Technology Usage in School Management: Electronic School

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Abstract—The school management, which means the use of electronic teaching process technology, requires technological leadership qualities. Effectiveness and efficiency of the electronic schools, which is run by the technological leader, is high. The purpose of this research is to determine the opinions of teachers on the use of technology in school management, and, relying on these opinions, to discuss the electronic school concept. The study was carried out in Elazig with 123 teachers in 2014-2015 education year. The data obtained by the questionnaire were analyzed using the SPSS software. At the end of the analysis, it was determined that teachers who are affected directly by management have positive attitude towards electronic school. According to the teachers, use of technology provides support for order, management planning, project development and decision-making process. While teachers think that school administrators are sufficient enough in electronic school, they think that it leads to the feeling of being under control. In conclusion, it reflects Turkey with some delay and deficiencies. This case is important in terms of the Turkey's official aim of being information community.

Index Terms—e-school, management, school management, technological leadership, teachers' opinion

I. INTRODUCTION

Technology has affected the life of mankind in all ages. When the changes and transformations in the history of mankind have been analyzed, the traces of the technology can be observed. This situation continues today by increasing its intensity. Today, technology is much more involved in everyday life than at any other period in history. Technology and in particular information technology has involved in every step of the phase of the human life, the education system has also affected from this change [1]. In education system, the use of technology in teaching and learning process dates back to old times. Today, technology, which is described as information or advanced technology has an active role in all stages of the learning and teaching process. Moreover, today’s technology is seen as an indicator of quality in education by many educators’ teachers and researchers [2]. As a result, schools, including management processes, is trying to use more technology [3].

Today, the technology turns into the main source of education or the environment rather than being tools in education. With the advance technology, education turns into a more complicated subject. One of the fields in which the change can be observed is the function of the information technology in education. This can be seen most clearly in the information and communication technology [4], [5]. However, information technology is making the training free from space and time. Today, thanks to internet, computer, tablet PC, and mobile Phones, some applications such as e-learning and m-learning have become more common[6]-[8].

Today, advance technology affects not only practices, teaching and learning processes, but also it has begun to transform management processes in education radically. Changing the nature of teaching and learning process naturally requires a new management policies and processes. Therefore, schools, with the introduction of computer technology [9] has turned into technological centers. These places can be identified as electronic school. In this sense, the concept of electronic school can be identified as the application of electronic devices during managerial process. This requires technological management process at schools. When the subject is discussed in terms of Turkey, in which technology-intensive teaching programs was introduced after 2004, [10] forces school management to be a leader in technology [11]. According to Hamzah, Nordin, Jusoff, Karim and Yusof [12], technology leader is a person who manages of technology application, takes an active role in this process and attempts to reconcile with the most important people and information technology. According to Tanzer [13], technology leader is a person who manages and directs efficient and effective use of technology in the organization and makes the necessary co-manipulation for the organization. Electronic schools and technological leadership imposes new roles on school management. These roles can be grouped under headings of technological, pedagogical and management. Benet’s findings [14] lists them as the use of technology skills, technology-related legal issues. Kearsley [9] adds them: Understanding the basic concepts related to the technology, recognition of basic software and hardware, selection, finding, identifying areas of improvement and vision regarding the use of technology at schools.

Electronic schools, managing them efficiently and effectively depends primarily on using technology, the attitudes of teachers and the awareness and opinions of
school administrators about the subject. Researches [5], [2] show that the success of technology integration depends on the teachers' demands, their attitudes and behaviors. Another topic of discussion on the use of technology is the infrastructure as hardware and technical staff of schools in Turkey and qualification of school management. Before analyzing the current situation related to the technological infrastructure, discussion on the process of using technology does not mean anything. Therefore, the use of technology in school management and the current situation are open to debate in Turkey. In contributing to this discussion, opinions of teachers on the subject from schools as an observer may provide a guideline.

II. METHOD

A. Sample and Universe

The universe of this study is the teachers in Elazig who worked in 2014-2015 Academic Year. The sample was formed from 123 teachers who could be accessed from that universe. Demographic distributions of teachers are shown in Table I.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>33</td>
<td>26.8</td>
</tr>
<tr>
<td>Male</td>
<td>90</td>
<td>73.2</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5 year</td>
<td>30</td>
<td>24.4</td>
</tr>
<tr>
<td>6-10 year</td>
<td>30</td>
<td>24.4</td>
</tr>
<tr>
<td>11-15 year</td>
<td>30</td>
<td>24.4</td>
</tr>
<tr>
<td>16 and over</td>
<td>33</td>
<td>26.8</td>
</tr>
<tr>
<td>Department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science-Math</td>
<td>46</td>
<td>37.4</td>
</tr>
<tr>
<td>Social Science</td>
<td>41</td>
<td>33.3</td>
</tr>
<tr>
<td>Technical</td>
<td>36</td>
<td>29.3</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>100.0</td>
</tr>
</tbody>
</table>

B. Data and Analysis

The data in this study were obtained by conducting a descriptive survey model and using a questionnaire developed by the researcher. The items of the questionnaire which is Likert Type were rated as, 1. Totally Disagree (1.00-1.80), 2. Disagree (1.81-2.60), 3. Neutral(2.61-3.40), 4. Agree (3:41 to 4:20) and 5. Totally agree (4.21 to 5.00).

In this study, for the analysis of the data, arithmetic mean, standard deviation and variance analysis techniques, "t" test (for homogeneous materials) with KWH and MW tests (for non-homogeneous material) were used. Significance level was accepted as p = 0.05.

III. THE FINDINGS

A. Teachers' Perception of Technology in Electronic School and School Management

According to the teachers participated in the study, the use of technology provides support to school management (X̄₁ =4.75), improves management processes (X̄₈ =4.58), and prevents the waste of sources (X̄₁₁ =4.56). According to them, the use of technology supports the abilities of administrators to plan (X̄₁₅ =4.22), to produce projects (X̄₁₆ =4.19), to decide (X̄₁₄ =3.85) and it also speeds up bureaucratic processes. However, the teachers are of the opinion that the use of technology makes the teachers feel under control and supervision (X̄₂₈ =3.68).

According to gender variable, there is significant difference between teachers' views on the 11. [MWU=1035.500; p=0,002] and the 15. [MWU=967.500; p=0,001] items. Male teachers (MR(expectation)=6.70.00) adopted the 11. item more than the female ones (MR(expectation)=48.36); and the male ones (MR(expectation)=67.75) adopted the 15.item more than the females (MR(expectation)=46.32).

According to the seniority variable, there is significant difference between teacher views on the 7. item [(MWU=7.500; p=0,014)]. According to this difference between 1-3. groups [(MWU=660.000; p=0,042)], the teachers of science-maths (MR(expectation)=45.15) adopted the 7. item more than the teachers of technical education (MR(expectation)=36.83). There is significant difference between teachers' views on the 8. item [(F=3.879; p=0,023)]. According to Scheffe test, the teachers of science-maths (X̄₈ =4.00), adopted the 8. item more than the ones of social sciences (X̄₈ =4.46).

B. The Current Situation in the Management of Electronic School

According to Table III, the teachers find the technological infrastructure and technical staff...
insufficient in their schools ($\bar{X}_{20}=3.00$). While the teachers find their administrators sufficient in using the technology ($\bar{X}_{13}=3.92$) and in terms of awareness ($\bar{X}_{13}=4.17$), they still think that those administrators need training in this issue ($\bar{X}_{13}=4.12$). According to the teachers, software programs are needed for school management in Turkey ($\bar{X}_{25}=4.48$).

According to seniority variables, in parametrical items, there is significant difference between teachers' views on the 20. [F(2,120)=8.938; p=0.006] and the 25. item [F(2,120)=6.268; p=0.003]. According to Scheffe test, the teachers in technical education ($\bar{X}_{1}=3.52$) adopted the 20. item more than the teachers of science-maths ($\bar{X}_{1}=2.58$); and they ($\bar{X}_{1}=3.71$) adopted the 25. item more than the ones in social sciences ($\bar{X}_{1}=2.76$).

According to the branch variable, there is significant difference between teachers' views on the non-parametric items 33, item [(KWH=22.956; p=0.000)]. This difference is between the 1.2 groups [MWU$_{1,2}$=582.500; p=0.001]. According to this, the ones in social sciences (MR$_{2}$=52.79) adopted the 33. item more than the ones in science-maths (MR$_{1}$=36.16).

### IV. THE DISCUSSION AND RESULTS

The concepts like electronic school and related to this technological leadership reflect on the educational system in Turkey, even though it is a retarded case. In this reflection, as external dynamics, the technological trends over the world; as internal dynamics, the technology-intensive new educational programs such as "e-school", "Fatih Project" are effective. It is important to determine teachers' views on how current the electronic school is in Turkey, and what extent the school administrators exhibit technological leadership behaviours. Because the teachers are responders of school management and good observers of it. The results of the study whose aim is to determine teachers' view on the use technology are summarized below.

It is determined that the teachers have a positive attitude towards using technology in school management (Table II). The positive attitude is more prevalent in young teachers and teachers of science-maths. They are of the opinion that the use of technology provides support most for the planning process of the management. This opinion is more dominant in male teachers. This is followed by producing projects and decision-making processes respectively. The teachers think that the use of technology speeds up the bureaucratic processes (Table II). These findings are parallel with the ones found by Sezer, Deryakulu [15] and [16]. That the teachers have a positive attitude towards using the technology in school management has a critical importance in terms of the fact that technology-intensive management and teaching systems such as "e-school" and "Fatih project" should work. Because it is known that teachers' attitudes are important in actualizing all the managerial and educational practises at schools. That the teachers have a positive attitude towards using the technology in school management is parallel with the literature and the related research findings. In fact, it is known that the schools which use the technology intensively serve better and are more successful.
However, it is remarkable that the teachers who have a positive attitude towards using the technology in school management feel that it also makes the teachers feel under control and supervision. This case has the potential to make the teachers feel stressed, nervous and even insecure. This means that the methods and the techniques we use to solve a certain problem may cause a newer and a deeper problem [14]. One possible reason of this could be the fact that the school administrators are not open to improvement in using the technology. In fact, in a research conducted by Brockmeier, Sermon ve Hope [9], it was reached that the school managers have difficulty in having information about educational technologies, in understanding how to use technologies during teaching-learning process, in their roles of user, partner and facilitator which support the use of technology. Relying on the results obtained from the researches in the literature, it can be said that technology leadership roles of school managers is important in using the technology at schools [17]. To overcome this drawback, the school management should also include the teachers in planning the use of technology in management processes. While planning this, social, psychological and pedagogical dimensions should also be taken into consideration as well as technological dimension. To do this, it is important that the school managers have technological leadership qualities. Because, one of the barriers of integrating the technologies into all the processes of education is the inadequate technology leadership [18].

Because, managerial support is an important factor in integrating the information and communication technologies with teaching and learning activities and using it in an effective way [19].

The teachers participating in the study found the current infrastructure and the technical staff insufficient regarding the electronic school equipment in the school they work at (Table III). Experienced teachers prioritize the lack of technical staff. This case, which is in parallel with other research findings, is an important deficiency. Because, the use of technology in school management depends on, above all, the sufficiency of needed infrastructure and equipment.

The teachers think that the school managers are aware of the importance of the use of technology in school management, they use this technology effectively and they are sufficient (Table III). The experienced teachers are more optimistic about this case. These findings are supported by similar research results [18], [20], [21]. That the teachers find their managers sufficient and eager in using the technology is important in terms of their technological leadership ability. The managers with these abilities can be models in technological issues. In fact, in a research conducted by Kozloski [9], it is stated that school managers are models for their staff to simplify the integration of the technology, try hard to increase the use of technology and help to train teachers in using the technology through training programs. However, it is remarkable that these teachers (especially the younger ones and the ones in social sciences) think that school managers need training in using the technology in school management. This conflicting case can be considered as mark of a confusion in the teachers on this issue. This, possibly, depends on their lack of information on electronic school. If the school managers are insufficient enough to need a training on the technological leadership, then an important risk is waiting for them. This risk is the addiction of the managers to the technicians [14].

That the teachers (especially the teachers of technical education) state that software programs are needed for school management in Turkey can be considered as an important offer. Because, each school may have a different management policy, since they have their own characteristics. This difference on the use of technology in school management may appear as school-specific softwares.

REFERENCES


**Assist. Prof. Dr. Çetin Tan.** was born in Elazığ, Turkey, in 1975. He had B.A. degree from Firat University in Elazığ in 2002, MsE degree from Firat University in Elazığ in 2006 and PhD degree from Firat University in Elazığ 2012. Dr. Tan, whose study field is educational administration and planning, distance education and e-learning, has completed his master and doctorate degree in the field of educational administration. He has many publications which published in national congress, symposium and journals. He is working in Sırt University Dept. of Education.