students the basic skills for using computers (25%),
- Negative attitudes of administrators, teachers, students, and/or parents towards using computers in education (15%),
- The difficulty in providing software (10%),
- Cultural factors (10%)

None of the schools consider the difficulty of learning to use computers as a barrier. As seen from the list most important barriers are due to financial reasons. Also, the informal interview with these schools' principals and vice-principals support the boundaries related to finance. Some indicated that although computers are bought, technology develops so fast that either it becomes impossible to run the new software in the old machine or to find enough money to buy new computers. Moreover, providing the technical staff is another issue related to finance. Some schools, mostly the government schools complain about not having enough money to pay the salary of an additional staff (IT Personnel) to take care of the technical problems in the computers.

We think one of the most important barrier, which is indirectly related to finance due to limited in-service training of teachers, is that teachers are not aware of the opportunities that computers may provide. This

seems to be the biggest deficiency, because this hinders the possibility of using computers even if there are some.

Although not related to finance, bureaucracy constitutes the fourth important barrier to the integration of computers to education. In some cases even though the computers are provided by the Ministry of Education, it may took months to set up those machines.

Another non-financial reason is the negative attitudes of administrators, teachers, students, and/or parents towards the use of computers. Even though there were only three schools who marked this choice, we can understand that this negative attitude is not due to the difficulty of using computers, but may be related to cultural factors that two schools mentioned. Since Turkey is a country where people are keen on traditions, it is likely that some teachers, administrators, parents, and even students prefer traditional ways of teaching and learning. Sticking to the traditional methods are also related to teachers not being aware of the benefits of using high technology. And the barriers become a chain where one effects the other. However, it may be possible to break the chain. The ways to break down these barriers will be discussed later.

Being aware of the fact that there are some problems that we have to face when moving towards computer aided instruction, all of the respondents indicated that they believe in the necessity of using computers in education. According to the analysis of the research results, the need for computer based instruction can be listed as follows:

Computers,

1) are inevitable in every field, including education, they are one of the fundamentals of the new millenium,
2) provide fruitful opportunities to work,
3) provide visual support,
4) enable to reach knowledge fast and easy,
5) have endless sources of information,
6) support democratic education,
7) “partly” provide equal opportunities in education (because they are available to those who do not have financial restrictions),
8) provide opportunities for individualized learning,
9) break the boundaries of time and place in learning,
10) enable efficient learning and teaching,
11) enable the learner learn faster,
12) provide opportunities for deeper understanding of a subject.

All teachers in these 20 schools indicated that although their schools may not have a computer laboratory or effective computer hardware and software, computers constitute a necessary part of education. This is an interesting result since in a country like Turkey, which has a more traditional way of living in comparison with western countries, computers are preferred over traditional learning-teaching materials. Nobody mentioned that computers are not necessary in schools. Although, when listing the benefits of using computers there are points which are not scientifically proven such as its ability to "enable the learner learn faster" or "provide opportunities for deeper understanding of a subject" the results are important since they show that teachers in Bursa believe in the importance of computers and can give reasons why they are necessary.

5. Discussion & Conclusion

The results show that, although Turkey had some development in integrating computers to education, there is still a lot way to go. First steps are already taken by the Ministry of Education and the local education authorities. In cooperation with the World Bank, National Ministry of education has started a project called MLO (Curriculum Laboratory Schools) in pilot cities where they equipped certain schools with high technology.[7] In addition, local authorities in Bursa are carrying out another project called 'Technology Classes'. In this project 98 more schools owned a computer laboratory in the spring of 2001. These endeavors are promising. Both MLO schools and Technology Classes indicate Turkey's contribution to becoming technological in education. However, for now, it is found that private schools are far in the front in the fast race of becoming technological, which is thought to be due to financial opportunities.

As mentioned before, it is possible to facilitate the process of integration. However, when it comes to finance there are limited things to do.

First of all, as we discussed earlier, one of the most important barriers is that teachers and administrators are not aware of the opportunities that computers provide both to the teachers and students. Therefore, when in-service training is organized it is essential that teachers are given information about the possible ways that they can benefit from computers aside from learning basic computer skills, because knowing how to use the

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[7] Hanoğlu, G et al.: MLO, Müfredat Laboratuar Okullarının Yaygınlaştırılması, 2000; T.C. Milli Eğitim Bakanlığı Temel Eğitim Programları Koordinasyon Kurulu (2000).

computers does not guarantee that one can use it efficiently when teaching. It is also advisable that courses are organized for teachers from different branches to give specific information about the use of computers in their area.

Secondly, although in-service training is necessary, some respondents indicated that they are also expensive, which is another circle of the chain. In that case there is one thing to do: asking for the help of professionals working at the education faculties. Since they are training future teachers, mutual benefits could be provided if schools and university work collaboratively. For example: Schools can open their doors to the university researchers for research, observation, needs analysis etc. and universities can give in-service training to teachers.

Thirdly, bureaucratic features should be reduced, since technological developments do not have tolerance to time consumption.

Fourthly**,** teachers should be encouraged to use computers in their lesson preparation and presentation (especially senior teachers).

Lastly**,** benefits of supplementing lessons with high technology should be exemplified and compared with traditional methods.

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