





Educating future primary school teachers to create a communication culture through educational technologies

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Abstract

The purpose of this research is to get the opinions of teacher candidates to train future primary school teachers to create a communication culture through educational technologies. This study was created with the qualitative research method. The study group of the research consists of 40 teacher candidates studying in the primary school teaching department at various universities in Kazakhstan. Research data were collected with a semi-structured interview form developed by the researchers. As a result, while the majority of primary school teacher candidates found themselves sufficient in using technology, they found themselves moderately competent in using educational technologies. Primary school teacher candidates stated that programs related to both educational technologies and creating a communication culture should be developed in universities. It is necessary to implement the suggestions of pre-service teachers on improving the communication culture and to organize the education given at universities in this direction.

Keywords: Communication culture; educational technologies; primary school; teacher candidates.

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1. Introduction

Within the scope of 21st-century teacher skills, while determining teacher competencies, the competencies of teachers to use communication technologies effectively are also included in this scope. With each passing day, new trends in education are on the agenda of student teachers and teacher candidates, and it is a big step in improving the quality of education. The use of information and communication technologies in education is of great importance in terms of increasing the efficiency of basic teacher competencies (Voogt & Roblin, 2012).

Students' ability to use information and communication technologies effectively and efficiently is directly related to the integration of these technologies into learning and teaching environments (Chimalakonda & Nori, 2020; Liu & Correia, 2021). For this reason, the fact that future primary school teachers have these competencies has the functional power to increase the quality of education and increase student success.

1.1. Theoretical and conceptual framework

The rapid developments in science and technology in recent years have also shown their effectiveness in the field of education (Heffernan et al., 2021), deeply affecting the dynamic structure of learning and teaching processes, and it has become an important area in the development of teachers' professional skills (Devedzic & Devedzic, 2019; Decker-Woodrow et al., 2023; Song et al., 2023). To create a society consisting of individuals with information and technology skills, it is expected that teachers and teacher candidates should have the qualifications to set an example for students in the use of technology and to provide education by using these technologies (Chou et al., 2010; Luu & Freeman, 2011; Tan & Wang, 2011).

The 21st-century teacher profile and the definition of the teaching profession include the ability to use educational technologies equipped with information and communication technologies (Zhou, Smith & Al-Samarraie, 2023). Teachers need to be aware of their educational needs and be open to change and development. In this direction, teacher training policies are designed to meet and create the teacher qualifications of the 21st century (Tutkun & Aksoyalp, 2010). Teaching and applying information and communication technologies in schools require technologically competent teachers (Boshuizen & Wopereis, 2003). Therefore, it is of great importance to train teachers who know information and communication technologies and can use educational technologies (Panagiotis et al., 2011). The importance of these experiences in teacher education programs is increasing because the experiences of teacher candidates about technology in teacher education programs affect their future performance (Lambert & Gong, 2010). Teacher training policies not only enable future teachers to be well-equipped to meet their educational needs but also enable individuals who shape society to be trained by teachers with this equipment (Hamilton & Pinnegar, 2000).

It is the primary duty of teacher training universities and teacher training programs to evaluate the basic knowledge, skills, and competencies of teacher candidates on computer technologies and their use, to develop policies to improve them, and to educate them about their inadequacies (Flowers & Algozzine, 2000; Rysbek, 2022). The application of information and communication technologies in primary schools is seen as a modern necessity. The achievements of primary school students through educational technologies are an important step towards keeping up with the age of technology (Alakurt et al., 2017).

The benefits of educational technologies in the education process should be evaluated and the use of primary school students should be expanded to meet their educational needs. For this reason, the educational technologies' perceptions of teachers and teacher candidates, who play a leading role in the regulation of the education and training process by taking advantage of the advantages of educational technologies, play a key role in many countries (Renz & Hilbig, 2021). Thanks to teacher training programs equipped with educational technologies in universities, the competence of future teachers in using educational technologies is increased. However, it is not possible to say that teachers

and pre-service teachers have information and communication skills at the desired level by using educational technologies (Stuve & Cassady, 2005).

1.2. Related research

When the studies in the field are examined, it is seen that many studies emphasize the importance of bringing national educational technology standards to teacher candidates (Evans, 2006; Hall, 2006; Judge & O'Bannon, 2007). There are also studies in which the technological competencies of pre-service teachers are investigated; the effect of demographic variables on technological competencies is tried to be determined; and suggestions are developed for the development of pre-service teachers' technological competencies (Gunduz & Odabasi, 2004; Haydn & Barton, 2007).

In studies investigating pre-service teachers' attitudes toward using educational technologies, it was stated that pre-service teachers' attitudes directly affect the level of technology acceptance and the success of teaching through technology (Levin & Wadmany, 2008; Sanders & Morrison-Shetlar, 2001). In some studies, the computer self-efficacy of teachers and teacher candidates was evaluated. In these studies, the importance of pre-service and in-service training in developing the computer self-efficacy of teachers and prospective teachers is emphasized (Yan & Piper, 2003; Yildiz & Baltaci, 2017). In their study, Ma et al. (2005) investigated pre-service teachers' perceptions of educational technologies. As a result of the research, it has been revealed that the attitudes of teacher candidates towards educational technologies are related to their use of computers and their beliefs about finding them useful.

There are also studies emphasizing that the communication skills of teachers and prospective teachers are effective on the student's success and the student's perception of the classroom environment, and that effective communication is an important advantage for students and teachers (Claus et al., 2021; Myers et al., 2002). In addition, some studies have shown that teachers' ability to use effective communication methods in solving classroom problems plays an important role in solving problems (Eisenberg et al., 2010; Greenwood et al., 2011). Golonu and Karci (2010) stated that communication skills are skills that can be learned and developed. In the research, it is emphasized that the communication skills adopted and possessed by the teacher will be effective in the quality of teaching, classroom management, and attracting students' interest in the lesson.

1.3. Purpose of the research

The purpose of this research is to get the opinions of teacher candidates to train future primary school teachers to create a communication culture through educational technologies. For this purpose, the following sub-objectives have been developed:

1. What are the primary school teacher candidates' views on their educational technology competencies?
2. What are the views of primary school teacher candidates on the creation of a communication culture through educational technologies?
3. What are the suggestions for educating primary school teacher candidates to create a communication culture through educational technologies?

2. Materials and method

In this section, information about the method of the research, the study group, data collection tools, the data collection process, and the transformation of the data into findings are presented.

2.1. Research method

This study was created with the qualitative research method. Qualitative research is based on an in-depth analysis of human perceptions and events in social reality and their natural environment (Hatch, 2002). Qualitative research, rather than the generalization or universal dimension of the information, is about the details and depth of the information, and the fact that it expresses the

examined phenomenon in the best way (Connelly, 2016). From this point of view, in this study, the opinions of prospective teachers, taken to train future primary school teachers to create a communication culture through educational technologies, were evaluated by the qualitative research method.

2.2. Participants

In qualitative research, to present an accurate and detailed theory, the number of samples that the researcher will use in his study should consist of at least 20–30 people (West, 2001). Accordingly, in this study, it was deemed appropriate that the study group consisted of 40 pre-service teachers. This issue provides ample opportunities for the identification of themes within the context of the cases covered, while also enabling cross-case analysis. The study group of the research consists of teacher candidates studying in the primary school teaching department at various universities in Kazakhstan. The pre-service teachers constituting the study group of the research were selected among those who voluntarily agreed to participate in the research. 7 of the pre-service teachers participated in the research study in the first year, 9 in the second year, 14 in the third year, and 10 in the fourth year. Of the pre-service teachers participating in the research, 23 are female and 17 are male.

2.3. Data collection tools

Research data were collected with a semi-structured interview form developed by the researchers. The questions in the semi-structured interview form are parallel to the purpose and sub-objectives of the research. The questions in the semi-structured interview form are as follows:

1. What are the views on educational technology competencies?
2. What are the views on the creation of a communication culture through educational technologies?
3. What are the suggestions for educating primary school teacher candidates to create a communication culture through educational technologies?

2.4. Procedure

The semi-structured interview form, developed to collect the research data, and the information form, regarding the research content, were sent to the study group of the research via email. It took about 2 weeks for the research participants to fill in the semi-structured interview forms with the researchers.

2.5. Data collection analysis

The research data were converted into findings by the content analysis method. Content analysis requires a more detailed examination of the collected data and reaching the concepts, categories, and themes that explain this data. The content analysis focuses on collected data; codes are extracted from the events and facts that are frequently repeated in the data set or which the participant emphasizes heavily. One can go to categories from codes and to themes from categories. In short, data (codes) that are found to be similar and related to each other are interpreted by bringing them together within the framework of certain concepts (categories) and themes. In content analysis, the content of participants' views is systematically separated (Bengtsson, 2016). The answers given by the primary school teacher candidates to the questions in the semi-structured interview form were divided into codes created by the researchers by the content analysis method. Then, categories and themes were created.

2.6. Ethics

Direct quotations from the answers given by the primary school teacher candidates to the questions in the semi-structured interview form are given in the findings section, keeping the personal information of the participants. Research findings were arranged by creating tables in which frequency and percentage calculations were made.

3. Results

The research findings were created by organizing the answers given by the primary school teacher candidates to the questions in the semi-structured interview form.

In Table 1, the views of the primary school teacher candidates participating in the research on their educational technology competencies are evaluated.

Table 1

Opinions of primary school teacher candidates on educational technology competencies

Category	Theme	Opinions of Teacher candidates	F	%
Using technology	Sufficient	- I find myself sufficient in using technological tools. - I am interested in computer technologies, so I can say that I am at a sufficient level.	29	72.5
	Moderately sufficient	I'm not very good with technology. Medium-level. - Since my technology usage knowledge is at a medium level, I do not feel fully equipped in this regard.	9	22.5
	Insufficient	- Mastering the use of technology in education is about mastering computer technologies. I am not competent. - Mastering the use of technology in education is about mastering computer technologies. I am not competent.	2	5
Using educational technologies	Sufficient	I am both willing and knowledgeable about using educational technologies. - I think that using educational technologies increases the quality of education. I find myself sufficient.	14	35
	Moderately sufficient	- I do not think that I am fully equipped in this field. - I can partially use educational technologies.	21	52.5
	Insufficient	- The education we receive should enable us to gain the ability to use more educational technologies. I find myself inadequate. - I find myself very lacking in this area.	5	12.5
Ability to provide education through Educational Technologies	Sufficient	- I'm confident about this. - I think that I can provide education through educational technologies.	7	17.5
	Moderately sufficient	- I think that I have the competence to provide medium-level education by using educational technologies. - I can partially provide such training. However, I do not find myself very adequate.	11	27.5
	Insufficient	- Even though I have a medium level of proficiency in using educational technologies, I am very inadequate in providing education in this way. - I do not feel ready to teach in such an environment.	22	55

In Table 1, the opinions of the primary school teacher candidates participating in the research on educational technology competencies are evaluated in the categories of using technology, using educational technologies, and providing education through educational technologies. 72.5% of the teacher candidates found themselves sufficient in using technology, 22.5% found it moderately sufficient and 5% found it insufficient. 35% of the teacher candidates found themselves sufficient in using educational technologies, 52.5% found it moderately sufficient and 12.5% found it insufficient. 17.5% of the teacher candidates found themselves sufficient in providing education through educational technologies, 27.5% found it moderately sufficient and 55% found it insufficient.

In Table 2, the views of primary school teacher candidates participating in the research on creating a communication culture through educational technologies are evaluated.

Table 2

Opinions of Primary school teacher candidates on the Creation of a communication culture through educational technologies

Category	Opinions of Teacher candidates	F	%
Educational technologies have a positive effect on creating a culture of communication	<ul style="list-style-type: none"> - <i>Creating a culture of communication through educational technologies is in my opinion to the advantage of teacher candidates.</i> - <i>I find it positive. It can be an effective training.</i> 	32	80
Educational technologies do not affect the creation communication culture	<ul style="list-style-type: none"> - <i>I don't think it will have any effect. I also do not think that educational technologies support communication.</i> - <i>I think it is difficult to create a communication culture with educational technologies.</i> 	5	12.5
Educational technologies hurt creating a communication culture	<ul style="list-style-type: none"> - <i>A communication culture cannot be created through educational technologies. On the contrary, I believe it will create a negative communication environment.</i> - <i>Technology can harm communication in some cases. So, it will have a negative effect.</i> 	3	7.5

In Table 2, the views of primary school teacher candidates participating in the research on creating a communication culture through educational technologies are evaluated in three categories. They are educational technologies have a positive effect on creating a communication culture; educational technologies do not affect creating a communication culture; and educational technologies hurt creating a communication culture. 80% of the primary school teacher candidates answered that educational technologies have a positive effect on creating a communication culture. 12.5% of the teacher candidates answered that educational technologies do not affect the creation of a communication culture. 7.5% of the teacher candidates stated that educational technologies hurt in creating a communication culture.

In Table 3, the suggestions for educating the primary school teacher candidates participating in the research in a way to create a communication culture through educational technologies are evaluated.

Table 3

Recommendations for raising primary school teacher candidates to create a communication culture through educational technologies.

Category	F	%
Program content related to both educational technologies and communication culture should be created.	34	85
Program contents should be created that will enable prospective teachers of communication culture to be effective in sustainability in the profession.	27	67.5
Program content that combines technological pedagogical content knowledge and communication culture should be created.	21	52.5
Program contents should be created to eliminate the factors that prevent the creation of a communication culture.	18	45

Program contents should be created to comprehend the importance of communication culture in the primary school teaching profession.	13	32.5
Program content that teaches methods and practices that support the creation of a communication culture should be created.	9	22.5
To create a communication culture through educational technologies, program content including case studies should be created.	7	17.5
Program contents that reveal the effect of communication culture on student development and student success should be created.	3	7.5

In Table 3, the suggestions for educating the primary school teacher candidates participating in the research in a way to create a communication culture through educational technologies are categorized. 85% of the teacher candidates stated that the content of both educational technologies and communication technologies should be created. 67.5% of the pre-service teachers stated that the content of the communication culture should be created to enable the pre-service teachers to make sustainability in the profession effective. 52.5% of the teacher candidates suggested that curriculum content that combines technological pedagogical content knowledge and communication culture should be created. 45% of the teacher candidates stated that program contents should be created to eliminate the factors that prevent the creation of a communication culture. 32.5% of the pre-service teachers answered that program contents should be created to comprehend the importance of communication culture in the primary school teaching profession. 22.5% of the pre-service teachers stated that the curriculum content should be created in which methods and practices that support the creation of a communication culture are taught. 17.5% of the pre-service teachers answered that program contents including case studies should be created to create a communication culture through educational technologies. 7.5% of the teacher candidates stated that program content should be created that reveals the effect of communication culture on student development and student success.

4. Discussion

The opinions of primary school teacher candidates participating in the research on educational technologies, using technology, using educational technologies, and being able to provide education through educational technologies are evaluated. While the majority of pre-service teachers found themselves sufficient in using technology, they found themselves moderately competent in using educational technologies. The majority of primary school teacher candidates found themselves inadequate in the category of being able to provide education through educational technologies. The majority of primary school teacher candidates participating in the research stated that educational technologies have a positive effect on creating a communication culture. The suggestions for educating the primary school teacher candidates participating in the research in a way to create a communication culture through educational technologies were evaluated. Creating program content related to both educational technologies and communication culture; creating program content that will enable pre-service teachers' communication culture to be effective in the profession; and creating program content that combines technological pedagogical content knowledge and communication culture are among the suggestions developed by the majority of teacher candidates.

When the studies on the level of use of educational technologies and the tendency to create a communication culture of teachers and teacher candidates are examined, it is seen that there are studies in parallel with the results of this research. Russell et al. (2003) stated in their research that teachers' and pre-service teachers' attitudes and beliefs toward technology directly affect their effectiveness in using technology in education. Al-Zaidiyen et al. (2010) similarly stated in their research that the use of educational technologies by teachers and teacher candidates is one of the important predictors of success in education. Similar to the findings of this study, Sang et al. (2010) revealed that although pre-service teachers have the competence to use technology, they are insufficient to provide education using technology. Brush et al. (2008), on the other hand, concluded in their research that information and communication technologies skills are at a low level.

5. Conclusion

Educational technologies are seen among the new trends in education. In recent years, educational technologies have emerged as a new learning tool in education for teachers, teacher candidates, and students. For this reason, this research is aimed to get the opinions of teacher candidates to train future primary school teachers to create a communication culture through educational technologies. As a result, while the majority of primary school teacher candidates found themselves sufficient in using technology, they found themselves moderately competent in using educational technologies. In addition, the vast majority of teacher candidates consider themselves inadequate in providing education through educational technologies. The majority of primary school teacher candidates participating in the research stated that educational technologies have a positive effect on creating a communication culture. Finally, primary school teacher candidates have developed suggestions for educating them to create a communication culture through educational technologies. Among these suggestions, creating program content related to both educational technologies and communication culture emerges as a suggestion developed by the majority of teachers.

6. Recommendations

The findings obtained from the study found that primary school teacher candidates' technology use proficiency is high, their level of use of educational technologies is medium and their level of providing education with educational technologies is low. In this direction, intensified education programs should be organized in universities to increase the educational technology competencies of primary school teacher candidates. Pre-service teachers who believe that a communication culture can be created through educational technologies should implement the suggestions they put forward to improve the communication culture, and the education given at universities should be organized accordingly.

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