

Full Length Research Paper

Managerial problems in the use of educational technology in primary education schools

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Rapid progress in science and technology also changes understanding, wishes and expectations, processes, operations and organisational structures. Such developments positively affect the structure of educational systems as well as learning-teaching activities in instructional environments. The problem of this research is to define managerial problems regarding the use of educational technology in schools on the basis of viewpoints of administrators and teachers. This study is a survey study with a population comprised of administrators (head teachers and deputy-head teachers) and teachers of the primary education schools located in Ankara, Kirikkale, Sivas and Tokat central districts. Findings of the research have been analysed using such statistical methods as frequency, percentage, arithmetic mean and standard deviation. t-test and Scheffe test have been used for comparison purposes, and recommendations have been made based on the findings obtained from the research.

Key words: Educational technology, technology leadership, management of schools.

INTRODUCTION

Technology has existed with man's strive for controlling and directing nature. A review of the definitions of technology shows that some definitions focus on the intended purpose of technology use while some others on how technology is produced. For instance, according to Alkan (2005), technology is to form functional structures required to dominate nature by setting acquired skills. McDermott (2005), with a similar approach, defines technology as "in its concrete, empirical meaning," referring "fundamentally to systems of rationalised control over large groups of men, events and machines by small groups of technically skilled men operating through an organised hierarchy". According to Bal et al. (2002), technology is the application of observation-based and proven information to solve certain problems or to reach certain aims. Galbraith (1967), on the other hand, defines technology as the systematic application of scientific or organised knowledge for practical usage. Another definition interprets technology as the application of

information and knowledge to products and processes to respond to human needs (Cardullo, 1996; Tekin et al., 2000). Information technologies are technologies used for saving and storing data, processing data to produce information as well as accessing, storing and transferring this newly produced information and other similar procedures in an efficient and productive manner (Bensghir, 1996). Information technologies have particularly developed at an extraordinary pace after the 1950s. Educational technology, on the other hand, is the practice and theory of evaluating all arrangements, developments, uses, management and resources (Seela and Richey, 1994). Educational technology is constituted by concomitant use of teaching, learning, development, management technologies with other technologies to provide solutions to educational problems (Gentry, 1987). According to Gagne (1987), educational technology is all of the techniques targeting an effective learning in learning-teaching environments, which make use of

media to reach this target. İşman (1997), on the other hand, defines educational technology as a continuum of academic systems that efficiently design learning-teaching environments, solve encountered problems of learning and teaching, and improve quality and attainment of the learning product. Educational technology provides students and teachers with the opportunity of accessing new knowledge in the fastest way. Today, it is possible to conduct global educational practices using communication technologies such as computers, satellites, fibre-optics, and the internet.

In Turkey, use of technology in education was first mentioned in the 3rd Five-Year Development Plan back in 1970s. This plan introduced the idea of TV and radio for non-formal education. Nonetheless, technology entered into the Turkish education system rapidly after 1995 (Aksoy, 2003). The Turkish Ministry of National Education (MoNE) have commissioned a number of studies to encourage the use of technology in education, to catch up on state-of-the-art developments, to integrate advanced technologies into the system, and to support it with innovative initiatives including the Project on Computer Aided Education, the Industrial Schools Project, the Non-Formal Vocational Training Project, the National Education Development Project, and Catching Up the Age 2001 Project (MEB, 2007a). Within the framework of the Basic Education Programme started in 1998, Information Technology (IT) Rooms with Internet access were established in 2,802 primary education schools, which were equipped with computers, printers, televisions, overhead projectors and computer software. It is crucially important to effectively and productively use such technological tools in schools. Therefore, the effective and intensive use of information technology tools is primarily in the hands of the managers of MoNE's central organisation, followed by managers of the provincial and sub-provincial organisations, school administrators and teachers. Introduced by MoNE in

2010, FATİH Project (Movement for Increasing Opportunities and Improving Technologies) brings a new approach and new investments in terms of strengthening the infrastructure and use of information technologies in schools. In Turkey, the number of students per computer is 30.9 in primary education (DPT, 2011). On a provincial basis, the student per computer ratio is 16.2 in Kirikkale, Sivas and Tokat whereas it is 39.8 in Ankara. With regard to computers allocated for teachers' use at schools in

Turkey, the number of teachers per computer is 24.6 throughout the country. This ratio varies in the subject provinces of this research as follows: 30.8 in Ankara, 12.0 in Kirikkale, and 16.7 in Sivas and Tokat.

Alkan (1986) examines the subject of educational technology under five main titles. These titles are functional developments in the area of educational technology, new technological systems, learning-teaching processes, educational environments, programming instruction, and manpower. Of these titles, the new technological systems are accepted to be a part of our lives be it television or

satellite or computers. Besides these systems, the computer technologies are considered to be the essential technologies of today owing to the speed in the transmission of information, as well as its multi-faceted functionality. Computers, projectors and smart boards are widely used today and learning is taking place in web-based environments. As a result of this, administrators now have more responsibilities (Brooks-Young, 2002).

İsman's (2002) study conducted in Sakarya province revealed that teachers generally used classical educational technologies efficiently whereas they were not aware of newly developing educational technologies such as Internet and computer technologies and they did not use them in teaching-learning environments in an effective manner. It is not a valid means for administrators and teachers to solve learning problems at schools using the old methods (Argyris, 1993). Using educational technologies in classes helps teachers to reach the desired learning outcomes (Jennings et al., 2005). To make the integration of technologies easier, school administrators should be a positive role model, support the technology use in schools and provide appropriate training activities for teachers about educational technologies (Kozloski, 2007). In addition, school administrators should be displaying technology leadership behaviours by setting visions including technology plans and by ensuring necessary technological utilities for learning (Chang et al., 2008).

This research has been developed to define administrative problems in the use of educational technology in primary education schools, and to bring forward suggestions for solution. Although there have been various studies regarding this subject, the characteristics of the work group (e.g. workplace, seniority), data collection tool and the methodology for analysis are different from other studies. From the point of putting forward potential administrative problems in the use of technology in primary education schools, the research tries to examine problems encountered on the process of technology use in education as well as technology leadership of school administrators.

It is important to understand what administrative problems exist in primary education schools with regard to the use of educational technology in terms of the impact of these problems on hindering schools' efforts to reach their educational objectives. Only contemporary management approaches may ensure that the education system will follow innovations to reach up to the contemporary level of our age (Aydin and Senturk, 2007, 2). It is considered that the research findings will lead to a clear coverage of the problems, and thus provide opportunities for further thinking, discussing and researching on the use of educational technologies in schools.

METHOD

This research is a descriptive study that aims at revealing the

Table 1. Level of education.

Level of education	F	%
Bachelor's Degree	278	94.5
Master's Degree	14	5.0
PhD	1	0.5
No Response	3	

Table 2. Length of service at MONE.

Length of service	f	%
0-5 years	32	10.8
6-10 years	45	15.2
11-15 years	55	18.6
16+ years	154	52.8
No Response	10	3.4

administrative problems in the use of educational technologies in primary education schools.

Population and sample

Research population is comprised of school administrators (head teachers and deputy-head teachers) and teachers working in the primary education schools located in Ankara, Kirikkale, Sivas and Tokat central districts in terms of economy and easy access. Statistical data of 2010 to 2011 shows that there are 774 primary education schools and 28,555 teachers in Ankara central district, 74 primary education schools and 1,868 teachers in Kirikkale country town, 161 primary education schools and 3,552 teachers in Sivas, and 128 primary education schools and 128 primary education schools and 3,240 teachers in Tokat (MEB, 2010).

Since it is not possible to reach the population of the research entirely, this research has made use of data obtained from a group determined using random sampling methodology. The sample consisted of a total of 296 individuals (head teachers, deputy-head teachers and teachers) working in 18 basic education schools. Of the sample, 131 are located in Ankara, 78 in Kirikkale, 30 in Sivas, and 48 in Tokat. The researcher administered the data collection tool developed for the purposes of this study to the individuals who took part in the study. Schools in the sample were selected from different socio-cultural areas of the provinces.

Data collection

The data collection tool was developed by the researcher with the inputs and comments of academicians in the area of expertise as well as school administrators and teachers, the validity and reliability tests of which was conducted accordingly. The data collection tool comprised of a total of 23 items. No item was removed from the data collection tool since item loading value was .489 and above in the item analysis.

Data analysis

Five point Likert scale data collection tool was used in this study. Data was analysed using frequency (f), percentage (%), arithmetic mean ($\bar{x}$) and standard deviation (Sd). t-test and ANOVA have

Table 3. Length of service at school.

Length of service	F	%
0-5 years	151	51.0
6-10 years	63	21.3
11-15 years	45	15.2
16+ years	24	8.1
No Response	13	4.4

Table 4. Title/Position.

Title/Position	f	%
Head teachers	7	2.4
Deputy-head teachers	16	5.4
Teachers	273	92.2

been used for comparison purposes. Reliability of the data collection tool was calculated using SPSS (15.0) software, and Cronbach's Alpha coefficient of reliability was determined as .88.

FINDINGS

Table 1 gives a brief demographic data of the administrators and teachers working in primary education schools within the scope of this research, who responded to the data collection tool developed to reveal administrative problems in the use of educational technology in schools. Gender related findings showed that 170 of the subjects were male (57.4%) and 126 were female (42.6%).

Of the respondents, 94.5% had a Bachelor's degree, and others had graduate degrees. With regard to the length of service, 52% of the respondents (154 individuals) have been working for the Ministry of National Education for more than 16 years (Table 2).

A review of the length of service of the respondents at their current workplaces showed that 51% of the respondents were working at their current school for up to five years (Table 3). A total of seven (7) head teachers, 16 deputy head teachers and 273 teachers responded to the data collection tool. At the administrative level, there were one (1) headmistress, six (6) headmasters, four (4) deputy headmistresses, and 12 deputy headmasters. Of 273 teachers responded, 121 were female and 152 were male (Table 4).

Table 5 shows the frequency and percentage values of the responses obtained from the participants of this research study on the administrative problems in the use of educational technology in primary education schools. Table 6 shows a breaks down of the responses based on titles or positions. A combined evaluation of the findings is presented as follows as a list of items.

Regarding the item "There is belief in the necessity of the use of educational technologies in the school" (Item

Table 5. General dissemination of viewpoints.

Item	Strongly Disagree		Disagree		No opinion		Agree		Strongly Agree		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
1	24	8.1	63	21.3	37	12.5	134	45.3	38	12.8	296	100
2	22	7.5	95	32.2	51	17.3	105	35.6	22	7.6	295	100
3	14	4.8	77	26.2	49	16.7	124	42.2	30	10.2	294	100
4	34	11.5	91	30.7	79	26.7	79	26.7	13	4.4	296	100
5	19	6.4	104	35.1	61	20.6	100	33.8	12	4.1	296	100
6	15	5.1	87	29.4	57	19.3	112	37.8	25	8.4	296	100
7	18	6.1	94	31.8	75	25.3	94	31.8	15	5.1	296	100
8	21	7.1	74	25.0	59	19.9	112	37.8	30	10.1	296	100
9	18	6.1	98	33.1	39	13.2	116	39.2	25	8.4	296	100
10	13	4.4	69	23.5	33	18.0	127	43.2	32	10.9	294	100
11	15	5.1	92	31.4	44	15.0	109	37.2	33	11.3	293	100
12	17	5.9	72	24.8	75	25.9	106	36.6	20	6.9	290	100
13	36	12.3	119	40.6	70	23.9	59	20.1	9	3.1	293	100
14	28	9.6	98	33.6	79	27.1	77	26.4	10	3.4	292	100
15	16	5.5	90	30.7	73	24.9	89	30.4	25	8.5	293	100
16	26	8.9	86	29.4	70	23.9	93	31.7	18	6.1	293	100
17	12	4.1	74	25.3	61	20.8	106	36.2	40	13.7	293	100
18	19	6.5	58	19.8	65	22.2	117	39.9	34	11.6	293	100

1); Table 5 shows that 12.8% of the school administrators and teachers strongly agree and 45.3% agree with this item. Nonetheless, almost one third of the respondents do not believe in the necessity of the use of educational technologies at schools since they have stated they disagree or strongly disagree with this item. General average figures in Table 6 indicates that head teachers ($\bar{x}=4.14$), deputy head teachers ($\bar{x}=3.63$) and teachers ($\bar{x}=3.41$) agree with this item. Even though the general average figures show that both school administrators and teachers generally believe in the necessity of the use of educational technologies at schools, it is significant that one third of educators do not agree with this perspective.

Regarding the item "Teachers have been sufficiently informed about the use of educational technologies in the school" (Item 2); 43.2% of the respondents agree while almost a similar percentage of respondents (39.7%) have indicated that they have not been informed about the use of educational technologies by disagreeing with this item. Of the respondents, 17.3% have stated that they have no idea about this issue, which may also be interpreted as there is lack of information about the use of educational technologies. In this regard, it is possible to point out that more than half of the respondents think there is a deficiency about information. General averages in Table 6 show that head teachers strongly agree with this item ($\bar{x}=4.43$) whereas deputy head teachers ($\bar{x}=3.13$) and teachers ($\bar{x}=3.00$) have no idea about this issue.

Regarding the item "School administration provides active support for the use of technology in education"

(Item 3), 52.4% of the respondents agree while 26.7% have no idea about this issue. General averages in Table 6 show that head teachers strongly agree with this item ($\bar{x}=4.71$) whereas deputy head teachers agree ($\bar{x}=3.56$) and teachers have no idea about this issue ($\bar{x}=3.21$). An interpretation of the findings will point out that school administrations are generally confident about their support to the use of technology in education yet teachers do not consider it sufficient.

Regarding the item "The Provincial/Subprovincial Directorate of National Education provides active support for the use of technology in education" (Item 4); 42.2% of the respondents disagree while 31.1% agree with this item. 26.7% of the respondents have no idea about this issue. General averages in Table 6 show that head teachers have no idea about this issue ($\bar{x}=3.00$) whereas deputy head teachers disagree ($\bar{x}=2.44$) and teachers

again have no idea about it ($\bar{x}=2.80$). Based on the findings, it is possible to say that Provincial and Subprovincial Directorates of National Education cannot provide sufficient support to the schools in terms of technology use.

Regarding the item "What needs to be done by the school administrators in terms of technology leadership is clear and prominent" (Item 5); 41.5% of the respondents disagree whereas 37.9% agree with this item and 20.6% have no idea about this issue. General averages in Table 6 show that head teachers strongly agree with this item ($\bar{x}=4.28$) while deputy head teachers ($\bar{x}=2.88$) and teachers ($\bar{x}=2.91$) have no idea. Based on the findings,

Table 6. Dissemination of viewpoints as of titles / positions.

Item	Title/Position	N	$\bar{x}$	Sd	Item	Title/Position	N	$\bar{x}$	Sd
1	Head teachers	7	4.142	1.069	10	Head teachers	7	4.428	.534
	Deputy-head teachers	16	3.625	1.204		Deputy-head teachers	16	3.687	.946
	Teachers	273	3.410	1.189		Teachers	271	3.269	1.085
2	Head teachers	7	4.428	.534	11	Head teachers	7	4.142	1.069
	Deputy-head teachers	16	3.125	1.087		Deputy-head teachers	16	3.437	1.152
	Teachers	272	3.000	1.137		Teachers	270	3.424	1.147
3	Head teachers	7	4.714	.487	12	Head teachers	7	4.571	.534
	Deputy-head teachers	16	3.562	1.263		Deputy-head teachers	16	3.437	.813
	Teachers	271	3.214	1.090		Teachers	267	3.072	1.050
4	Head teachers	7	3.000	1.290	13	Head teachers	7	3.000	1.000
	Deputy-head teachers	16	2.437	.963		Deputy-head teachers	16	2.687	.946
	Teachers	273	2.799	1.093		Teachers	270	2.553	1.019
5	Head teachers	7	4.285	.487	14	Head teachers	7	4.000	1.000
	Deputy-head teachers	16	2.875	.957		Deputy-head teachers	16	2.687	1.014
	Teachers	273	2.905	1.051		Teachers	269	2.478	1.027
6	Head teachers	7	4.571	.534	15	Head teachers	7	4.000	1.000
	Deputy-head teachers	16	3.437	1.209		Deputy-head teachers	16	3.625	.957
	Teachers	273	3.090	1.072		Teachers	270	2.988	1.086
8	Head teachers	7	4.142	.690	16	Head teachers	7	4.000	.816
	Deputy-head teachers	16	3.187	1.046		Deputy-head teachers	16	2.562	1.152
	Teachers	273	2.584	1.031		Teachers	270	2.916	1.083
8	Head teachers	7	3.285	1.603	17	Head teachers	7	3.714	1.603
	Deputy-head teachers	16	3.500	1.316		Deputy-head teachers	16	4.000	.894
	Teachers	273	3.431	1.108		Teachers	270	3.461	1.101
9	Head teachers	7	4.428	.534	18	Head teachers	7	3.714	1.603
	Deputy-head teachers	16	3.500	1.211		Deputy-head teachers	16	3.437	1.263
	Teachers	273	3.043	1.122		Teachers	270	3.290	1.098

it is possible to point out that technology leadership roles of the school administrators have not been defined with clear-cut lines.

Regarding the item "School administration is an effective leader in terms of the use of educational technologies" (Item 6), 34.5% of the respondents disagree, 46.2% agree while 19.3% have no idea about this item. General averages in Table 6 show that head

teachers strongly agree with this item ($\bar{x}$ =4.57) while deputy head teachers agree ($\bar{x}$ =3.44), and teachers

have no idea ($\bar{x}$ =3.09). The results show that school administrations think they are effective leaders as to the use of technology in education, yet teachers do not consider this leadership as sufficient.

Regarding the item "We have specialised personnel at school to support us in the use of educational technologies" (Item 7); 37.9% of the respondents disagree whereas 36.9% agree with this item. 25.3% of the respondents have no idea about this issue. General averages in Table 6 show that head teachers agree with

this item ($\bar{x}$ =4.14) while deputy head teachers have no idea ($\bar{x}$ =3.19). Teachers, on the other hand, disagree

with this statement ($\bar{x}$ =2.58). Based on the findings, it is possible to say that there are insufficiencies in terms of personnel to support the educational use of technology in schools.

Regarding the item "Lack of technological tools and materials at school has a negative impact on instructional

achievement" (Item 8); 32.1% of the participants disagree while 47.9% agree with this item. General averages in

Table 6 show that both head teachers ($\bar{x}=3.29$) and

deputy head teachers ($\bar{x}=3.50$) have no idea about this item whereas teachers agree with this statement

($\bar{x}=3.43$). Results indicate that the schools lack technological tools and materials for instruction in general, and this deficiency has a negative impact on achievement.

Regarding the item "Recent developments in the area of educational technologies are closely followed by the school" (Item 9), 39.2% of the respondents disagree while 47.6% agree with this statement. General averages in Table 6 show that head teachers strongly agree

($\bar{x}=4.43$) and deputy head teachers agree with this item ($\bar{x}=3.50$) whereas teachers have no idea about it

($\bar{x}=3.04$). Based on the findings, it is possible to state that schools try to follow up the recent developments in the area of educational technologies but it is not at the required level.

Regarding the item "School administration has a fair management approach for all teachers to benefit from technological prospects in the school in a balanced manner" (Item 10); 27.9% of the respondents disagree while 54.1% agree with this item. General averages in Table 6 show that head teachers strongly agree

($\bar{x}=4.43$) and deputy head teachers agree with this statement ($\bar{x}=3.69$). Teachers, on the other hand, have

no idea about it ($\bar{x}=3.27$). An interpretation of the findings of this item indicate that school administrations try to exhibit a fair and unbiased management approach in terms of technological prospects in the schools yet there may be difficulties in this regard from time to time.

Regarding the item "Physical structure of the school and classrooms has a negative impact on the use of educational technologies" (Item 11); 36.5% of the respondents disagree and 48.5% agree with this item whereas 15.0% have no idea about it. General averages

in Table 6 show that both head teachers ($\bar{x}=4.14$) and

deputy head teachers ($\bar{x}=3.44$) and teachers ($\bar{x}=3.42$) as well agree with this statement. The fact that almost half of the respondents agree with this statement may be interpreted as that the physical structure of schools do influence the use of educational technologies.

Regarding the item "The school administration supports the professional development of teachers in terms of using educational technologies in classroom" (Item 12); 30.7% of the respondents disagree with this statement whereas 43.5% agree and 25.9% have no idea about it. General averages in Table 6 show that head teachers strongly agree with this statement ($\bar{x}=4.57$). Deputy head

teachers agree with the statement ($\bar{x}=3.44$) while teachers have no idea about it particularly ($\bar{x}=3.07$). An evaluation of the findings shows that school administrators generally aspire to support teachers' professional development in the use of educational technologies;

however the teachers consider this endeavour insufficient.

Regarding the item "The school has parents' full support about the use of technology in education" (Item 13); 52.9% of the respondent disagree with this statement, and 23.9% have no idea. General averages in

Table 6 show that both head teachers ($\bar{x}=3.00$) and deputy head teachers ($\bar{x}=2.69$) have no idea about this

item whereas teachers disagree with it ($\bar{x}=2.55$). Based on the findings, it is possible to state that parents' support has not been fully received about the use of educational technologies.

Regarding the item "Performance evaluations at our school also take into consideration the teachers' use of educational technologies" (Item 14); 43.2% of the respondents disagree with this statement while 27.1% have no idea about it. General averages in Table 6 show

that head teachers agree with this statement ($\bar{x}=4.00$) whereas deputy head teachers have no idea ($\bar{x}=2.69$)

and teachers disagree with it ($\bar{x}=2.48$). Based on the findings, it is possible to say that head teachers consider teachers' use of educational technologies in their performance evaluations however deputy head teachers and teachers are not familiar with such a criterion.

Regarding the item "Teachers do not fully make use of the educational technologies in learning-teaching process" (Item 15); 36.2% of the respondents disagree and 38.9% agree with this statement while 24.9% have no idea about it. General averages in Table 6 show that

both head teachers ($\bar{x}=4.00$) and deputy head teachers ($\bar{x}=3.63$) agree with this statement whereas teachers

($\bar{x}=2.99$) have no idea about it. Findings indicate that teachers have some problems in using educational technologies in the learning-teaching process.

Regarding the item "The school administration supports teachers' becoming technology literate" (Item 16); 38.3% of the respondents disagree with this statement while 23.9% have no idea. It is thought that those respondents, who have stated that they have no idea, may well have not been able to perceive existence of such support. In this regard, it is possible to state that the school administrations have failed to support teachers in becoming technologically literate. General averages in Table 6 show that head teachers agree with this statement ($\bar{x}=4.00$) whereas deputy head teachers disagree ($\bar{x}=2.56$) and teachers have no idea about it ($\bar{x}=2.92$).

Regarding the item "The school administrators are role models for other personnel in the use of information technologies" (Item 17); 29.4% of the respondents disagree while 49.9% agree with this statement. 20.8% of the respondents have no idea about it. General averages in Table 6 show that both head teachers ($\bar{x}=3.71$) and

deputy head teachers ($\bar{x}=4.00$) and teachers ($\bar{x}=3.46$) agree with this statement. The results suggest that almost half of the respondents think that school

administrators are role models for other personnel in the use of information technologies.

Regarding the item "The school administration manages school's resources for its technological advancement" (Item 18); 26.3% of the respondents disagree with this statement while 51.5% agree and 22.2% have no idea about it. General averages in Table 6 show that both head teachers ($\bar{x}=3.71$) and deputy head teachers ($\bar{x}=3.44$) agree with this view. Teachers, on the other

hand, have no idea about this issue ($\bar{x}=3.29$). Based on the findings, it is possible to say that the school administrations can manage schools' resources for its technological advancement.

As to the use of educational technologies for instructional activities at schools, the t-test results as of gender indicate a significant difference at .05 level by items 4 ($t_{(296)} = 2.85, p < 0.05$) and 13 ($t_{(293)} = 2.21, p < 0.05$). For those items, female respondents have stronger agreements than male respondents. For item 4, both female

($\bar{x}=3.02$) and male ($\bar{x}=2.66$) respondents have no idea about it. Male respondents disagree the item 13

($\bar{x}=2.50$) but female respondents ($\bar{x}=2.77$) again have no idea about it. When the items are analysed, it is seen that both items are related to outside stakeholders of schools (Provincial/Sub provincial Directorate of National Education and parents). So, it can be said that female respondents do not feel concerned about the support of outside stakeholders to the use of educational technologies in education.

Besides, t-test results which was used to see if there is a significant difference between the opinions of school administrators and the teachers point out that, except the tenth item ($t_{(292)} = 2.73, p < 0.05$), there is no significant difference between the two groups. The results of the multiple comparison test (Scheffe-test) applied to see whether there is a significant difference between the respondents according to length of service point out that there is no significant difference between the groups' viewpoints. Therefore, it can be said that, respondents' profession and length of service does not make much difference on their opinions about the management of educational technologies in schools.

Conclusions

Findings of the research suggest that there is a belief in the use of educational technologies in schools. Nevertheless, it is found out that some administrators and teachers do not agree with this belief. Based on the findings of this research, it is possible to state that school administrations fail to support teachers in becoming technologically literate, and that teachers have problems in making use of educational technologies. In Engin et al. (2007)'s study on comparing computer based and traditional teaching implications, it was concluded that

these two different ways of teaching do not make any difference on student achievement, instead they both have the same influence on it. It was thought that this result was due to the insufficient computer literacy, large curriculums and expensive software applications. The use of technology in schools requires sufficient utilities. It is not likely to say that all teachers in the school make use of technology (Ozhelvaci, 2003). In Baltacı's (2005) study, teachers indicated that technology use in schools is insufficient. Coskun's (2001) study on the technology use by teachers in Social Sciences classes at 4th and 5th grades also states that 42.9% of the classroom teachers do not use technological tools and materials for instruction and merely 17% uses such tools in classroom. Demetriadis et al. (2003) emphasises that teachers fail to integrate their own teaching methods with the information and communication technologies, and they have to be supported and trained in order to do that.

It is considered that teachers are not well informed about using educational technologies in the classroom.

Özbişirici (2006) found out in his study that teachers do not have adequate knowledge or skills in the use of educational technologies. Ucar (1998) has determined that teachers are well aware of the importance of the use of instructional materials yet they do not familiar with the changing technologies, and 91% of them fail to use materials. Tor and Erden's (2004) study on the primary school students' use of information technologies, conducted in Ankara central district, has examined the tools used by teachers in the classroom and resulted that the teachers mostly use overhead projector (51.5%) in the classroom followed by whiteboard (33%). Computers, televisions, slide machines, VCDs and other similar tools are rarely used in the classroom. Ediz (2008) indicated that computers are not widely used in education in Turkey when it is compared to progressed countries.

Eroldogan's (2007) study also points out that teachers have low levels of technology usage. Basaran's (2003) study has concluded that classroom teachers seldom use instructional materials other than textbook and white-board in Turkish classes, and they are quite income-potent about using technological tools and materials. In a study conducted for determining competency level and training needs of teachers about computer assisted instruction, Dursun (1999) has pointed out that 32.4% of the teachers do not consider themselves competent for using computers, and 70% think that they need long-term in service training courses. Cure and Ozdener's (2008) study emphasises that teachers have serious deficiencies in technology usage. On the other hand, Akdeniz and Alev (1999) have revealed that teachers cannot conduct computer assisted applications in their professional lives although their pre-service training has included computer-related courses, mostly because the courses they had taken were not sufficient enough. In studies that were conducted by Kayaduman et al. (2011) and Adigüzel et al. (2011) it was indicated that, it does not matter if

teachers have positive attitudes towards educational technologies, they may have problems in use of educational technologies if they do not get applied training.

It can be said that school administrations make effort to support teachers in their endeavour to further train themselves on technology. Altun's (2009) study reveals that school administrators encourage teachers to take in service training courses to be able to make them use the educational technologies. In another study that was conducted by Sincar (2009), it was concluded that school administrators perform being human centred, vision setter, communicator and coordinator roles partially and they perform their supportive role adequately. However, findings from the relevant research indicate that there are serious problems to satisfy the professional development needs of teachers. Findings of studies conducted by Basaran (2003), Kocasarac (2003), Isman (2002) and Dursun (1999) also support and complement this statement. The joint finding from these studies is that

"teachers do not feel competent about computer use as well as the use of educational technologies in the classroom".

The Provincial/ Subprovincial Directorates of National Education and school administrations fail to provide sufficient support for the use of technology in education. School administrators express their support for the use of technology in education, while they are indecisive about the support of the Provincial/ Subprovincial Directorate. In the "IT Integration Baseline Study" of the MoNE (MEB, 2007b), school administrators, teachers and IT mentors indicate a lack of training as the most important problem encountered in the process of adapting IT into learning-teaching process, followed by lack of hardware and software, insufficient technological infrastructure, lack of additional financial support, lack of technical support, lack of time to develop instructional materials using computers, teachers' lack of knowledge and skills about computer use, and negative attitudes towards the use of IT. More-over, in the same study, the Provincial and Sub provincial Education Directors emphasise that the financial budget allocated for realisation of the IT policies is not sufficient. The problems mentioned in the said study may be considered to be issues that can be solved through coordinated activities of the Provincial/Sub provincial Directorates and the schools.

Physical structure of schools and classrooms causes problems in the use of educational technologies. Almost half of the participants of the study have agreed on the fact that physical structure of their schools is not suitable for technology use. Schools also lack technological tools and materials to be used in learning-teaching processes. Besides, there is an insufficient number of expert personnel to support teachers in using the existing technology. These findings overlap with the findings of the studies conducted by Koloski (2007) and Altun(2009). These studies have reported that human and financial resources

as well as infrastructure related problems have a negative impact on technology use in schools. School administrators do not provide teachers with enough support in technology use. Hosgorur's study of 2011 has also indicated that schools should have one expert trained to serve as a guide for teachers in making better use of educational technologies, depending on the type of behaviour to be gained through the training programme.

School administrations seem to put effort in fair and unbiased approach for teachers' making equal use of technological opportunities provided in schools. Furthermore, head teachers generally consider teachers' use of educational technologies in their performance evaluations (MEB, 2006). However deputy head teachers and teachers are not familiar with such a criterion. It is seen that it is possible to encourage the use of educational technologies in the classroom by teachers more and more by taking teachers' technology use into consideration in performance evaluations and by informing the teachers.

School administrators think that schools follow-up recent developments in the area of educational technology. Nevertheless, teachers' statement about not being informed of the new developments in the area of educational technology may be considered as an indicator of school administrators' efforts being insufficient and of the need for more efforts. School administrators act like role models for teachers in the use of information technologies for management purposes. It is possible to say that the school administrations use schools' resources for technological advancement; however in view of the ratio of respondents who have no idea about it, we can state that the school administration should further improve this attitude. Another finding obtained from the research is that school administrators have failed to fully ensure parents' support in the use of technology in education.

School administrators consider themselves as effective leaders in the use of educational technologies; nevertheless, teachers' comments show that this has not been at an intended level. In addition, the research findings suggest that it is not clear what the school administrators should do as technology leaders. Can's study (2008) suggests that school administrators mostly fulfil their responsibilities as technology leaders and consider them-selves as technology leaders whereas a study conducted by Erden and Erden (2007) concludes that technology leadership skills of school administrators are lacking. Looking at international studies, we see that Macaulay's (2009) study for determining technology leadership behaviours of school administrators show that school administrators consider themselves mostly competent in fulfilling the roles and responsibilities of technology leadership where teachers deliberate that school administrators generally fail in all areas except for productivity and professional development. Chang et al. (2008) has studied technology leadership behaviours of school

administrators in Taiwan according to teachers' perceptions. The study has concluded that the highest level of technology leadership behaviour of school administrators is for productivity and professional development while the lowest is for support, management and assessment by procedures. Similarly, Yu and Durrington's (2006) study on "Technology Standards for School Administrators: An Analysis of Practicing and Aspiring Administrators' Perceived Ability to Perform the Standards" reveals that school administrators generally bear characteristics for technology leadership. The same study concludes that administrators of primary education schools have a lower average compared to the administrators of junior and senior secondary education schools. Likewise, Kozloski's (2007) study on "Principal leadership for technology integration: A study of principal technology leadership" reveals that school administrators see themselves as technology leaders in theory; however in practice, their managerial roles seem to be more prominent than their roles as models for technology use.

There are management based problems in schools regarding technology use. School administrations cannot support teachers in the use of technology as required. There are, as well, infrastructure related problems and deficiencies in terms of technical workforce and financial opportunities. Findings of the research show that one of the most important administrative problems in terms of the use of educational technologies in schools is that teachers' lack of capacity in this regard. Enthusiasm and interest of both administrators and teachers is critical in making use of technology in education. Çağıltay and Çakıroğlu's (2001) study reveals that majority of teachers are unfamiliar with the technology use in education. In Uslu and Kete's (2002) "Study on Effectiveness of Technological Applications in Biology Classes in Curriculum Laboratory Schools in Izmir Province" participants of the research believe that teachers should be encouraged and necessary infrastructure should be put in place in order to ensure successful educational technology applications.

Besides, it is thought-provoking that respondent teachers have mostly used "have no idea" item in the data collection tool while they are the ones who should make use of educational technologies in the classroom more than any professional. It is possible to relate this to the hesitancy and reluctance of teachers since the use of technology in education requires a great deal of knowledge and preliminary work. Nonetheless, it is also possible that school administrators have not been able to create a common culture about the use of educational technologies in the classroom. Both cases should necessarily be examined in further research studies.

Suggestions

The following are author's suggestions based on the findings of this study in order to overcome administrative problems in the use of educational technologies in

learning-teaching environment.

- The school administrators should provide information and active support to the teachers, and establish a cooperative culture within the institution, in the use of educational technologies in learning-teaching environment.
- Support and guidance of out-of-school sources (e.g. universities) should be sought in the area of the use of educational technologies and technology management.
- Performance evaluations should take into consideration teachers' use of educational technologies, and thus teachers should be encouraged to make use of educational technologies in the classroom.
- Technological tools and materials in the school should be enriched; and to this aim, in-school and out-of-school should be used in the most rational manner.
- Parents' support should be received to enrich the educational technologies in the schools.
- Teachers' reluctance of using educational technologies in the classroom and school administrators' efforts to create an institutional culture for the use of educational technologies may be considered as two separate research areas.

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