Training of future teachers about educational technologies of vocational training

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Abstract

This study aimed at investigating the education of future teachers about the educational technologies of vocational education, and it was designed according to this purpose. In this context, it was aimed to conduct a study with the teachers of the future. The research was created and implemented in the 2021–2022 spring academic year. A total of 172 pre-service teachers voluntarily participated in the research. In the research, vocational education technologies were given with the help of online technology in the form of a 2-week online training to the group participating in the study. In order to collect data in the study, the 'Vocational Education and Technology' data collection tool, which was developed by the researchers and whose validity and reliability were obtained, was used. The data collection tool used in the research was delivered to the people participating in the research with the Google survey method and collected. The analysis of the data was made by using the Statistical Package for the Social Sciences programme, frequency analysis and *t*-test; the results are added to the research in the presence of tables. As a result of the research, it is seen that the teachers of the future will prefer technology for vocational education and use it in their professional life to achieve positive results.

Keywords: Teachers of the future, vocational education, online and distance education, technology;

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1. Introduction

Vocational education, technology and personal development as a performance upgrade takes place with the creation of a platform for the facilitation of learning and technological materials and time, generated by the preferred methods of research and studies (Adesuwa, 2021). It is thought that technology is being renewed every day, that it is necessary to respond to the needs of society and that the educational technologies transferred to students should be preferred and used effectively today (Bello et al., 2020). Differences in vocational education technologies may occur in the technological environment in education, affecting students in the direction of gaining skills, transferring student power with the qualities required by the technological environment and taking advantage of technological opportunities (Karaca, 2020). It is known that educators, who are in educational administrations where developments are sustainable, and stakeholders, who are actively involved in the process, such as students and administrators, should have certain qualifications for educational technologies (Bochkareva et al., 2020). But the qualities of the developing society, along with the basic information for the development and use of educational technology as students expect from them for the use of more efficient technology in education is thought to be time-consuming (Khamroevich, 2021). Factors needed to prepare future teachers for vocational education technologies developed within the context of education and educational technology that is used by most schools have adopted this method is based on the adaptation in the course of educators (Melnychuk et al., 2019).

It is known that the role of vocational education organisations in the development of student situations is very influential. Through training activities, it is ensured that human resources can develop themselves more efficiently and effectively (Bashirova & Sattarova, 2018). Currently, with the development of vocational education technologies, it is possible to benefit from educational situations in a simpler way. Information can be accessed more easily, and this situation gives the student the opportunity to access the information at any time and interpret the information in a better way. In short, the concept of distance education brings many conveniences in education with the development of communication technologies (Abdigapbarova & Zhiyenbayeva, 2022). The hours of realisation of the training, the choice of the training place and the methods and tools can be determined flexibly by the trainee. In addition to these, it is known that the choice of time and place for training and the concept of simplicity, such as tracking changes and advantages, in addition to factors such as the need for fast employees of the educational infrastructure and basic qualifications are also necessary. These trainings vary and may have the form of vocational education, technology-assisted education, online education and e-learning (Vaganova et al., 2020).

In the research, it is among the plans to create activities in online education that will become an application for future teachers and to decipher the transfer of vocational education technologies for future educators and teachers, and the research will continue and be patterned accordingly.

1.1. Related studies

Azimova's (2022) research aimed to determine a number of leading organisations in the inclusion of new pedagogical technologies in the process; and as a result, it is seen that in the last 5 years, based on the support and encouragement of the organisations mentioned in her research, she reached the conclusion that vocational education of technology is beneficial.

Huang et al. (2022) investigated how it is very important to help students fully understand the context and problem-solving procedure in the workplace in vocational education programmes and how they can be helped on this issue. It is seen that they help and that vocational education technologies have positive results, as well as help them to apply to solve problems.

Nazaretsky et al. (2022) aimed to conduct a research on the trust and attitudes of K–12 teachers towards the use and adoption of vocational education technology in their study; as a result, they concluded that future students, who aim to increase teachers' confidence in vocational education technologies, increase the use of technology.

It is seen that vocational education technology and pre-service teachers' use of technology is important in the studies shown and interpreted in related studies, and that these studies are applied to future teachers and students because they gain internally in their education. In this context, it can be said that the same factor is expected from this research.

1.2. The purpose of the study

This study aimed to investigate the education of future teachers about the educational technologies of vocational education and the answers to the following questions were sought to determine the general purpose:

1. What is the technology usage status of the participant group included in the research?

2. What is the level of allocating time for vocational education technologies of the participant group included in the research?

3. What is the purpose of using vocational education technology in daily life for the participant group included in the research?

4. Is there a significant difference between vocational education technologies according to the gender variable of the participant group included in the research?

5. What are the post-study training views of the participant group included in the study?

2. Method

The method section should be well prepared and chosen in order to reveal a situation and reach a definite answer. In this section, the type and source of the data in the research, the data collection tool and the information of the statistics used in the research are included and arranged.

2.1. Research model

It is seen that the quantitative research model is used to collect data; the people who conducted the study at the quantitative research stage present results expressed by numbers from a sample representing the universe related to the relevant topic. An in-depth analysis is not carried out in quantitative research. It deals with explanations made as a result of numerical data. Some methods are applied when conducting quantitative research. Let us examine these methods (Uzunboylu & Özmen, 2021). In this sense, the study aimed to investigate the education of future teachers about the educational technologies of vocational education and was patterned on the creation of a suitable environment for the use of certain situations.

2.2. Working group/participants

When the working group part is discussed, it is seen that the period is applied in the 2021–2022 spring academic year; it is seen that the people who will be transferred to the data collection tool of the research consisting of 172 participants who continue their studies in Kazakhstan. The group of participants participating in the research are taking part in the activity of the study created through live lessons.

2.2.1. Gender

In this section, the differences of the participant group participating in the study according to their gender are given in Table 1.

Table 1. Distribution of the participants participating in the study according to the gender variable

Gender	Male		Female	
	F	%	F	%
Variable	87	50.58	85	49.42

The gender values of the participant group included in the study are given in Table 1 and it is seen that the numerical values are included. It is seen that 50.58% (87 people) of them are male, while 49.42% (85 people) are female. These findings reflect the actual gender distribution.

2.2.2. Technology use cases of the participant group participating in the research

Since most of the research focuses on the development of technology and vocational education technologies for future teachers, the participants in the study were given activities related to technology and asked to use these activities during the day; the values are given in Table 2.

Table 2. Technology use cases of the participant group participating in the research

Technology use cases	1 hour		2 hours		3 hours or more	
	F	%	F	%	F	%
Variable	24	13.95	61	35.47	87	50.58

Activities for the provision of vocational education in the state of research on the study participants' technology use cases were examined and detailed information is added to Table 2. It was observed that 13.95% (24 people) expressed using it for 1 hour, 35.47% (61 people) expressed using it for 2 hours and 50.58% (87 people) expressed using it for over 3 hours. The majority of the participants prefer to use technology for 3 hours and above.

2.2.3. The time allocation to vocational education technologies of the participant group included in the study

In this section, the information status of the participants included in the research on vocational education technologies and time allocation are investigated and examined. Detailed information is given in Table 3.

Table 3. Vocational education technologies of the participants included in the research allocate time

Vocational education technologies	1 hour		2 hours		3 hours or more	
	F	%	F	%	F	%
Variable	14	8.14	62	36.05	96	55.81

When Table 3 is examined, the time allocation for vocational training technologies of the participants has been investigated and the relevant information is added. 8.14% (14 people) responded that they devote 1 hour, 36.05% (62 people) responded that they devote 2 hours and 55.81% (96 people) responded that they devote 3 hours or more. In this context, it is thought that the group of participants in the study of vocational education technologies prefer 3 hours and above as it will provide them with benefits.

2.2.4. Age status

In this section, it is seen that the numerical values of the participant group are included according to the age data in Table 4.

Table 4. Distribution of the participants included in the study according to their age status

Age	18–20		21–23		24 and over	
	F	%	F	%	F	%
Variable	118	68.60	48	27.91	6	3.49

When Table 4 is examined, it is seen that the distribution of the participant group included in the research are according to their age status. In this context, it is seen that 68.60% (118 people) are between the ages of 18 and 20, 27.91% (48 people) are between the ages of 21 and 23 and 3.49% (6 people) are 24 and above. These findings reflect the actual distribution.

2.3. Data collection tools

It is known that the data collection tool, which is given comprehensively in the study, is aimed at an event and a purpose, as well as solving problems. Here, it is seen that information about the data collection tool is included and given. The data collection tool, on the other hand, was specifically developed by the people who created the problem situation of the research and examined by experts and simplified by removing the unsuitable items from the research. It is seen that the personal information form called 'vocational education and technology' measurement tool, which was applied to the participants included in the research and created by the researchers, was used. The content validity of the developed measurement tool was examined by four experts with the title

of professors working on vocational education technologies and technology education. Unnecessary items were removed from the measurement tool and it was simplified and rearranged.

1. Personal information form (demographic data): In the personal information form, Information such as gender, age, technology use and vocational education technologies knowledge status are included.

2. Vocational education and technology data collection tool: A 5-point Likert-type data collection tool was prepared in order to establish some values in the participant group. 17 items of the measuring tool consisting of 22 items in total were used and 5 items were removed from the measuring tool, thanks to the experts' opinions. The opinions of the participant group from two factorial dimensions, such as 'vocational education' and 'technology', were consulted. The Cronbach alpha reliability coefficient of the measurement tool as a whole was calculated as 0.86. The measuring tool was in the range of 'strongly disagree' (1), 'disagree' (2), 'undecided' (3), 'agree' (4) and 'strongly agree' (5). The measurement tool was also collected from the participant group in the form of an online environment.

2.4. Application

Teacher candidates in the study for the steady state to occur and to occur in some cases, the application size has been transferred to the participants prepared and when considering the size of the application will be given information about the event, which will be put forth some information as it is seen that in this section the frequencies of the application are given, and the researchers continue their studies at various universities in Kazakhstan, with the participation of 172 teacher candidates. Google Backes created using the application programme through the creation of live events and distance education vocational education and technology information technology activities, such as information which is transferred to the Google group by the application programme and this live event is organised by experts in the field of environment the activity of research is the part of the application. When it is over to the group that are included in the research and technology activities on technologies in vocational education group is established. Most of the education institutions and organisations are distributed through Google preferred and designated in Section 4 of the application programme up to 50 participants will be limited to be distributed to each section. 15 minutes of activity for each activity and 25 minutes for questions and answers, with a total time of 40 minutes, was spent for each live event using smart devices by all persons who participated in the research, as they were expected to attend the training with the microphone. The data collection tool applied to the people participating in the research was collected through Google questionnaire and encoded in the calculation programmes environment and transferred to the Statistical Package for the Social Sciences programme.

2.5. Analysis of the data

The data in the analysis part of the research and the statistical data obtained were analysed by frequency (*F*), percentage (%), average (*M*), standard deviation (SD) and *t*-test, using the statistical programme. Numerical values are given in the tables accompanied by comments in the Findings section.

3. Findings

In this section, the findings related to vocational education technologies of the participants participating in the study are included. Each finding of the research is added to tables in this section and presented with comments.

3.1. Purpose of vocational education technology in daily life of the participant group included in the research

In this section, the purpose of using vocational education technology in daily life of the participant group included in the problem situation was investigated and detailed information is given in Table 5.

Table 5. Purpose of use of vocational education technology in daily life by the participant group included in the research

Variable		F	%
Vocational education technology use purposes	Professional advantage and renewal	89	51.74
	Being a better trainer and innovator	79	45.93
	Other	4	2.33
	Total	172	100

When Table 5 is examined, the usage purposes of vocational education technologies of the participant group participating in the research are investigated according to the problem situation of the research and it was seen that the relevant information is added to the table. 45.93% (79 people) stated that they wanted to be a better trainer and provide innovation and 2.33% (4 people) chose the other field. In this context, according to the problem situation of the research, it is seen that most people tend to the problem situation and prefer and use it on gaining advantage and renewal in the professional dimension.

3.2. Situations between vocational education technology by gender variable of the participant group included in the research

In this section, the status of the participant group included in the research according to the gender variable and detailed information about vocational education technology are given in Table 6.

Table 6. Situations between vocational education technology by gender variable of the participant group included in the research

	Gender	N	M	SD	Df	t	p
Vocational education	Male	87	4.19	0.21	172	0.272	0.328

technology situations	Female	85	4.15	0.25	

When Table 6 is examined, the vocational education and technology statuses of the participant group included in the study were examined and it was seen that there was no significant difference according to the gender criteria (Df (172) = 0.328, *p* < 0.05). When the vocational education technology status of the participant groups included in the research is examined, it is seen that the male participant group has an average score of *M* = 4.19, while the female participant group had an average score of *M* = 4.15. In this context, it can be said in the findings part of the research that the occupational technology point average of the male participants included in this study is higher than the occupational technology points of the female participants, and that it is also higher by the value of two.

3.3. Post-study training views of the participant group included in the study

In this section, the post-study training views of the participant group included in the study are examined and the analysed values are added to Table 7.

Table 7. Post-study training of the participant group included in the study

No	Ingredients	*M*	SD
1	I felt and found my own health better in the vocational training technologies workshop.	4.32	0.52
2	During my teaching period, my self-confidence increased with vocational education technology.	4.39	0.49
3	I realiʂed my emotional personality with vocational education technology.	4.38	0.47
4	I think I have reduced my stressful classroom life with vocational education technology.	4.41	0.52
5	Vocational education technology made me feel more social and more qualified.	4.38	0.52
6	I saw that I was more successful in cognitive areas thanks to vocational education and technology.	4.36	0.54
7	Thanks to technology, I can express vocational education very easily.	4.34	0.57
8	With the help of technology, I can watch the events and workshops in the field of vocational education over and over again.	4.52	0.49
9	I want to use these activities and Synchronous course records in my different trainings.	4.41	0.52
10	It's a great feeling to join the study whenever I want and from wherever I want.	4.47	0.51
11	Vocational education gives me the opportunity to do it again in my field during the day with technology.	4.36	0.53
12	Online training of vocational training methods and activities The trainings I receive in the classes enable me to improve myself.	4.46	0.52

13	Although I received vocational education and technology training, my old habits have changed	4.38	0.54
14	I take more responsibility to be more successful in vocational training	4.34	0.52
15	Realising the activities one-on-one helped my future students improve my behaviour.	4.45	0.52
16	I look forward to seeing the progress in my students with vocational education technologies.	4.46	0.48
17	With the vocational education technology method, I can easily get used to any idea given to me.	4.38	0.38
	Grand total	4.40	0.50

As seen in Table 7, it is seen that the findings about vocational education technologies after the study of the participant group included in the study are given. It is seen that there is a more productive and higher difference in vocational education technologies scores than after the study. Although it is seen that a significant value is one in all statements, it is seen that one of the most prominent statements of the participant groups participating in the research is 'With the help of technology, I can watch the activities and workshops in the field of vocational education over and over again' (*M* = 4.52). In addition, it is seen that one of the most prominent expressions of the participant groups who were included in the research again was 'It is a great feeling to participate in the study whenever I want and wherever I want' (*M* = 4.47). In addition, it is seen that 'Performing the activities one-on-one has improved my behaviour for my future students' (*M* = 4.45) is also among the statements, followed by 'Online education of vocational education methods and activities, the training I have received in the lessons allows me to improve myself' (*M* = 4.46).

Although positive results were seen in each item of the research, among the opinions of the participant group participating in the research, it is seen that 'I want to use these activities and synchronous course records in my different trainings' had a score of *M* = 4.41. Another opinion of the people participating in the research was 'I have reduced my stressful classroom life with vocational education technology. I think', with a score of *M* = 4.41. In addition to this, it is seen that one of the most prominent expressions of the people participating in the research, 'I can easily get used to any idea given to me with the vocational education technology method', had a score of *M* = 4.38. It is seen in Table 7 that the ideas of occupational technology situations had developed positively.

4. Discussion

Orishev and Burkhonov (2021) in the year of the worldview of the teacher in the work they have done and thinking, the development of professional competencies of the profession, a profession the logic of attitudes, in many ways, sought adequate the formation of their profession; as a result of technological education of future teachers professional skills and competences, technological education for the implementation of scientific ideas, as well as results that are helpful in bringing clarity to the education system have reached this value. When combined with the results of the research of the participating group of the study, high results have been achieved. It is seen that use technology out of the situation, in this context, it can be said that the results of the research based on a new generation of technology benefited both educators and future teachers.

Papadakis et al. (2021), in their preschool classes, researched the experience in the education of young children that were intended to be recycled; as a result, educational technology continuously evolves as a continuous interest in the use of educational robotics was noted towards technology educators' knowledge, attitudes and opinions of technology to be adopted at an early age how teachers' perceptions, attitudes and technological competencies have reached high results. In this context, this value when combined with the results of the research reached the conclusion that the views of teacher candidates on the professional high technology, while have expressed that they are happy when they use this technology. In this context, soylenbilir technology vocational education benefits both.

Meirovitz et al. (2022) in the year the work they have done on English-as-a-foreign-language teachers and COVID-19, and while looking to the future during the necessary knowledge about how specific technologies used for distance education, aimed to investigate whether they are sure that they have; as a result, the lower from the use of digital tools in research the information about teachers, teaching support services they achieved benefited from the technological, new pedagogical–technological and digital learning methods to increase teacher awareness of the need for teacher education programmes and teachers on a personal basis, gaining competence to adapt to new digital technologies in their work emphasised the importance of encouraging. In this context, when this value is combined with the results of the research, it is seen that the results of the participants follow and use the Google Meet application in online education technology very well.

In this context, this research is given in the discussion section with the values obtained from the studies as positive if we consider future teacher candidates' professional training combined with education and technology education technologies that are used for the formation of a fundamental factor can be said to be located between the expectations of this study, as mentioned in the creation of educational technology and applied research in vocational education the formation of a better life may vary depending on the model and audience. In this context, the conduct of this research at another time and place is among the expectations of the research.

5. Conclusion

When the results part of the research is considered, it is seen that the people included in the research came first. It is seen that 172 people participated in the research and this value is important for the research. Another value of research in vocational education discussed the state of research on technologies work and the provision of activities for participants' technology use cases was examined; as a result, the conclusion reached up to 3 hours and above. Another value of the study is that the situations of allocating time for vocational education technologies that will be applied to the group of participants included in the study were investigated; as a result, it seems that they prefer and use them for 3 hours and more.

Another value of research of the participating groups participating in the survey vocational education research problem and state the purpose of the use of technologies researched groups of participants surveyed in light of relevant information according to state and professional gain an advantage in the dimension of the problem has been moved to the preferred outcome is reached. It is seen that on the renovation. When another result of the research was taken into consideration, the vocational education technology status of the participant groups included in the study was examined and it was concluded that there was no significant difference according to the gender

criterion. In addition, it can be said that the average vocational technology score of the male participants included in this study is higher than the vocational technology scores of the female participants and is also two values higher than the results of the research. When the final value of the research is considered, it is seen that the results of the participant group included in the research about vocational education technologies are given after the study, it is seen that the scores of vocational education technologies are more efficient and there is a high difference compared to the study. Although it is seen that there is a significant value in all the expressions of the participating groups participating in the survey with the help of technology from the most obvious expression in the field of vocational training activities, workshops that they could watch over what they meant when they want, where they want to work to join a great feeling it is one of the activities to be performed student future improvement they provide in their behaviour, they have expressed that they want to use these records in different events and synchronous learning trainings. It is seen in the results section that the ideas of the professional technology situations of the people participating in the research have developed positively.

If this research proceeds decisively, it is seen that vocational education technologies provide benefits, as mentioned in the discussion section, and it is among the expectations that this research will be conducted at another place and time.

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