

## Formation of the human potential of students through educational technologies

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### Abstract

It is seen that the study is designed with the aim of creating the human potential of students through educational technologies. The research was carried out with the participation of 128 primary school students continuing their education in primary schools in the Kazakhstan region and the study was carried out in the fall term of 2022–2023 in the quantitative research model. A 3-week training was given to the participants included in the study. The subjects of educational technologies and human potential were conveyed on the participant groups in the research and participation was expected. The data collection tool used in the research was delivered to the participant groups by online method and collected. The analysis of the data was made by using the Statistical Package for the Social Sciences programme, frequency analysis, *t*-test and the results were added to the research in the presence of tables. In the case of the results obtained from the research, it is seen that the use of educational technologies benefits the participant groups in the research and that human potential is formed, thanks to this activity.

Keywords: Educational technologies, human potential, primary school students, distance education;

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## 1. Introduction

Today, students who can acquire increasingly complex knowledge and skills and adapt to the rapid changes in this information and develop are needed. Despite the rapid growth of knowledge, the question of how information technology, including modern devices and innovative technologies, can be used to support and enrich education has led to education and educational technology research in recent years, as education is technology-oriented (Ferdosipour & Musavi, 2022). Educational institutions and organisations, which determine the standards and qualifications to be achieved in education, determine a serious policy to ensure the integration of information technologies into the education process and carry out comprehensive projects in this direction (Andolo-Kathungu, Meresia, & Christine, 2022). In addition, it is thought that the current education programmes are insufficient to meet the various expectations of today's youth, which is called the Z generation (Ebenezer, Sitthiworachart, & Na, 2022). For these reasons, it has become necessary to change the curriculum/environment in order to use innovative technologies. It is predicted that the new generation, known as the digital generation or generation Z, will be different from the previous generations as they were born and raised in the digital age (Schellini & Rahimi, 2022).

Although this generation has been criticised for assuming that they have digital knowledge and skills without the need for additional education, contrary to what is claimed, it is clear that Internet technologies and digital equipment are a part of the daily life of the new generation (Salama & Arab, 2022). For this reason, it is thought that traditional teaching methods and environments will not be enough to attract their attention as in previous generations. The concept of augmented reality, on the other hand, stands out in terms of providing an advantage over traditional methods and technologies in order to attract the attention of the Z generation, and on the other hand, responding to the search for an effective method or a method which is an environment to support and enrich education (Valencia-Robles & García-Laborda, 2022). Augmented reality, which can be defined as the enrichment of the real world with the help of computers, is a relatively new field that can reach more users with the development of technology in recent years. For these reasons, it is important to recognise and use the concept of augmented reality for educational technology experts and educators focused on improving the quality of teaching (Karimzadeh Ghadi, Nemati, Mahmoudi, Badamfiroz, & Ataei, 2022).

Studies on the application of various aspects of educational technologies in education show that the use of educational technologies has a multifaceted positive effect on the academic performance of students (Dadakhon, 2022). According to this, it has been determined that various teaching materials, model-based education and computer materials increase the success of students (Kuimova, Burleigh, Uzunboylu, & Bazhenov, 2022). In educational technology courses, many elements of educational technology are used to adapt the learning environment to the needs of students in a way that will help students acquire knowledge through practical experience, facilitate diversity and access to resources, provide first-hand knowledge, evaluate knowledge and nurture creative personalities who benefit from technology (Caliskan et al., 2022). At the same time, students should use educational technology tools in science lessons, so that they can perceive and interpret events and subjects in a multidimensional way, develop their creativity and maintain their interest in the lesson (Rahmawati, Rosita, & Asbari, 2022). It is known that the aim of this study is to define the benefits of students in this field by designing them to shape the human potential of learners with educational technology.

### *1.1. Related studies*

Yang, Ogata, Matsui, and Chen (2021) discussed the use of augmented reality technologies to evaluate new design methods and tools that can be used to advance augmented reality technologies research, education, policy and practice to improve the human condition. As a result, they have reached the conclusion that augmented educational technologies are a method that means approaching from the perspective of students and gains meaning, taking into account human conditions and contexts in their research.

In their research, Qureshi, Khan, Raza, Imran, and Ismail (2021) digitised the shaping of the overall education landscape around the world, with attention from practitioners, researchers and policymakers for educational improvement. Digital technologies are bringing major changes in education, skills and employment. These changes reflect the technology becoming increasingly central to Education 4.0. Digital technologies go beyond innovative and less traditional teaching and learning techniques through educational collaboration. However, this study aimed to examine research on digital technologies and education, and as a result, they came to the conclusion that their research focuses on the future of education, digital technologies, and also that traditional forms of education can be completely changed.

As a result of the emergence of new technologies, teaching and learning methods have improved dramatically (Alam, 2022). Artificial intelligence applications in educational settings are becoming more and more prominent as a result of the rapid development of artificial intelligence technology in recent years. Adaptive learning, smart campus, teacher evaluation, smart lesson robots and virtual classrooms aimed to investigate the educational artificial intelligence applications examined in this article, and as a result, the possible difficulties that artificial intelligence applications in education may face, examples of technology's potential to help schools improve, and thus educational reforms reached the conclusions that it helps to promote

### *1.2. Purpose of the study*

The research aimed to create and target the human potential of students through educational technologies, and for this purpose, answers were sought for the following questions regarding the determined general purpose:

1. What is the educational technology usage status of the participant group participating in the research?
2. What is the status of the participant group participating in the research to spend time on synchronous educational technologies?
3. What is the purpose of using educational technologies for the participant group participating in the research?
4. Is there a significant difference between educational technology education statuses according to the gender variable of the participant group participating in the research?
5. What are the opinions of the participant group participating in the research on educational technologies after the study?

## **2. Method**

When this part of the study is carefully considered and examined, it is thought that it is necessary to mention what the meaning of the word is first as a method. In this section, the type of research as a method, the source, who are the people who make up the research etc. it is also known as the section where such information is given by taking place.

### 2.1. Research model

It is seen that the research was created and patterned by taking support from the quantitative research model. In this research, the quantitative research method can be defined with the following words, in the quantitative research phase, the researchers present the results expressed by numbers from a sample representing the universe related to the relevant topic (Tenekeci & Uzunboylu, 2020). 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. In this sense, it will be seen that support will be received from this method for establishing relationships with the aim of creating and targeting the human potential of students through educational technologies.

### 2.2. Working group/participants

When considering the study as a semester, it is seen that it was applied in the 2022–2023 fall academic year, and the participant and data part of the study consist of 128 primary school students who make up the future of us in Kazakhstan. The groups of participants participating in the research receive their education through a live lesson.

#### 2.2.1. Gender

In this section, it is seen that the distributions of the participant groups according to their gender and these distribution distinctions are given in Table 1.

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

Gender	Boy		Girl	
	F	%	F	%
Variable	66	51.56	62	48.44

When Table 1 is examined, it is seen that 51.56% (66 people) are male participants, while 48.44% (62 people) are female participants. In the gender section, the findings reflect the actual gender distribution.

#### 2.2.2. Educational technologies use cases of the participant groups participating in the research

In this section, the educational technologies use cases that were aimed to create the problem situation in the research were given to the participants and they were expected to use this training during the day. Detailed usage information is given in Table 2.

Table 2. Educational technologies usage status of the participant groups participating in the research

Education technology Use	1 hour		2 hours		3 hours or more	
	F	%	F	%	F	%
Variable	16	12.50	42	32.81	70	54.69

When the data were analysed by considering the problem situation of the research, applications and activities on educational technologies were given to the primary school students regarding the problem situation of the participant groups and it was expected that the students would participate during the day. In this context, in Table 2, 12.50% (16 people) stated that they used educational technology applications for 1 hour, 32.81% (42 people) stated that they used educational technology applications for 2 hours and 54.69% (70 people) stated that they use educational technology applications for 3 hours or more.

### 2.2.3. Time of the participant groups participating in the research to allocate time to educational technologies given synchronously

In this section, trainings were organised depending on the educational technologies provided synchronously to the participant groups included in the research and the situations regarding the time allocation status were searched and examined according to the daily usage time periods. Detailed information is given in Table 3.

Table 3. Time of allocating time for educational technologies given synchronously by the participant groups participating in the research

Synchronous Educational technologies	1 hour		2 hours		3 hours and above	
	F	%	F	%	F	%
Variable	13	10.16	34	26.56	81	63.28

When Table 3 is examined, it is seen that the use cases that the people participating in the study use on a daily basis synchronously during the day when they devote time to educational technologies have been examined and detailed information has been given in Table 3. In this context, 10.16% (13 people) expressed using synchronous educational technology for 1 hour, 26.56% (34 people) expressed using educational technology for 2 hours and 63.28% (81 people) expressed using educational technology for 3 hours and more. In this context, it is observed that the participants' groups choose and prefer to devote a good amount of time to the educational technologies activities given synchronously within the research for a daily amount of 3 hours or more at most.

### 2.2.4. Class status

In this part of the research, it is seen that the class information of the people who compose the study is included and the class data are examined and tabulated in Table 4.

Table 4. Distribution of the groups of participants participating in the research according to their class status

Class	Fourth grade		Fifth grade	
	<i>F</i>	%	<i>F</i>	%
Variable	59	46.09	69	53.91

When Table 4 is examined, it is seen that the class information of the people who created the study is included. In this context, it is seen that 46.09% (59 people) are in the fourth grade, while 53.91% (69 people) are in the fifth grade. In the class situations section, the findings reflect the actual distribution.

### 2.3. Data collection tools

When the data collection tool part is examined, it is seen that the form developed by the researchers within the framework of some awe was used and benefited from in this study. The created data collection tool was shown to the experts by the people who created the study, and the unsuitable items were removed from the study and simplified and sent to the participant group. It is seen that a personal information form called 'Technology and Human Potential in Education' data collection tool, which was applied to the participants and developed by the researchers, was used.

1. Personal information form (demographic data): In the personal information form, information such as gender, class, use of educational technology activities and the usage environments of allocating time for synchronously created educational technologies are included.

2. Technology and human potential in education data collection tool: When the data collection tool of the research was handled, a 5-point Likert-type data collection tool was prepared in order to obtain information from the participant groups included in the study group. 19 items of the measurement tool consisting of 23 items in total were used and 4 items were removed from the measurement tool, thanks to expert opinion. The opinions of the people who participated in the research were consulted from two factorial dimensions, namely the 'Education' and 'Technology' statuses of the participant groups participating in the research. The Cronbach alpha reliability coefficient of the data collection tool as a whole was calculated as 0.91. The data collection 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 primary school students in the form of an online environment.

### 2.4. Application

Considering the application aspect of the research, it is seen that it was first planned and prepared in relation to the problem situation. First of all, it was aimed to create an environment for obtaining information about educational technologies and preparing an environment for students. For the participants participating in the research, live events were created using the Microsoft Teams videoconferencing programme, and transfers such as events, approaches, use of technology in education, live events times and use cases via distance education were prepared and transferred

with the Microsoft Teams videoconferencing application programme, and this event environment was provided by experts in the field, edited and prepared ‘education technology’, ‘potential human’ etc., to the people who participated in the research within the 3-week training. Information that can be communicated was transferred to the participant groups in the form of a live event and they were expected to participate every week. After the 3-week training, the information form and the data collection tool were collected by the online application method for the participant groups participating in the research, and the data were given in tables in the findings section. The training was distributed as five sections over the Microsoft Teams videoconferencing application programme preferred by most institutions and organisations, and each determined section was distributed over weeks to be limited to a maximum of 30 participants. The measurement tool applied to the people participating in the research was collected by means of an online questionnaire and transferred to the Statistical Package for the Social Sciences programme by coding in the computing software environment.

### 2.5. Analysis of the data

In the analysis part of the data, statistical data obtained from the people participating in the research were analysed in the Statistics programme by using frequency (*f*), percentage (%), mean (*M*), standard deviation (SD) and *t*-test. The numerical values of the data obtained from the programme are given in tables, accompanied by comments in the findings section.

## 3. Findings

In this section, the information of the participants participating in the research, such as the human potential and the use of technology in education, are included in the findings regarding live events.

### 3.1. Purpose of use of educational technologies by the research participant group

In this section, the educational technologies usage purposes of the participant group participating in the research were investigated and detailed information is given in Table 5.

Table 5. Purpose of use of educational technologies by the research participant group

Variable	<i>F</i>	%
Purpose of Use of Educational technologies	Human potential	66 51.56
	Use of technology with interaction	60 46.88
	Other	2 1.56
Total	142	100

When Table 5 is examined, the educational technologies learning objectives of the participant groups included in the study were investigated and it is seen that there is information in the light of the information received. In this context, it is seen that 51.56% (66 people) responded by choosing

the 'Human Potential' option, 46.88% (60 people) chose the 'Use of technology with interaction' option and 1.56% (2 people) appear to select the other area. In this context, according to the problem situation of the research, it can be said based on Table 5 that most segments prefer 'Use of technology with interaction' and 'Human Potential' by concentrating on two options.

### 3.2. Educational technologies education status of the research participant group by gender variable

In this part of the research, the data related to the educational technology education status obtained from the study, the status of the participant group participating in the study according to the gender variable and detailed information are given in Table 6.

Table 6. Educational technologies education status of the research participant group by gender variable

	Gender	N	M	SD	Df	t	p
Educational technologies education situations	Male	66	4.18	0.46	128	0.417	0.522
	Female	62	4.17	0.51			

As can be seen on the findings given in Table 6, the educational technology education levels of the participant groups included in the study were carefully examined according to the gender criteria, and it was seen that there was no significant difference according to the gender criteria in light of the findings [ $Df(128) = 0.522, p < 0.05$ ]. When the educational technologies education levels of the participant groups included in the study are examined, it is seen that the male participant group has an average score in this area ( $M = 4.18$ ), while the female participants have an average score regarding this situation ( $M = 4.17$ ). In this context, it can be said in the findings part of the research that there is no difference between the scores of male participants in this study compared to female participants, and that the two values are higher.

### 3.3. Post-study educational technologies opinions of the participant group participating in the research

In this section, after the training given in the study was completed, the educational technologies opinions of the students participating in the research were applied and it is seen that the detailed information is given in Table 7.

Table 7. Post-study educational technologies views of the participant group participating in the research

Substances	M	S
<b>1. I try hard enough for educational technologies</b>	4.21	0.62
<b>2. I understood that educational technologies teachers can teach with this method.</b>	4.18	0.61
<b>3. Educational technologies, I am aware of the problems that may arise and I approach accordingly.</b>	4.23	0.63
<b>4. I am happy to establish a relationship with educational</b>	4.18	0.66

<b>technologies through primary school education.</b>		
<b>5. I am happy to help my friends in need with Educational Technologies.</b>	4.19	0.59
<b>6. I would be honoured to be in educational technology classes</b>	4.22	0.63
<b>7. Thanks to educational technologies, I see and know myself</b>	4.23	0.57
<b>8. It makes me happy to tell my family and friends about this education I have received.</b>	4.16	0.52
<b>9. I could easily perform activities with my smart device.</b>	4.15	0.54
<b>10. In educational technology classes, I want to know my friends to accept me and I act accordingly</b>	4.24	0.53
<b>11. In educational technology classes, I want to know my friends to accept me and I act accordingly.</b>	4.23	0.51
<b>12. I can imagine myself in educational technology classes and I know that this training will be beneficial for me.</b>	4.26	0.53
<b>13. I think that I can communicate positively with my friends in educational technology classes.</b>	4.19	0.63
<b>14. Educational technologies I am confident in helping with activities that suit their needs.</b>	4.17	0.61
<b>15. I enjoy being with them to participate and assist in educational technology activities.</b>	4.21	0.63
<b>16. I can control undesirable behaviours in educational technology classes and be with my friend with potential difference.</b>	4.16	0.63
<b>17. I would be happy to see educational technologies in my other courses.</b>	4.17	0.67
<b>18. I find every minute I spend on educational technologies useful</b>	4.19	0.63
<b>19. I think that I have information about educational technologies and human potential.</b>	4.16	0.69
<b>Total</b>	4.19	0.60

As can be seen in Table 7, it is seen that the last problem situation question in the study has been examined and investigated and added. In this context, it is seen that the values of the participant groups included in the research are high after the study. Although it is seen that there is a significant value in all the expressions of the participating groups participating in the survey from the most obvious expression 'educational technology classes I can imagine myself in, and this tutorial will be useful for me I know that'  $M = 4.26$ , it is observed that the most obvious also another statement 'I spend every minute I'll find useful for educational technology'  $M = 4.19$ , with an average of is. In addition, another statement in the research is 'I would like to get to know my friends in educational technology classes so that they accept me and I behave accordingly'  $M = 4$ . It is seen that it has an average of 24.

Educational technology research in the subject of positive results in each item although it is seen from the opinions of the students that participated in the research 'to get my friends to accept me in class educational technology and act accordingly, I'd like to know I'  $M = 4.23$  and also other information with our research participants 'educational technology elementary education through

relationship makes me happy'  $M = 4.18$ . It is seen that the average value is  $M = 4.19$ . In this context, it is seen in Table 7 that the ideas of the people participating in the research have developed positively with the education of educational technologies.

#### **4. Discussion**

Podra, Kurii, Alkema, Levkiv, and Dorosh (2020) aimed to make a detailed analysis of the development and application of human potential, the emergence of the migration cycle and the transformation of human potential into capital that can take socio-economic and individual effects, and as a result, they can be used as a basis for scientific studies and education of human potential, which reached the conclusions that they gained meaning with their technology. When the results of this value research are examined, it is seen that the importance of educational technologies on primary school students is high and they reach the results that make sense.

In his study in Engeness (2021), he aimed to argue that Galperin's pedagogical theory, which stems from cultural historical traditions, can offer an approach that outlines the pedagogical design principles of digital environments for teachers to develop their digital identities and strengthen students' learning and development as learners. By participating in the design of learning and digital environments based on the proposed design principles, it is seen that the teacher feels productive in information applications in order to nurture the digital identity and improve the learning capacity of the students, and that this method provides benefits and benefits to the students in the research. In this context, this value is combined with the results of the research. It is observed that the students show positive results regarding the educational technology applications, and the educational technology applications It is seen that the results were obtained when it was used on the amount of t.

In their work, Olimov and Mamurova (2022) stated that modern information technology teaching is not the technology of the student, but the technology of the teacher first of all. The student does not learn modern information technology, but uses its products as a technical teaching tool. The teacher prepares for the lesson using modern technologies, organises the lesson, monitors the knowledge of the students, and it is seen that their task is to develop the highest level of computerisation of information technology as an improvement to the educational process in order to improve the content of education. In this context, when this research is combined with the results of the study, it is seen that the opinions of educational technologies in the research are high and the students in the research develop by giving meaning to their lives with these activities.

It is essential that each study mentioned in this section benefits the weighing part and the field over the years. In this research, it is seen that the people who created the research changed the target with this research, while it took its place by benefiting both students and educators with the same value. However, in addition to each positive value, when the universe of the researcher is considered, it is among the expectation of the research to conduct the study in a different place, at a different time.

#### **5. Conclusion**

When an in-depth analysis is made in the results section of the research, it is seen that the numerical values that make up the participant groups are in the first place. In this context, it is seen that 128 primary school students and people voluntarily participated in this research. Another result

of the research is that the participant groups' repetition and use of educational technologies application activities in relation to the problem situation of the research were examined and as a result, it was concluded that they were used for a maximum of 3 hours or more. Another value of the research is that the time periods were examined during the synchronous use of educational technologies and live activity and time allocation during the day, and this value was applied to strengthen the dimension of human potential and educational technologies, and as a result, it was concluded that they allocate time to live synchronous activities of 3 hours or more. In this context, it is seen that high values of this dimension have been reached in terms of allocating a good time to educational technologies and human potential activities and communicating within the research. It is thought that these values of the research will have a positive effect on the communication of primary school students participating in the research.

Another value of the research is that the educational technologies usage purposes of the participant groups participating in the research were investigated according to the problem situation of the research, and it was seen that the usage purposes were directed to the 'use of technology with interaction' and 'human potential' dimensions according to the problem situation of the research and a value suitable for the problem situation of the study was reached. In addition to all these positive values in the research, another result is that the educational technology education levels of the groups participating in the research were examined according to the concept of gender, and there was no significant difference according to the gender criterion, and there was no difference between the scores of the male participants compared to the female participants in the study, and it also showed a high result of two values had been reached. Finally, taking into account the values of the research, the findings of the participant group, who participated in the research after the educational technologies education, were examined and the post-study results were found to be high. It is seen that they contribute to the statement 'I find it useful' and that they want to get to know their friends in the educational technology classes. Also, it is seen that establishing a relationship with educational technologies through primary school education makes them happy and the results of the educational technology education of the people participating in the research have improved positively.

In the case of the results obtained from the research, it is seen that the use of educational technologies benefits the participant groups in the research and that human potential is formed thanks to this activity.

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