

Evaluation of pre-service teachers' views on their ability to use instructional technologies

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Abstract

In recent times, educational technologies have gained grounds in many fields of study. The use of technology to facilitate learning has increased over the past decade, but related problems in education and training are still on the surge. The aim of this study is to determine the opinions of prospective teachers about the skill levels of using and preparing the internet, computer and instructional technology according to different variables. The study was applied to the senior students studying at the classroom teaching department of a university of education faculty in Kazakhstan. Optional participation was provided. The 32 teacher-participants were asked 4 interview questions. Data were taken with a qualitative research method. The prepared questions were prepared to get the opinions of pre-service 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. The elementary school teacher candidates feel insufficient to use the internet and computer for teaching purposes. However, they stated that they are sufficient in using computers and internet search engines, they can prepare simple materials for teaching purposes and they cannot prepare multi-purpose teaching devices.

Keywords: teacher candidate, technology, educational technology;

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1. Introduction

Technology as defined by Roland (1992) is a strong and systematic structure aiming to facilitate human life and therefore should not be considered only with the product size. Technology has different dimensions: material, tool, power and technique (Bernard, 1987; Roland, 1982; Hasanov & Akbulaev, 2020). In other words, tools and equipment constitute only one dimension of technology. On the other hand, it makes itself felt in many areas from health to economy, from law to communication. One of the fields technology is used is the fields of education and the use of technology in education is expressed in the concept of "Educational Technology".

In today's world, education and the use of technology in education have been two concepts that cannot be considered independently (Simon, 1983; McCannon & Crews, 2000; Komis et al., 2007). Technology is an area covering all social and economic activities and organizations that envisage the realization of technical knowledge. With an optimistic definition, technology is the application of scientific principles and innovations to the solution of problems and making life easier (Bartek & Bartkova, 2018). At the same time, it changes relationships between disciplines and disciplines and affects the increase of knowledge (Goetsch, 1984; Williams & Kingham, 2003; Abazaoğlu, 2014).

Since educational institutions and teachers work with students who use technological 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 (Aksoy, 2003; Reiner, 2009). In this respect, the use of technological products in educational institutions affects the program content of the teacher, hence the need to inculcate it in training institutions (Slowinski, 2000). Because 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 and training is related to the pre-service teachers' knowledge and ability to use technology. 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 prospective teachers start their jobs, they will encounter a group of students who are intertwined with technology.

Teacher training is a complex whole that contains many features such as content, method, material, purpose, place and time (Woodward, 1996: 139; Alfa, Medayese & Owoyale, 2019). The use of technology in teaching activities is effective when the skill is developed in teacher education. Teacher candidates' studies on computer literacy and technology affect their student life as well as their preparatory work for teaching (Hokanson, 2001: 141). In 1998, together with the regulation of teacher education in Turkey, one course "Instructional Technologies and Material Development (ÖTMG)", was added to the learning curriculum of graduate degree program. The entrance qualifications of the teacher candidates come to the fore in achieving the objectives of this course.

While computer equipment is the first condition in the use of computers in teaching environments, teachers' knowledge and skills, attitudes, and beliefs about computer learning are also important (Vitulyova, 2020). The education program, computer technology and pedagogical approach of the faculty / institution affects the prospective teachers' gaining qualifications such as 'computer self-confidence, computer love' (Gunter, Gunter & Wiens, 1998) and their perspective and attitude towards education and computer technology. In Angeli's (2004) study on prospective teachers, prospective teachers were found to be inadequate in using technology supported teaching strategies and combining them with appropriate computer studies. In their study, Clift, Mullen, Levin and Larson (2001), stated that computer technologies are not sufficiently involved in the teacher education

program, and this result is confirmed by the research of the International Educational Technology Organization.

The concept of educational technology is defined as a complex and integrated processes involving people, methods, thoughts, tools and organization in the analysis and solution of learning-related problems (Ergin, 2003; Capuyan et al., 2021)). Another definition of technology was made by AECT (Association for Educational Communications and Technology). According to this definition, educational technologies, are technological processes and resources ethically applied and designed to help and to improve performance, and to be used and managed for study (AECT, 2004). When the definitions are examined, educational technologies are different as in the general definition of technology. It is understood that there is a systematic process consisting of different dimensions in order to help people. Viewed from this angle, instead of defining the concept of education technology of tools such as overhead projector, computer, data projector, it can be seen that there are technological products representing the size of tools and equipment (Dishkova & Papancheva, 2019).

In the researches, most of the teachers stated that they could not be prepared very well for technology integration in teaching. They emphasize that integration is a boring and time-killing process (Arslan, 2006; Christanse, 2002). Similar prejudices cannot be overcome in teacher-training institutions without using new technologies effectively, teaching them, and putting them in curriculum and lesson plans. It is known that teachers' self-esteem and competence affect technology use (Oral, 2008). Academic staff in teacher training institutions do not have enough models to use technology and do not require students to use technology. Accordingly, one of the reasons for pre-service 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 (Rugayah, Hashim & Wan, 2004).

Users' beliefs and attitudes have been shown to have a major impact on the adoption of new technology (Venkatesh, Morris, Davis and Davis, 2003). A number of models and frameworks have been developed to measure these effects on users' acceptance and model acceptance. One of the most widely adopted adoption models is the technology acceptance model (TAM) (Venkatesh et al., 2003; Theodorou & Meliones, 2019). 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 mobile technology (Khaddage, Lanham, & Zhou, 2009; Mac Callum, & Jeffrey, 2014).

When the literature is examined, although there is enough work on the importance of using computer and technology in education, there is 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, studies on the ability of using computer and technology according to branches and gender and self-confidence of candidates have not been found (Ufuktepe, 2000; Senge, 2000; Oral, 2008). In this context, we believe that candidates who will become teachers are the methods and methods of time in education, how much they trust them, and that there are topics to be investigated.

1.1 The purpose and importance of the study

The purpose of this study is to determine the opinions of prospective teachers about the skill levels of using and preparing the internet, computer and instructional technology according to different variables.

2. Method

The method of the research is a qualitative study designed as a descriptive research. The questions asked in the case studies are aimed at explaining and understanding the current situation in depth. Qualitative research is more concerned with the process than the available data or results. For this reason, meanings are more important than the results obtained in qualitative research. Qualitative research is a research in which qualitative data collection techniques such as unstructured or structured interview forms or document analysis are used, and a qualitative process for realizing the facts and events in a natural and holistic manner is followed (Zhumabayeva et al., . (2019).

2.1 Research 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. The working group of this research consists of 32 candidate teachers who studied classroom teaching in Kazakhstan in the 2018-2019 academic year.

2.2. Data collection tool

A semi-structured interview form consisting of six items was prepared for the students studying in the classroom teaching department. For the validity of the questions, expert opinion was received from 5 experts. The researchers went to collect data with the semi-structured interview forms they prepared. The questions that were asked are:

1. Do you have difficulty in preparing material? If you have difficulty 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 trainings?

2.3. Data analysis

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. Implementation of inclusive education in Kazakhstan, problems that may occur and development of policies and practices were recorded and 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 are presented in the tables using frequency and percentages. The pre-service teachers' opinions about technology in education were analyzed through content analysis.

3. Results

In this part of the study, the findings obtained from the senior teacher candidates in the classroom teaching section are also included.

3.1. Competence in material

Table 1. *Teacher candidates' proficiency in material*

Category	F
choosing material suitable for the content	18
Low cost material preparation	10
Programmatic teaching material	2
NO	5

As can be seen in Table 1, it is 27 people who stated that the pre-service teachers studying in the classroom teaching department had problems in preparing materials. The preservice teachers stated that they suffered most from finding material that is suitable for the content. They feel that they have problems in preparing materials with low cost while preparing materials and they are inadequate in terms of programmatic teaching materials.

In addition, 5 pre-service teachers stated that they did not have any problem while preparing the material.

3.2 The basic stages of teaching

Table 2. basic stages of teaching

Category	F
login events	10
content presentation	8
Evaluation	7
Feedback	7

When we asked questions about the basic stages of teaching in the classroom teaching department, we asked if they had any difficulties (entry activities, content presentation, practice, feedback, evaluation). All teacher candidates stated that they had difficulty in this field.

3.3 Technological tools

Table 3. Technological tools used in education

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

They stated that the pre-service teachers will use the most projection tool in their lessons. There are many teacher candidates stating that they will use computers. The number of teacher candidates who want to use smart board is very low.

3.4 Use of the computer

Table 4. Computer use of prospective teachers

Category	F
Virtual environment	20
Search engines	18
Office	17

To the question of what purpose are you using the computer for prospective teachers, the answers were not surprising. They expressed their use for navigating in virtual environments. Facebook, Instagram, etc. Again, another computer use purpose has stated that they do searches in internet browsers yahoo and google. Besides, there are pre-service teachers who stated that they used office programs to prepare homework.

4. Discussion

All teacher candidates stated that they had difficulty in entry activities, content presentation, practice, feedback, evaluation. Expressing that they had difficulty in determining the most entrance activities and creating a content presentation, teacher candidates stated that they had difficulty in the evaluation process. there is. When the literature is examined, it is supported by this result that they have problems in the basic stages of education in the studies conducted with prospective teachers (Bagila et al.,2019; Uzunboylu & Gundogdu, 2018).

In the responses, these results were present: Pre-service teachers stated that they wanted to use these technologies but they did not have enough information. They expressed that they did not know how to use the computer outside of the video viewing and gaming areas. In addition, the pre-service teachers who want to actively use the smart board also stated that they may have difficulties because they do not practice using the smart board. When the literature is examined, it is seen that the most used technology is the projection equipment , followed by computer (Agranovich et al.,2019; Jahangard, Rahimi & Norouzizadeh, 2020).

There are 27 pre-service 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 think that they have problems in preparing low-cost materials while preparing materials and that they are insufficient in terms of programmatic teaching materials. This result is very thought-provoking. Teacher candidates stated that they can search about computer education in education, search different activities, and apply homework preparation and exam preparation activities (Amiel & Reeves, 2008; Yıldız, Alkan & Cengel, 2020). When the literature is analyzed, it is known that the positive attitude towards using the internet for and the use technology for educational purposes are not at the same level (Zhumabayeva et al., 2020).

5. Conclusion

The efficiency of education, where the teachers of the future will have difficulty in preparing materials, is a sad situation in terms of efficiency. In order to overcome this situation, courses related to material preparation can be added to undergraduate courses. When we asked questions about the basic stages of teaching in the classroom teaching department, we asked if they had any difficulties

(introduction activities, content presentation, implementation, feedback, evaluation). All teacher candidates stated that they had difficulty in this field.

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, the teacher candidates stated that they had difficulty in the evaluation process. There is. They stated that pre-service teachers will use the most projection tool in their lessons. There are many teacher candidates stating that they will use computers. The number of prospective teachers who want to use smart board is very low. The answer to the question of what purpose you use the computer for prospective teachers was not surprising. They stated that they used to navigate in virtual environments. Facebook, Instagram, etc. Again, another computer use stated that they searched yahoo and google internet browsers. There are also teacher candidates who state that they use office programs to prepare homework. The teacher candidate stated that they can do research about computer education in education, search for different activities and apply homework preparation and exam preparation activities. This result is concluded that there should be activities to increase the use of technology in education.

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