Primary School Teachers' Views on the Technological Competencies of School Principles

Deniz Kahraman
Suleyman Demirel University, Türkiye, https://orcid.org/0000-0002-9326-4114

Mustafa Koc
Suleyman Demirel University, Türkiye, https://orcid.org/0000-0002-3276-7172

Abstract: It is considered important for school principals to have technology leadership competencies in digital age conditions in order to carry out education and training efficiently and effectively. Since teachers see school principals as role models, how teachers perceive the technology use skills of school principals is an important factor for the technology integration process in the school. In this context, this research aimed to examine primary school teachers' views on their school principals' technological competencies. The study was designed as a phenomenological research within the qualitative research paradigm. The participants were 15 primary school teachers working in the city center of Isparta, Turkey. Data were collected through online and face-to-face semi-structured interviews and analyzed using descriptive qualitative data analysis methodology. Participants' views were categorized under six main themes as school principal's knowledge and use of general technology in the school, artificial intelligence, cloud computing, augmented reality, cyber security, and 3D printer. The findings generally reveal that steps should be taken to increase the technology competencies of school principals.

Keywords: School Principles, Teacher Views, Technology Competencies

Citation: Kahraman, D., Koc, M. (2022). Primary School Teachers' Views on the Technological Competencies of School Principles. In M. Shelley, V. Akerson, & I. Sahin (Eds.), *Proceedings of IConSES 2022--International Conference on Social and Education Sciences* (pp. 164-170), Austin, TX, USA. ISTES Organization.

Introduction

The administrators of educational institutions are responsible for the supply of information and communication technologies and the optimum use of these tools within the institution (Sincar, 2009). The developments in technology and the transformations caused by this have also necessitated change and transformation in the duties of administrators (Arabacioglu & Okulu, 2021; Bagaric & Strucic, 2021; Kara, 2021; Khan etal., 2021; Kibici, 2022; Koyuncuoglu, 2022; Makarova, Ldokova, & Egorova, 2021). School principals are expected to

work on technology acquisition, effective use of it and teacher training. It is considered important for school principals to have technology leadership competencies in digital age conditions. Within this context, exploring school managers' technology competence levels has become one of the research topics in educational research literature. This research aimed to examine primary school teachers' views on their school principals' technological competencies. Since teachers see school principals as role models, how teachers perceive the technology use skills of school principals is an important factor for the technology integration process in the school.

Leadership is defined as the ability of a leader in any community to interact with other individuals, and to direct expectations or influence people as a result of this interaction (Zaleznik, 1997). In order for leaders to fulfill their functions in the definition, they must have very important qualities such as interaction, creativity, facilitation and influence. The manager of the institution is very effective in the success or failure of that institution. According to Lambert (2005), the leadership characteristics of the administrators working in schools with low education quality are not at a sufficient level. According to Doll (1972), the ability of school administrators to realize their responsibilities in the education system is parallel to their leadership abilities.

School principals should be technology leaders, among other leadership roles (Anderson & Dexter, 2005). A technology leader is someone who uses technology and makes employees use it. School administrators need to know, understand, apply and adopt technology in order to fulfill this role (Akbaba-Altun, 2002). It is of great importance for school administrators to know issues such as the safe use of technology, the ability to organize content in accordance with technology, the training of personnel in this regard, and the provision of personnel support in realizing the role of technology leadership (Bailey, 1996, Turan, 2002). Therefore, investigating school principals' technology competence is crucial for effective technology integration into schools.

Method

This study was designed as a phenomenology within the qualitative research paradigm. Phenomenological research focuses on phenomena that we are aware of but do not have a deep and detailed understanding of, and describe the common meaning of several people's experiences with a phenomenon or concept (Yıldırım & Şimşek, 2011). It seeks individual's subjective experiences and intends to explore and describe a phenomena from the participants' point of view (Mertens, 1998). Thus, this approach was considered suitable for the purpose of exploring primary school teachers' views on their school principals' technological competencies.

The participants were 15 primary school teachers who were selected using the convenience sampling from the population of teachers working in the city center of Isparta, Turkey. Data were collected through online and face-to-face semi-structured interviews. A total of ten interview questions were developed to understand school principles' views and uses of educational technologies, encouragement and support provided to teachers and impacts on school administrative and academic success. In the interviews with the teachers, necessary explanations were made to make the questions understandable, and no time limit was applied. The data were

recorded by using voice recorders and taking notes by the researchers during the interview. The collected data were analyzed using descriptive qualitative data analysis methodology. In descriptive analysis, the data are summarized and interpreted according to predetermined themes (Yıldırım & Şimşek, 2011). The interview questions provided the thematic structure in this study. Since it is believed that direct quotations in qualitative research will be effective in reflecting the thoughts of individuals and increasing the internal validity of the research, some of the data obtained are presented without any comment.

Results

The first theme was named as "school principal's knowledge and use of general technology in the school". Three out of 15 teachers said that the school principal did not use technology adequately at their school due to inability to keep up with innovations and technical infrastructure inadequacies. Example comments included:

> "Although our school principal does not follow and use technological innovations closely, he does not make any difficulties for our usage. I think the biggest reason for not using technological innovations is that technology develops very fast and he cannot keep up with these developments. Since he does not know how to use it, she cannot guide the teachers in this manner neither."

> "The school principal does not use technological innovations much in our school because there are not enough technological units in the school due to financial inadequacy. Even computers other than administration computers are not sufficient to be used at school…but we did not experience the negative effects of not using it."

The remaining 12 teachers believe that their principles adequately use technology. They think that the main motivating reason for their usage is due to the necessity of using technology in our age. They gave the examples such as development of instructional materials, internal and external correspondence within the school, uses of learning management systems or student information systems, which solely depend on the use of technology. Some of them elaborated their opinions as follows:

> "Not all principals up to now were using it. Maybe they did not know because of their age. Even turning the computer on and off was very difficult for them. However, they are using it now. Time made it necessary…. Even the logo of our school was prepared by our principal. I think it accelerates the operation of the school. It is nice to move forward with technology without having to deal with paperwork, etc."

> "Yes, he uses enough. Especially with the WhatsApp application, our principal can send the information coming to the school to all teachers at the same time and get feedback. He makes meetings and seminars more motivating and remarkable by using technological tools."

> "Our school principal tries to follow and use technological innovations in line with the possibilities of the school. In today's education, it is necessary to use technology to keep up with the rapidly changing world."

Seven teachers stated their expectations from the school management during the technology integration. It is seen that the most stated expectation is "support for class participation", followed by "understanding and flexibility", "technical support", and "increased communication". Below are some teacher statements that indicate expectations.

> "I expect the school administration to be understanding towards the problems we are experiencing, and to help with technical issues."

> "They can provide material, computer and internet support."

> "Being flexible while preparing the course schedules and supporting the teachers in dealing with those students who cannot attend the lesson."

The second theme was about "artificial intelligence". While 10 out of 15 teachers thought that their school principals had knowledge about artificial intelligence, the others said they were not sure or had no knowledge about this concern. They also believe that although school principals know the concept and technology of artificial intelligence, they do not sufficiently encourage teachers and students in this field. Representative opinions of teachers who think that the school principal has related knowledge:

> "Our manager is interested and knowledgeable about artificial intelligence. He supports our students to do coding and algorithm-based activities in our classroom. In this way, children learn computer programming."

> "Yes, has knowledge about artificial intelligence. Information about this is shared between teachers and the administration."

> "May have individual knowledge about artificial intelligence. However, no events were held at the school because of the socio-economic situation of the region we are in."

"Cloud computing" was the third theme of the findings. Only four teachers reported that their managers had knowledge about cloud computing. According to the teachers' statements, it was seen that cloud technologies were not adequately understood by the teachers. In fact, more than half stated that they did not know about these technologies neither. This may be due to the new development of this field. Representative comments for this theme include:

"He has knowledge. He did distance education studies and held meetings on Zoom."

"I do not think he has any knowledge. No event has been held on this topic and thus many of our teachers do not have knowledge about the subject."

"I do not know what level of knowledge our manager has in cloud computing. I am not familiar with this concept. I guess it is about sharing documents via internet. We share documents via WhatsApp or e-mail."

The fourth theme was related to "augmented reality" technologies. Almost half of the participating teachers (47%) reported that their school principals had knowledge about augmented reality. Some teachers think that whether school principals know about augmented reality or not, they make effort to encourage and support teachers to implement augmented reality applications to classroom teaching. Some comments related to this theme include:

"Our manager is knowledgeable about this technology. We showed our students the beauties of Turkey with PTT AR cards. He provided the cards. We also held an augmented reality event about the Turkish flag."

"Our school principal supported our work on the Republic Day on October 29 with the Ouiver application. He supported our event by printing out 3D papers from the photocopier."

"I had the opportunity to work with our new manager for only 3-4 months. Although I do not have much idea about what he knows and what he does not know, according to my general impressions, I think that he does not know about augmented reality."

"Cyber security" was identified as the fifth theme of the findings. Most of the participants (73%) stated that their school managers cared about cyber security issues. Some believe that this concern has come to the fore especially in the last few years because the COVID-19 epidemic conditions and educational environments where technology and information networks gain more importance make it necessary to ensure the safety of students on the Internet.

"He is sensitive about online security and takes necessary precautions to protect the security of teacher and student information."

"Our school principal pays attention to cyber security. He takes precautions in this regard, which I think affect the school and students positively."

"Since the internet infrastructure in our school is provided by the ministry, I think the ministry has

already taken precautions regarding cyber security. Apart from this, our school principal also takes the necessary steps. For example, the security of the school website is the most important consideration for him."

The final theme is about "3D printers". According to the opinions of the more than half of the teachers (67%), school principals have knowledge about 3D printers. However, they have problems in integrating 3D printers into educational environments. They argue that the main reason for this situation is insufficient economic resources of the schools as these tools are relatively expensive. Some of them elaborated their opinions as follows:

"He has knowledge, but there is no 3D printer in our school…it is expensive and we do not enough budget to afford it."

"Yes, he knows 3D printers. There has been no activity including 3D printing."

"I think he knows it, however, due to financial difficulties, there was no 3D Printer in our school, so there was no activity related to this."

Conclusion

On the whole, the findings show that teachers mostly have positive thoughts about the use of technological innovations by school principals. Teachers with positive thoughts think that school principals mainly use technology at a medium level. As can be seen from the answers given by the teachers, school managers may not be able to implement some technologies (e.g., artificial intelligence, augmented reality, 3D printers) into schools and thus may not carry out related educational activities whether they are knowledgeable or not. The possible reasons for this may be the new development stages of those technologies, their high cost, or the lack of sufficient competent person in the school. Considering the fact that these are up-to-date technologies and one of the tools that can be used the most in education, introducing and using them can be seen as an important competency to be improved. Therefore, these technologies and how they are used in instructional processes can be given more space in both pre-service and in-service teacher training.

References

Akbaba-Altun, S. (2002). Okul yöneticilerinin teknolojiye karşı tutumlarının incelenmesi. *Çağdaş Eğitim, 286*, 8-14.

Anderson, R. E., & Dexter, S. (2005). School technology leadership: An empirical investigation to prevalence and effect. *Educational Administration Quarterly, 41*(1), 49-82.

Arabacioglu, S. & Okulu, H. Z. (2021). Using Virtual Museums to Promote Activity Design Competencies for Out-of-School Learning in Pre-Service Teacher Education. *International Journal of Technology in*

Education (IJTE), 4(4), 644-667. https://doi.org/10.46328/ijte.183

Bagaric, Z. & Strucic, E. (2021). Correlation analysis of Krav Maga athletes' sociodemographic characteristics and their leadership competencies. In S. Jackowicz & I. Sahin (Eds.), *Proceedings of IHSES 2021-- International Conference on Humanities, Social and Education Sciences* (pp. 385-404), New York, USA. ISTES Organization.

Bailey, G. (1996). Technology leadership. Ten essential buttons for understanding technology integration in the 21st century. *Educational Considerations, 23*(2), 2-6.

Doll, R. (1972). *Leadership to improve schools*. Worthington, Ohio: CA Jones Publishing.

Kara, S. (2021). An Investigation of Technological Pedagogical and Content Knowledge (TPACK) Competencies of Pre-Service Visual Arts Teachers. *International Journal of Technology in Education (IJTE), 4*(3), 527-541. https://doi.org/10.46328/ijte.184

Khan, A. A., Hussain, T., Ashraf, M. A., Al-Siyabi, M., & Al-Shibli, A. (2021). Redefined Norms in Education and Their Impact on Engineering Competencies. In S. Jackowicz & M. Al-Jabari (Eds.), *Proceedings of ICSEST 2021-- International Conference on Studies in Engineering, Science, and Technology* (pp. 13-22), Antalya, Turkey. ISTES Organization.

Kibici, V. B. (2022). An Investigation into Music Teachers' Perceptions of Technological Competencies. *International Journal of Technology in Education and Science (IJTES), 6*(1), 111-123. https://doi.org/10.46328/ijtes.344

Koyuncuoglu, D. (2022). Analysis of Digital and Technological Competencies of University Students. *International Journal of Education in Mathematics, Science, and Technology (IJEMST), 10*(4), 971-988. https://doi.org/10.46328/ijemst.2583

Lambert, L. (2005). Leadership for lasting reform. *Educational Leadership, 62*(5), 62-65.

Makarova, O., Ldokova, G., & Egorova, R. (2021). Analysis of Students' Views of the Quality of Pedagogical Education in Russia. *International Journal of Education in Mathematics, Science, and Technology (IJEMST), 9*(3), 462-481. https://doi.org/10.46328/ijemst.1624

Mertens, D. (1998). *Research methods in education and psycohology*. New York: Sage Publicaitons.

Sincar, M. (2009). İlköğretim okulu yöneticilerinin teknoloji liderliği rollerine ilişkin bir inceleme. Unpublished doctoral dissertation, İnönü University, Turkey.

Turan, S. (2002). Teknolojinin okul yönetiminde etkin kullanımında eğitim yöneticisinin rolü. *Eğitim Yönetimi Dergisi, 30*, 271-281.

Yıldırım, A., & Şimşek, H. (2011). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin Yayınevi.

Zaleznik, A. (1997). Managers and leaders: Are they different? Retrieved from http://www.theleadershipbuilder.com/PDF/1_ManagerLeader.PDF