

Perceptions Related to Information and Communication Technologies (ICT) by Managers and Teachers in the Primary and the Secondary Schools (The Example of Sivas)

İlköğretim ve Liselerdeki Yönetici ve Öğretmenlerin Bilgi İletişim Teknolojileri (BİT)'ne İlişkin Görüşleri (Sivas örneği)

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Abstract

Problem Statement: Information and Communication Technology (ICT) has also influenced educational institutions. Education, due to its importance for the society, needs to adapt promptly to the ICT. Understanding the opinions and perspectives of teachers and school managers regarding the ICT, for taking the necessary measures will therefore be an important step.

Focus of Study: The main question of this study is what are the perceptions of teachers and school managers about the ICT? And it is that are these perceptions influenced by the type of school, and its location, and status, gender, and work experience of the teacher or school manager and whether they got a course about the ICT or not?

Methods: The population is totally 4575. The sample of the study consists of 1564 teachers and school managers. In the present study, the "ICT Opinion Questionnaire" developed by the researcher was used as the data instrument of the research and its validation was confirmed by the expert views, and item validity analyses. The items of it are answered on three points: None (1), Little (2) and Much (3). The questionnaire has good internal reliability (Alpha= 0.89).

Results: The mean and standard deviation were found to be 2.387, and 0.482 respectively. This result corresponds to the "Much" answer. As a result of this study, school managers and teachers in Sivas can be said to have positive perceptions concerning the ICT.

Suggestions: It was concluded that the perspectives of teachers and school managers regarding the ICT are positive. This is a desirable result, which needs to be maintained and further improved.

Keywords: Information and Communication Technology (ICT); School, School manager, Teacher

Öz

Problem Durumu: Bilgi ve iletişim teknolojileri (BİT) ile ilgili gelişmeler, eğitim kurumlarını da etkilemektedir. Toplum için taşıdığı önemden dolayı eğitimin BİT'e acilen adapte olması gerekir. Bunu sağlamanın bir adımı da öğretmen ve okul yöneticilerinin görüşlerini anlamak olabilir.

Araştırmanın Amacı: Bu çalışmanın temel sorunu, okul yöneticisi ve öğretmenlerin BİT'e ilişkin algılarının ne olduğunu anlamaktır. Ayrıca, bu algıların, okul türünden, okulun bulunduğu yerleşim yerinden, cinsiyetten, mesleki deneyimden ve BİT ile ilgili bir kurstan geçip geçmemekten etkilenmekte olup olmadığını anlamaktır..

Araştırmanın Yöntemi: Araştırmanın evreni 4575'dir. Örnekleme 1564 öğretmen ve okul yöneticisinden oluşmaktadır. Çalışmada veri toplama aracı olarak, araştırmacı taraf-

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ından geliştirilen "BİT Görüş Anketi" kullanılmıştır. Anket BİT ile ilgili görüşleri anlamaya dönük 10 maddeden oluşmaktadır.

Sonuçlar: Anketi yanıtlayanların verdiği yanıtlara göre, anketin bütünü açısından aritmetik ortalama değeri 2,387 ve standart sapma ,482'dir. Okul müdürü ve öğretmenlerin eğitimde BİT uygulamalarına ilişkin görüşleri "Çok" düzeyinde bir olumluluk özelliği göstermektedir.

Öneriler: Bu araştırmanın bir sonucu olarak, Sivas'daki okullarda görev yapan yönetici ve öğretmenlerin BİT'e ilişkin görüşü pozitif olarak değerlendirilebilir. Bu pozitiflik düzeyinin korunması ve daha da yükseltilmesi gerekir.

Developments in the Information and Communication Technology (ICT) have led to tremendous changes in all spheres of social structure throughout the world. These changes also influence educational institutions. Congruent with this development, application of the ICT to education is gradually gaining importance. In several countries, the ICT has now become the main instrument in planning, designing, managing, supervising, evaluating the learning-teaching process, and also communication for educators (Wiske et al. 2001). The gradual increase in the quality of teaching and learning of a designed educational curriculum has now become a characteristic directly related to the ICT. When education is considered, maybe the most important concept that comes to mind is the "school" where the users of the ICT are educated, and education supported by the ICT is served. Considering the school as a place where educational processes are being applied, the three dimensions that come out to provide the applicability of the education, and which are directly related to the use of the ICT are seen to be students, teachers and managers.

At school, it is the teacher's responsibility to see to the realization of the appropriate behavioral changes in a student. Teachers are required to integrate the ICT into their programs in order to educate individuals of the information society. Several studies have been conducted on examining the relationship between the ICT, and the teacher (McCannon & Crews 2000; Selwyn et.al. 2001; Wiske et.al. 2001; Zhao & Cziko, 2001; Doornekamp 2002; Isman 2002; Granger et.al. 2002; Mumtaz 2002; Akpinar 2003; Lin et.al. 2004; Mooij 2004). According to O'Donnell (1996), the ICT has been able to get into schools, but not classrooms, and it has been mostly used for the purpose of computer literacy rather than as a supportive medium for education in the classrooms. The most important reason for this trend has been the reluctance of teachers to accept the ICT in schools (Hu et.al. 2003).

Performance of teachers in using the ICT, although dependent on the individual educational motivation, and several other aspects, requires a positive atmosphere provided by the school management (Otto and Albion 2002). There are several studies stating that the attitudes of school authorities on the ICT depend on factors like attitude, knowledge, competence etc. (Visscher 1992; Pelgrum 2001; Granger et.al. 2002). In these studies, it has been revealed that the attitudes of school managers about the ICT improve in time.

In a general argument of a number of studies examining the relation between the ICT and students or teachers or managers, the importance of teachers' role in educating individuals who can produce through the ICT and the responsibility of school managers in actualizing this was emphasized. In Turkey, the introduction of the ICT is rather new, and activities to educate both teachers and school managers in

a systematic manner on the use of the ICT are only being done on a limited basis. These efforts are limited to a few credit hours of the ICT lessons served by the schools or faculties of education (YÖK 2004; Yıldırım 2000), the Community Education Centers or by private schools organized under the auspices of the Ministry of National Education (MNE), and by seminars for the training of educators of the educators prepared by the MNE to teach in schools as well as the courses offered by the In-Service Training Directorate of the MNE (Yıldırım 2000). A positive perception is a prerequisite for the acquisition of knowledge on the ICT, and its utilization and improvement by both teachers and school managers (Galanouli et.al. 2004). The aim of this study was to reveal the perceptions harbored by both the teachers and school managers in primary, and secondary schools in Sivas and to provide contribution to the establishment of an ICT based educational system.

Method

The main question of this study is "What are the perceptions of teachers and managers in Sivas about the ICT, and are these perceptions influenced by the type of school, and its location, and status, gender, and work experience of the teacher or school manager and whether they got a course about the ICT or not? The population of the study consists of teachers and school principals employed in different kinds of 152 primary schools and 62 secondary schools in the rural (116 schools), and the urban (98 schools) in 2003-2004 school term. Total number of the teachers and principles in the urban (city center-Sivas) is 1737 for the primary schools, and 812 for the secondary schools whereas total number of the teachers and managers in the rural area of Sivas is 1013 for the primary schools, and 522 for the secondary schools. The population is totally 4575. The sample of the study consists of 1564 teachers and managers. Information regarding all the schools has been gathered. Accordingly, the representation rate of this sample for the population is %34,185.

In the present study, the "ICT Opinion Questionnaire" developed by the researcher was used as the data instrument of the research and its validation was confirmed by the expert views, and item validity analyses. For the reliability, Test-retest reliability was used, and Pearson Correlation Coefficient calculation was used to measure coefficient calculations ($r = 0.82$, $n = 120$). The questionnaire was made up of 10 items aimed at elucidating the views about the ICT. The items of it are answered on three points: None (1), Little (2) and Much (3). The questionnaire has good internal reliability ($\text{Alpha} = 0.89$).

The questionnaire had been applied to the subjects in a period of 6-month. Prior to the application of it, the researcher went to the schools chosen, and took the list of the teachers in each school. Then, the subjects of the study were chosen randomly from each school and then the questionnaire was given to the subjects.

After the application of the questionnaire, each questionnaire was reviewed, and transferred to computer. The data gathered by the questionnaire was analyzed by the SPSS software (version 10) and the Point Intervals Coded according to the Alternatives-(PICA) ($3-1=2$) ($2/3=0.666$) (None=1.00-1.666; Little=1.667-2.333; Much =2.334-3.00) The t-test was used to make comparisons when there were two groups. The significance level was .05.

Results

In this part of the study, the findings obtained from the questionnaire are presented in three categories; characteristics of the subjects, means and standard deviations, and t-test results.

Characteristics of the Subject

1068 (68.3%) of the subjects were employed in primary schools, and 496 (31.7%) in secondary schools. 599 (38.3%) of the subjects were female, and 965 (61.7%) were male. 880 (56.3%) of the subjects were employed in city centers, and 684 (43.7%) in counties. 1402 (89.6%) of the subjects were teachers, and 162 (10.4%) were school managers. 995 (63.6%) of the subjects had been employed for 0-10 years, and 569 (36.4%) for 11-20 years. 966 of the subjects (61.8%) received a course on the ICT, whereas 598 (38.2%) subjects did not.

Means and Standard Deviations of the Questionnaire Items

According to the answers given by the subjects, the mean was 2.38, while the standard deviation was 0.48 for. As can be seen, this mean corresponds to "Much" (2.334-3.00). This finding seems to support the finding of Hızal (1989) in which it was concluded that "teachers in Turkey have a positive attitude toward new technologies."

As seen in Table 1, the lowest mean was belong to "I find myself adequate in using the ICT" item (Mean=1.76; Sd=0.59). This mean corresponds to "Little". A similar finding was observed by Kocasaraç (2003) who found in his study that "teachers do not find themselves adequate in use of computers in teaching". On the other hand, another item with a low score is "My school teacher/school principal expects me to use the ICT" (Mean=1.88; Sd=0.70). According to this result, school managers and teachers obviously do not expect anything from each other regarding the use of the ICT. However, the high level of the ability to perform the related behavior is an important criterion for the positive opinion. According to Pelgrum (2001), school managers should expect interest and competence on the use of the ICT from their teachers.

Table 1

Means and Standard Deviations of the Questionnaire Items

| Item No | Items | Mean | SD |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|
| 1. | My school teacher/principal expects me to use the ICT. | 1.88 | 0.70 |
| 2. | I find myself adequate in using the ICT. | 1.76 | 0.59 |
| 3. | I am at ease with the teacher/principal who helps me in applying the ICT to education. | 2.12 | 0.75 |
| 4. | The ICT is beneficial for teachers for more effective teaching. | 2.61 | 0.66 |
| 5. | Employment of the ICT in teaching facilitates the use of new methods. | 2.48 | 0.72 |
| 6. | I would like to undertake a course on the application of the ICT to teaching. | 2.44 | 0.74 |
| 7. | Training programs on the application of the ICT to teaching (and similar courses) should be mandated for school managers and teachers. | 2.50 | 0.72 |
| 8. | The ICT is going to play a greater role in the educational system and its applications in the future. | 2.69 | 0.62 |
| 9. | In order to maintain an effective use of the ICT in education, educational committees (comprising of managers, teachers, students, etc) should be formed. | 2.52 | 0.68 |
| 10. | School management is going to be more effective with the ICT. | 2.69 | 0.62 |

N=1564

The rest of the items have mean scores within the level of "Much" (See Table-1). According to this finding, the school managers and teachers state that: they are at ease with the teacher/principal who support the use of ICT in education; express the benefit of using the ICT in effective teaching; believe that the ICT is going to facilitate the use of new methods in teaching and that if given an opportunity, they will undertake remedial courses in the application of the ICT, and even are in support of it being compulsory (Hızal 1989); also believe that in each school an expert (Lim et.al. 2003) as well as an educational committee should be formed, and that in the future, the ICT is going to play a more significant role in the educational system and its applications; and finally they believed that school management is going to become even more efficient with the ICT (Visscher 1992; Zain et.al. 2004).

Means according to Some Variable

As it would be recalled, according to the answers of the subjects, the mean and standard deviation for the answers as a whole was found to be 2.38 and 0.48 respectively. In Table-2, the results of the t-test, used to determine whether scores for some of the variables show significant differences or not are given.

Table 2

T-test results

| Variables | N | Mean | SD | DF | t | p |
|----------------------------|------|------|------|------|------|---------|
| Type of the school | | | | | | |
| Primary | 1068 | 2.37 | 0.48 | 1562 | 1.35 | 0.175 |
| Secondary | 496 | 2.41 | 0.47 | | | |
| Gender | | | | | | |
| Female | 599 | 2.36 | 0.47 | 1562 | 1.49 | 0.136 |
| Male | 965 | 2.40 | 0.48 | | | |
| Location of the school | | | | | | |
| Urban | 880 | 2.36 | 0.51 | 1562 | 2.34 | 0.019* |
| Rural | 684 | 2.41 | 0.43 | | | |
| Job Status | | | | | | |
| Teacher | 1402 | 2.36 | 0.49 | 1562 | 6.32 | 0.001** |
| Manager | 162 | 2.61 | 0.30 | | | |
| Having a course on the ICT | | | | | | |
| Yes | 966 | 2.43 | 0.43 | 1562 | 5.35 | 0.001** |
| No | 598 | 2.30 | 0.53 | | | |
| Work experience | | | | | | |
| 0-10 Years | 995 | 2.40 | 0.46 | 1562 | 1.43 | 0.153 |
| 11-20 Years | 569 | 2.36 | 0.51 | | | |

*p<.05; **p<.001

In Table-2 it can be seen that the perceptions of the teachers and managers concerning the ICT do not show any significant differences according to the type of the school. That is, the primary (Mean=2.37; SD=0.48) and secondary school (Mean=2.41; SD=0.47) teachers and school managers have the same attitude toward the ICT (t=1.35; p= .17). This finding seems to be alike with the findings of Galanouli et.al (2004). In terms of gender, the teachers or school managers whether female (Mean=2.36; SD=0.47) or male (Mean=2.40; SD=0.48) have the same perceptions about the ICT (t=1.49; p= .136). However, in the literature, in addition to the reports that no change in perception occurs according to gender about the ICT (Galanouli et.al. 2004), there are some studies state that women tend to have a less positive attitude about the ICT (Merrill 1991). As seen in Table-2, despite the difference in means according to gender, t-test results show no significant difference. Concerning the work experience of the teachers and school principles, it is evident that work experience does not lead to any significant differences regarding the perceptions about the ICT. Whether the staff who were newly employed (Mean=2.40; SD=0.46) and have just started the job or whether those who have been working for long years

(Mean=2.36; SD=0.51), the ICT is perceived in the same way ($t=1.43$; $p= .153$). A similar result was observed in the studies by Tsitouridou & Vryzas (2003) and by Galanouli et.al. (2004). This result can be explained in part by the fact that adequate training in the ICT literacy was not offered to those under training as teachers (Fisher 1997; Sheffield 1998), and the usage and development of technology in courses taught in the teacher training institutions could not keep up to the developments in technology, because the emphasis had been made on economic needs rather than curricular needs..

As can be seen in Table 2, there is a significant difference between the subjects employed in a school in a rural area and those employed in a school in a city. Accordingly, a teacher or a manager who works in rural area (Mean=2.41; SD=0.43) has a much positive opinion ($t=2.34$; $p= .019$) about the ICT than those who work in urban (Mean=2.36; SD=0.51). It is quite interesting that the teachers and school managers in rural area have much positive perceptions about the ICT compared to their counterparts in urban. There might be some differences in application of the ICT in a given country, and as it might be expected, cities had been advantageous in this regard (Harding 2002). In the literature, this case termed as the digital divide has been said to lead to inequalities (Castells 2001). One reason for such a result might be the yearning of people in rural area for the ICT, and the hesitation of those dwelling in urban in the face of a confusion caused by the mass use of the ICT.

When job status variable is considered, a significant difference appears between the teachers and school leaders in favor of the later. That is, the school leaders (Mean=2.61; SD=0.30) compared to the teachers (Mean=2.36; SD=0.49) seem to have more positive perceptions about the ICT ($t= 6.32$; $p= .001$). A possible reason for such a result might be the fact that the use of the ICT in schools initially begins in the office of a school leader (McCannon & Crews 2000). Furthermore, several studies found teachers to be a "techno phobic" (Selwyn et.al. 2001), showing resistance against technology (Granger et.al. 2002; Hu et.al. 2003), and thus they are unable to utilize the ICT effectively (Zhao and Cziko 2000). Moreover, even school leaders feel discomfort due to the teachers' negative attitude towards the ICT (Pelgrum 2001). The fact that the school leaders were found to have a much more positive perception of the ICT than the teachers could help in creating a supportive atmosphere in the process of integrating the ICT into school (Maurer and Davidson 1998; Hope et.al 2000). Likewise, teachers tend to wish that school leaders should be in support of the ICT practices of them (Lin et.al 2004).

Finally, the subjects who received a course on the ICT (Mean=2.43; SD=0.43) were found to be more positive about the ICT compared to those who did not have any courses whatsoever (Mean=2.30; SD=0.53) ($t= 5.35$; $p= .001$) on the ICT. The fact that those who have gone through a process of training or have had a course on the ICT display more positive perceptions about the ICT points out clearly the importance of both pre-service (Yıldırım 2000; Tsitouridou & Vryzas 2003) and in-service ICT courses (Tearle 2003). The perceptions expressed by the teachers about the ICT are influenced by their experiences in the ICT (Necessary & Parish 1996). As a matter of fact, the teachers showed a longing to get training on the use of the ICT (Mumtaz 2002). When teachers do understand the basic principles of the computer assisted education, and are given the opportunity to see its' contributions will no doubt view computers positively and therefore be successful in operating it (Memmedova and Seferoglu 2001).

Discussions and Suggestions

As a conclusion of this study, school managers and teachers in Sivas can be said to have positive perceptions concerning the ICT. However, considering the mean ($\bar{X} = 2.387$), it seems to correspond to "Much" (2.334-3.00) as the PICA. This is a desirable result, which needs to be maintained and further improved. Otherwise, any move or effort by the MEB circles about the ICT may be upset. The following suggestions may be put forward so as to maintain and encourage teachers' and managers' almost positive impressions and opinions of ICT.

Several attempts ranging from having courses especially in faculties of education of universities which is the first place for teacher candidates to meet with the ICT to increasing the number or credit of courses about the ICT and teaching courses via the ICT should be made. Another attempt might be making in-service training programs in a more systematic manner (Hancock 1997, s.63). The term Systematic here refers to the professionalism provided by the contents of the ICT courses, the places and times these courses are offered as well as the qualities of those giving the courses. Likewise, a finding from this study was the fact that the teachers or school managers who had a course related to the ICT demonstrated positive attitudes toward the ICT. Activities of that kind if conducted systematically would be expected to improve these positive perceptions.

Several variables effect the perceptions of teachers and school managers about the ICT. These variables extend the entire range from the ICT opportunities available to school personnel, to students and their families and from the society in which one exists to all over the world. This situation also shows clearly just how complicated the perceptions regarding the ICT (Tsitouridou & Vryzas 2003). To improve the positive opinions of teachers and school managers about the ICT, it is also necessary to take into account these variables. Considering the results of the study, special attention should be given to the finding that higher positivism is shown by the subjects in the rural or the lower positivism shown by the subjects in the urban about the ICT. Despite various reasons about it, in order not to reduce the positive perceptions of teachers and school managers in the rural while at the same time improving the positive perceptions of those in the urban, appropriate steps and measures need to be taken. Accordingly, it is evident that different strategies are needed in forming and developing positive perceptions about the ICT in the rural as well as in the urban.

As would be recalled, the ratio of positive perceptions about the ICT among the school managers was higher than the teachers. Accordingly, different activities need to be organized for these two groups. Furthermore, some opportunities that will enable school managers to improve positive perceptions of teachers on the ICT need to be provided to school managers.

School managers and teachers also need to make some kind of efforts individually for successful use of the ICT in education. Examples of these efforts can be that school managers or teachers may use the ICT in running their courses, and administrative duties; need to be creative to realize the goals of the ICT in their programs; may organize activities about it in school; may refer to improve awareness and ensure productive use of all this important technology; may making attempts to apply the ICT by interacting with each other outside their courses or administrative schedules.

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