

EVALUATION OF THE TECHNOLOGICAL COMPETENCES OF PRIMARY SCHOOL TEACHERS

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ABSTRACT

The most important missions of educational institutions are to raise individuals who have the knowledge and skills that society needs. The development of technology every day has enabled it to develop in this direction in education. So the inclusion of technology in education is effective in the development of students' knowledge and skills. However, for this, teachers must have sufficient technological knowledge and competence. The aim of this study is to evaluate teachers' awareness of technological competence. The research was conducted with the case study design, which is one of the qualitative research methods. Semi-structured interview form was used as a data collection tool in the study, which was carried out with the participation of 11 teachers from TRNC primary schools. Content analysis method were used for the obtained findings. As a result of the research, it was determined that the participants defined educational technologies as internet use, technology integration, and digital resource use.

Keywords: teacher, educational technologies, technological competence.

Introduction

Change is one of the most important features of the age we live in. Information, technologies and required skills are constantly changing in terms of individuals in social life (Gülcü, Solak, Aydın, & Koçak, 2013). Technological advances and innovations, which have become an important element of life in the world where globalization is experienced, enter different areas of life and integrate with life (Mishra and Koehler, 2006).

This situation has caused changes in the field of education by affecting the social life especially with the development of technology in the 21st century. For example, as a result of this change, active use of technology has been achieved in schools and classroom environments (Varank, 2009). As a result of these changes in the technological field and their reflection on education, the education system and the elements that make up the education system are also renewing themselves. It is expected to raise individuals who can learn on their own and use technology within the scope of the above-mentioned renewal strategies, which undertake the task of raising individuals in need of the society. Teachers, who are part of the education system that goes on the path of innovation in parallel with the developing technology, have the knowledge and skills in the field of developing technology and continue their own development is very important in terms of their ability to train and direct their students correctly (Yakar ve Okur, 2019).

Teachers, who are one of the building blocks of education, are directly affected by innovations and changes. With these changes, it gains importance in making teaching activities more effective, high quality and permanent (Bozkurt and Cilavdaroğlu, 2011). Efficient use of technology by teachers, who are effective in students' learning processes, and their integrity between technology and teaching activities are among the requirements of our age (Yanpar Yelken, 2017).

The aim of this study is to reveal primary school teachers' views and awareness of educational technology. The problem statement of the research; "What is the level of awareness of teachers regarding educational technologies and technological competencies that a teacher should have?". Research sub-problems are as follows:

1. How are educational technologies defined according to teachers' views?
2. How are the competencies that teachers should have for educational technologies defined according to teachers' views?

Educational Technology

Based on the definitions of technology in the literature and our experiences in our daily lives, we can say that technology is used in all areas of our lives today. Technology is also necessary in the field of education, and education and technology affect each other (Güllü & Özerbaş, 2016).

In general terms, educational technology is the practical application of changes in the field of technology to the educational field (Costa, 2007). Educational technology in line with the definitions; Improving the quality of educational activities can be defined as a dynamic process for the efficient use of tools and equipment resulting from technological developments in educational environments, and their restructuring by evaluating the result (Yılmaz & Ayaydın, 2015).

Teacher Competencies

According to Şişman (2009), competence for the teaching profession includes all of the characteristics or qualifications that teachers are expected to have in terms of knowledge, skills, attitudes, behavior and values. It is emphasized that teacher competencies and qualifications are important in education systems that constantly renew themselves in order to become an information society (Gudanescu, 2010).

Teacher Technological Competencies

Today, with the developing age, knowledge, skills and attitudes about technology have come to the fore in the teaching profession as in all professions. At this point, teachers' ability to use technology in their educational activities becomes important, and their ability to use technology has an impact on their teaching success (Johnson et al., 2016). Technological competencies are important both for the efficient and successful teaching of educators and for the continuity of their professional development. A technologically competent educator can use different digital tools and environments to improve both personal and professional competencies (Ertmer et al., 2012).

Education and technology are expected to operate in an integrated manner. It is among the goals of educators to use technology together with educational philosophies, to design and develop educational materials, as well as to make teachers adopt information security, cyber security, algorithm, coding, robotics and 3D design, and transfer them to students (Gokbulut, 2018).

Method

This research was conducted with a holistic multi-case study, one of the qualitative research methods. It is a qualitative approach in which the researcher collects in-depth information about multiple information sources (such as interviews, observations, visual and audio materials, reports and documents) about multiple restricted situations in real life at a specific time and is described using this information (Creswell, 2018).

The study group of the research consists of 11 teachers working in primary schools in TRNC. Semi-structured interview form was used as the data collection tool in this study. This form prepared by the researcher and approved by 2 field academicians. The data obtained in this study were analyzed by content analysis method. Content analysis aims to reach the concepts and relationships that will explain the collected data. Since the identity confidentiality of the participants is adhered to, they are referred to with coding such as P1, P2, P3 given within the study, instead of the real names of the participants in the research report. The demographic characteristics of the participants are as indicated in Table 1.

Table 1. Demographic characteristics of teachers

	Number	f
Gender		
Female	7	%64
Male	4	%36
Age		
30-39 years	2	%18
40-49 years	7	%64
50 years and older	2	%18
Professional Year		
5-10 years	2	%18
Over 10 years	9	%82
Education Level		
Undergraduate	8	%73
Master Degree	2	%18
Phd Degree	1	%9

Findings

Educational Technology Description

Table 2. Participants' views on the definition of educational technology

Theme	Participants' views N
Integrating technology into education	5
Use of the Internet	4
Interactive education	1
Use of digital resources	1
Total View	11

"How would you define educational technologies according to teachers' opinions?" The answers they gave to the question are as shown in Table 2. The answers given by the participants were gathered under five themes. These are integrating technology into education (n5), internet use (n4), interactive education (n1), and digital resource use (n1). The opinions of the participants are as follows;

"I can define educational technology as the use of technology in education and the integration of practices and activities in this direction into lessons." P2

"Using the internet in our lessons" P5

"Technology is developing day by day and our students are very prone to using technology today. Therefore, it is the use of technology and digital resources to attract their attention and make the courses more efficient." P7

Teachers' technological competencies

"What are the competencies that a teacher should have for educational technologies?" the question was asked. The themes that emerged for the responses of the participants are examined in Table 3 below.

Table 3. Participants' views on the competencies that teachers should have

Theme	Participants' views N
Being innovative	3
Technology tracking	6
Mastering technology	2
Total view	11

Participant views on the competencies that teachers should have are in the form of being innovative (n3), following technology (n6), and mastering technology (n2). The statements of the participants are as follows;

"The teacher should use technology very well. Therefore, it is important to follow the technological developments in his field very closely and to use them in his lessons." P1

"Technology must be followed in order to keep knowledge and skills up to date. It is necessary for the teacher to have an innovative vision, to know the developments in education and to be able to apply it" P3

"In today's world where students are intertwined with technology, it is essential for their teachers to have this skill. The most important factor in this is that the teacher should have a command of technology and know-how to access and follow the information." P6

Conclusion

It is important for society to be able to integrate with today's rapidly changing conditions. As in every field, changes and advances in technology and science affect the desired qualities of individuals. In almost all areas of social life, all stakeholders in the education system expect personal qualities; In this case, the field of education is also undergoing change and innovation. Educational institutions adapt to these changes and realize innovations in the field of technology and aim to raise up-to-date people.

At this point, teachers and their technology competencies gain importance. The teacher must follow the developments in his field and include them in his lessons and ensure the development of the students. In this study, it was asked that participating primary school teachers should define educational technology and what competencies teachers should have in this direction. The main purposes of the research are to reveal teachers' awareness of technology competencies.

In line with the findings obtained, teachers' educational technologies are expressed as integrating technology into education, internet use, interactive education, and digital resource use. It is seen that the definitions of the participant are similar to the literature (Hermans et al., 2008; Hughes, 2005).

The technological competencies that the teachers of the participants should have are stated as being innovative, following technology, and having a command of technology. In line with the participants' views, the importance of the teacher having a technological infrastructure and knowing how to access and use information is emphasized. In order for educational technology to develop and teachers to have these qualifications and to apply educational technologies in their lessons, it is necessary to provide the necessary infrastructure and trainings in this direction.

References

- Bozkurt, A. ve Cilavdaroglu, A. K. (2011). Matematik ve Sınıf Öğretmenlerinin Teknolojiyi Kullanma ve Derslerine Teknolojiyi Entegre Etme Alguları. *Kastamonu Eğitim Dergisi*, 19(3), 859- 870.
- Costa, F. A. (2007). Educational technologies: Analysis of master dissertation carried out in Portugal. *Educational Sciences Journal*, 3, 7-24.
- Creswell, J. W. (2018). *Nitel araştırma yöntemleri beş yaklaşıma göre nitel araştırma ve araştırma deseni*. (M. Bütün, ve S. B. Demir) Ankara: Siyasal Kitabevi.
- Ertmer, P.A., Ottenbreit-Leftwich, A., Sadik, O., Sendurur, E., & Sendurur, P. (2012).Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, 59, 423-435.
- Gökbulut, B. (2018). Uluslararası Standartlara göre Bilişim Teknolojileri Öğretmenlerinin Mesleki Yeterlilikleri. *Eğitim Teknolojisi Kuram ve Uygulama*, 8(1), 226-247.
- Gudanescu, S. (2010). *New educational technologies*. Procedia - Social and Behavioral Sciences. 2. 5646-5649. 10.1016/j.sbspro.2010.03.922.
- Gülcü, A., Solak, M., Aydın, S. ve Koçak, Ö. (2013). İlköğretimde Görev Yapan Öğretmenlerin Eğitimde Teknoloji Kullanımına İlgili Görüşleri. *Turkish Studies*, 8(6), 195-213.
- Güllü, E. & Özerbaş, M. (2016). *Türkiye, ABD ve Avrupa'da Eğitim Teknolojisi Araştırmalarında Gözlenen Eğilimler*. 10th International Computer and Instructional Technologies Symposium (ICITS), Rize-Türkiye.
- Hermans, R., Tondeur, J., van Braak, J., & Valcke, M. (2008). The impact of primary school teachers' educational beliefs on the classroom use of computers. *Computers and Education*, 51 (4), 1499-1509.
- Hughes, J. (2005). The role of teacher knowledge and learning experiences in forming technology-integrated pedagogy. *Journal of technology and teacher education*, 13(2), 277-302.
- Johnson, A. M., Jacovina, M. E., Russell, D. E., & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In S. A. Crossley & D. S. McNamara (Eds.) *Adaptive educational technologies for literacy instruction* (pp. 13-29). New York: Taylor & Francis. Published with acknowledgment of federal support.
- Mishra, P. ve Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teachers' knowledge. *Teachers College Record*, 108(6), 1017-1054.
- Şişman, M. (2009). Öğretmen Yeterlilikleri: Modern Bir Söylem ve Retorik. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 10(3), 63-82.
- Varank, İ. (2009). Considering material development dimension of educational technologies: Determining competencies and pre-service teachers'skills in Turkey. *Eurasia Journal of Mathematics, Science & Technology Education*, 5(2), 119-125
- Yakın, İ. ve Okur, S. (2019). Ortaokul Öğretmenlerinin Eğitim Teknolojisi Standartları Tanımlamalarına ve Göstergelerine Yönelik Görüşleri. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 18(4), 2390-2407.
- Yanpar- Yelken, T. (2017). *Öğretim Teknolojileri ve Materyal Tasarımı*. Ankara: Anı Yayıncılık.
- Yılmaz, K. ve Ayaydın, Y. (2015). Sosyal Bilgiler Öğretmenlerinin Öğretim Teknolojileri Kullanımına İlişkin Alt Yapılarının ve Yeterlilik Algılarının İncelenmesi: Nitel Çalışma. *İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, 15, 87-107.