

Preservice Teachers' Opinions on the Use of Technology in Education

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Abstract—Educational technologies have become more important especially in the recent years. The use of technology to facilitate learning has increased over the past decade, but relevant problems in education are still on the agenda. The aim of this study is to determine the opinions of preservice teachers about using technological tools in education. Qualitative method was used in the study. The study was applied to the 32 senior students studying at the classroom teaching department of a university in Kazakhstan. Data were collected with interviews. The interview questions were prepared to obtain the opinions of preservice teachers studying in the classroom teaching department regarding the use of technology in educational technology, and the questions were applied by giving the final shape by the experts in their fields. According to the results, preservice teachers feel insufficient to use the internet and computer for teaching purposes. However, they stated that they were sufficient in using computers and internet search engines, they could prepare simple materials for teaching purposes and they cannot prepare multi-purpose teaching devices. This difference can be overcome with individual research and project assignments that require preservice teachers to use technology for teaching purposes.

Keywords—Preservice teachers, educational technology, material development

1 Introduction

In today's world, education and the use of technology in education have been two concepts that cannot be considered independently [35,29]. Technology is an area covering all social and economic activities and organizations that envisage the realization of technical knowledge. In addition, technology is the application of scientific principles and innovations to the solution of problems and making life easier. At the same time, it changes relationships between disciplines and disciplines and affects the increase of knowledge [46,1,2]. Technology has different dimensions: material, tool, power and technique [37,51]. In other words, tools and equipment constitute only one dimension of technology. On the other hand, technology is important for many areas from health to economy, from law to communication. Technology is used effectively in education and the use of technology in education is expressed by the concept of "Educational Technology" [44,25,26].

Since educational institutions and teachers come across with students who use technology tools such as computers, internet, video, cd and mobile phones every day, it is inevitable that they will encounter significant difficulties if they do not develop their skills in using existing technology products [4,36,31]. In this respect, the use of technology products in educational institutions affects the program content of teacher training institutions [8] since the intensive technology-based courses in higher education will enable prospective teachers to graduate by being equipped with technology. The fact that educational technology plays a role in education is related to the preservice teachers' knowledge and ability to use technology, it is really important to train future teachers to have knowledge and skills for using technology effectively in education. In order for teacher candidates to achieve the desired success in their professional lives, they must first accept the role of technology in education and have the ability to use it. Because when preservice teachers start their jobs, they will encounter a group of students who are intertwined with technology [28,19,50].

Teacher training is a complex whole that contains many features such as content, method, material, purpose, place and time [47] The use of technology in teaching activities shows its effect by developing in teacher education. Teacher candidates' studies on computer literacy and technology affect their student life as well as their preparatory work for teaching. One of the courses added to teacher training programs is "Instructional Technologies and Material Development (ITMD)". The entrance qualifications of the teacher candidates come to the fore in achieving the objectives of this course [17,11].

While computer equipment is the first condition in the use of computers in teaching environments, teachers' knowledge, skills, attitudes and beliefs about computer learning are also important [10]. The education program, computer technology and pedagogical approach of the faculty / institution affect preservice teachers' gaining qualifications such as reducing computer anxiety, self-confidence on technology use, their perception and attitude towards education and computer technology [14]. In the study of Angeli [5], preservice teachers were found to be inadequate in using technology supported teaching strategies and combining them with appropriate computer studies. In a study by Clift, Mullen, Levin and Larson [15], it is stated that

computer technologies are not sufficiently involved in the teacher education program, and this result was confirmed by the research of the International Educational Technology Organization.

The concept of educational technology is defined as a complex and integrated process involving people, methods, thoughts, tools and organization in the analysis and solution of learning-related problems [23,9] Another definition of technology was made by AECT (Association for Educational Communications and Technology [3] and it is stated that educational technologies, technological processes and resources ethically applied to be designed, to be a helper and to improve performance and to be used and managed. When the definitions re-examined, it is seen that educational technologies are different as in the general definition of technology and there is a systematic process consisting of different dimensions in order to help people.

In the researches, most of the teachers stated that they could not be prepared very well for technology integration in teaching; they emphasized that integration was a boring and time-killing process [6] [41]. These problems cannot be overcome in institutions without using new technologies effectively, training preservice teachers and putting the use of technology in curriculum and lesson plans. It is known that teachers' self-esteem and competence affect technology use [21], academic staff in teacher training institutions do not have enough models to use technology and do not require students to use technology [18]. Accordingly, one of the reasons for preservice teachers' anxiety in technology integration is the idea that technology is not used adequately during their education. It is known that individuals who pay more attention and take more time to use technology and computers in the education process have positive self-confidence and competence [38,33,20].

Users' beliefs and attitudes have been shown to have a major impact on the adoption of new technology [13]. A number of models and frameworks have been developed to measure these effects on users' acceptance and model acceptance. One of the most widely used adoption models is the technology acceptance model (TAM) [43]. TAM has been used and modified to investigate the adoption of a range of educational technologies. Since mobile technology offers different conformity to traditional and e-learning environments, the factors affecting other educational technologies may not be valid. Therefore, it is important to create an impact pattern on the adoption of technology [30,32,40].

When the literature was examined, although there were studies on the importance of using computer and technology in education, there was not much research on the knowledge and skill level of using computer and technology in teaching and the ability to use and prepare them. Similarly, number of studies on the ability of using computer and technology according to branches and gender and self-confidence of future teachers is limited [39]. In this context, it is believed that preservice teachers' opinions on using technology effectively in education, their knowledge and skill levels are really crucial in their ability to use technology in teaching during their professional lives. Therefore, this study aims to determine the opinions of preservice teachers about the skill levels of using and preparing the Internet, computer and instructional technology according to different variables.

2 Method

2.1 Research model

In this part of the research, the study group, the data collection tool used in the study, the collection and analysis of the data were included. In this study, which was handled with qualitative data collection techniques, semi-structured interview technique was used. Qualitative research deals with the process more than the products or outputs. Therefore, meanings and interpretations are important in qualitative research [16]. Semi-structured interviews have a certain level of standardization and flexibility. It is frequently preferred by researchers because it removes the limitations in tests and questionnaires based on writing and filling, and helps to gain in-depth information on a specific subject [49].

2.2 Study group

In this research, criterion sampling technique which is one of the purposeful sampling methods used in qualitative research was used. This sampling technique involves the inclusion of individuals who meet the criteria for the purpose of a particular study [34] The study group of this research included 32 preservice teachers studying classroom teaching in Kazakhstan in the 2018-2019 academic year.

2.3 Data collection tool

A semi-structured interview form consisting of 4 items was prepared for the preservice teachers studying in the classroom teaching department. For the validity of the questions, expert opinion was received from 5 experts from the area of education. Questions in the finalized interview form according to expert views are as follows:

1. Do you have difficulty in preparing material? If so, in which areas do you have difficulties?
2. Do you feel sufficient about the basic stages of teaching? Please explain.
3. What technologies do you plan to use in education?
4. To what extent do you use the computer? What kind of activities can you have in your teaching practices?

2.4 Data collection

The data of the study were collected in environments where the participants could express themselves comfortably, and audio recording could be done and during the time periods they made their appointments. Interview questions were directed to each participant with the same words and intonations that evoke the same meaning.

There are four questions in the semi-structured interview form to collect the data subject to the research. Interviews were made through face-to-face interviews with

appointments from faculty members. Classes and students with disabilities have been observed. Six points open-ended questions were asked to the participants in the interview form prepared. For the purpose of the research, 30-35 minutes of interviews were made, although the interview times varied.

2.5 Data analysis

Interviews were recorded with a voice recorder. The recorded data was then converted into a written document in computer environment. In the analysis of the data, the findings of the research were presented in the tables using frequencies. The preservice teachers' opinions about technology in education were analysed through content analysis method.

The main purpose in content analysis is to reach concepts and relationships that can explain the collected data. For this, similar data were brought together and organized within the framework of certain concepts and themes. In content analysis, data are encoded, categories (themes) are found, codes and themes are organized, findings are defined and interpreted [7]. Frequency and percentage are generally used in the interpretation of the data obtained through content analysis.

3 Results

In this part of the study, the results obtained from the preservice teachers were provided.

3.1 Results on preservice teachers' opinions on their competence in using material in teaching

Table 1. Opinions on their competence in using material in teaching

Category	f
Choosing material suitable for the content	18
Low cost material preparation	10
Teaching material appropriate for the curriculum	2
No	5

Table 1 shows the results on preservice teachers' opinions on their competence in using material in teaching. As it can be seen from the table, 27 participants stated that pre-service teachers studying in the classroom teaching department had problems in preparing materials. The preservice teachers reported that they suffered most from finding material that was suitable for the content. They felt that they had problems in preparing materials with low cost while preparing materials and they were inadequate in terms of preparing teaching materials appropriate for the curriculum. In addition, 5 preservice teachers stated that they did not have any problem while preparing the material.

3.2 Results on preservice teachers’ opinions on their feeling of sufficiency about the basic stages of teaching

Table 2. Opinions on their feeling of sufficiency about the basic stages of teaching

Category	f
Creating activities	10
Content presentation	8
Evaluation	7
Feedback	7

Table 2 shows the results on preservice teachers’ opinions on their feeling of sufficiency about the basic stages of teaching. Preservice teachers stated that they mostly experienced problems in creating activities and content presentation in terms of basic stages of teaching. Evaluation and feedback were also the other points reported by preservice teachers participated in the study.

3.3 Results on preservice teachers’ opinions on the technological tools they prefer to use in teaching

Table 3. Opinions on the technological tools they prefer to use in teaching

Category	f
Projection tool	18
Computer	12
Smart board	5
Video	2
Mobile phone	1

According to the results provided in Table 3, preservice teachers stated that they mostly preferred to use projection tool and computer in teaching. Smart board, video and mobile phones were the other technological tools specified by preservice teachers participated in the study.

3.4 Results on preservice teachers’ opinions on the use of computers in teaching

Table 4. Opinions on the use of computers in teaching

Category	f
Virtual environment	20
Search engines	18
Microsoft Office programs	17

Preservice teachers participated in the study were asked about their opinions on the purposes of using computers in teaching. Participants stated that computers act as a virtual environment for teaching and learning, they could be used for search engines

and Microsoft Office programs. Preservice teachers stated that they could search about computer education in education, search different activities and apply homework preparation and exam preparation activities through computers.

4 Discussion and Conclusion

This study tried to determine the opinions of preservice teachers regarding the use of technological materials in teaching. According to the results, there are 27 preservice teachers who stated that the pre-service teachers studying in the classroom teaching department had problems in preparing materials. This number is quite high. The preservice teachers stated that they had the most difficulty in finding material suitable for the content. They thought that they had problems in preparing low-cost materials while preparing materials and that they were insufficient in terms of programmatic teaching materials. The efficiency of education, where the teachers of the future will have difficulty in preparing materials, is a negative situation in terms of efficiency. In order to overcome this situation, more courses related to material preparation can be added to undergraduate courses.

Results also showed that preservice teachers expressed problems in basic stages of teaching. The teaching design courses should be student-centered and should be re-taught as elective courses. Expressing that they had difficulty in determining the input activity and presenting content, preservice teachers stated that they had difficulty in the evaluation process. When the literature was examined, it also revealed that they had problems in the basic stages of education in the studies conducted with preservice teachers [45,12].

When preservice teachers were asked about the technological tools they preferred to use in teaching, they stated they would mostly use projection tool in their lessons. There were many preservice teachers stating that they would use computers. The number of preservice teachers who wanted to use smart board was very low. Smart board, video and mobile phones are the other technological tools specified by preservice teachers participated in the study. Participants stated that computers act as a virtual environment for teaching and learning, they can be used for search engines and Microsoft Office programs. Preservice teachers stated that they could search about computer education in education, search different activities and apply homework preparation and exam preparation activities through computers. Accordingly, it was seen that the most projection equipment was used among the technological tools in the lessons and then the computer was used [24,5,22,27]. When the literature was analysed, it was determined that the positive attitude towards using the internet was not shown to use technology for educational purposes at the same level [42,48,22].

In computer lessons given in pre-service training, the use of tools such as smart boards and projectors used with the computer can be taught as well. The use of technological tools by instructors in their lessons can help preservice teachers gain experience in using technology in lessons. In addition, practical seminars on integrating technology into education can be given to preservice teachers.

Comparative, experimental and quantitative studies can be conducted in which educational areas and levels of technological tools can be more effective by carrying out similar studies in different educational fields and levels.

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