

Interactive educational technologies as a factor in the development of the subjectivity of university students

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Abstract

The purpose of this research is to evaluate the use of interactive educational technologies as a factor in the development of university students' characteristics with student views. The study group of the research included 25 students studying at various universities in Almaty, Kazakhstan, in the 2021–2022 academic year. This research was designed in accordance with the phenomenological method, one of the qualitative research methods. Research data were collected through a semi-structured interview form created by the researchers. As a result, it has been revealed that university students tend to use interactive educational technologies. Students stated the positive effects of interactive educational technologies on improving their characteristics and in terms of learning skills, technology skills, cognitive skills, self-skills and social skills. In addition, university students stated unwillingness to learn, technology addiction and cognitive difficulties as the negative effects of interactive educational technologies on student characteristics. In universities, activities should be carried out to improve the level of students' use of interactive educational technologies.

Keywords: Interactive educational technology, student characteristics, student opinions;

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1. Introduction

In today's understanding of education, the need to reach more students in a more efficient way has arisen. In addition, while doing this, the tendency to benefit from educational opportunities independent of time and place has increased. Increasing the efficiency of education is parallel to the development in technology (Georgina & Hosford, 2009). It has also become an important factor for teachers and students, who are important elements of education, to acquire the knowledge and skills they need through their own efforts. In the understanding of education in accordance with the requirements of the age, the technological opportunities needed to realise more efficient and faster learning have become indispensable for students, teachers and educational environments. In this renewal process, the perspective of interactive education technologies has become more and more important.

1.1. Theoretical and conceptual framework

Interaction, which is defined as the process of mutual influence, is seen as a necessity in many learning and teaching theories and also as a critical element of good learning. Muirhead and Juwah (2004) defined interaction as a simultaneous and discrete dialogue, discourse or events that occur between people as a response to questions, responses or technology.

It is possible to say that there are three basic interactions in technology-supported education environments. They are student–content, student–teacher and student–student interactions. Student–content interaction is the interaction between the student and the subject of study; in other words, between the student and the content. Student–teacher interaction is the interaction between the student and the experts who teach the distance education course. Finally, student–student interaction is the interaction of students with each other individually or as a group, with or without a teacher (Keegan, 2005).

The rapid change in technology-supported education in recent years has changed the direction of learning activities. Education policies of developed and developing countries around the world point to technology support for increasing the quality of education. Conscious involvement of educational technologies is of great importance in terms of both raising individuals who have the needs of the information age and in improving the learning–teacher processes (Hew & Brush, 2007). It is possible to say that many developed countries handle educational technologies with an interdisciplinary approach and tend to use educational technologies more and more every day in teaching field courses (Korte & Hüsing, 2006).

Research on the effects of the use of educational technologies in educational practices with different dimensions reveals the positive effects of the use of educational technologies in education on student success. In this direction, it is seen that the effective use of teaching materials in computer-assisted technology-based learning environments also affects student success positively (Kiboss, 2002). With the compulsory use of digital technologies in education, especially during the COVID-19 pandemic period, students, teachers, families and educational institutions and societies have experienced the impact of educational technologies on educational outcomes in the most effective way (Mukhtarov & Vedyushkina, 2021). Virtual classrooms, one of the distance education applications in which interactive education technologies are used most effectively, have become applicable at all levels of education, especially during the pandemic period. Education given at the higher education level has also changed direction with virtual classroom applications. Virtual classroom applications reveal the effort to create an ideal environment for learning and teaching practices by combining mobile devices, technological tools and the development speed of technology (McSweeney, 2010). With this new transformation in education, face-to-face lessons in traditional classrooms have been replaced by an interactive educational technologies platform with new methods and applications. In these platforms, training was carried out in different environments for simultaneous (synchronous) lessons and in different environments at different times for asynchronous (asynchronous) lessons through virtual classroom applications (Alshahrani, Ahmed, &

Ward, 2017). From this point of view, it is possible to say that interactive education technologies are an indispensable tool used to increase the efficiency, continuity and quality of the education process.

1.2. Related research

When the literature on the use of interactive educational technologies in education is explored, it is seen that there are studies on virtual classroom applications. It is seen that especially these studies focus on the effect of interactive educational technologies on course success in national and international dimensions. In addition, it is seen that researches focusing on the effects of interactive educational technologies on the attitude to learning, the effect on the course participation process, the importance of developing virtual classroom material and the importance of interaction in the virtual classroom (Martin, Parker, & Deale, 2021). In their study, De Westelinck, Valcke, De Craene and Kirschner (2005) revealed that interactive educational technologies make knowledge permanent. Rovai and Barnum (2003) tried to reveal the quality of web-based interactive education. As a result, it has been revealed that the motivation of the students, their past experiences, the quality of the education provided and the students' tendency towards technology-based education are the factors that affect the quality of interactive education. Young and Norgard (2006), on the other hand, emphasised the importance of interaction between student–teacher and student–student in their research in terms of increasing the quality of education.

Many issues such as how to use educational technologies by students, to what extent technology will be independent of and connected with content in the integration of technology into education and whether technology can be handled as a stand-alone tool have become important fields for researchers after technology and education meet in the same environment. The information obtained as a result of the researches revealed the effect of successful technology integration on student success (Barron, Kemker, Harmes, & Kalaydjian, 2003; Dionys, 2012; Sanchez, 2011). Devedzic and Devedzic (2019) emphasised the importance of not only technology-assisted education but also technology-assisted assessment in their research. Keser and Semerci (2019), on the other hand, evaluated the effects of technology trends on learning and teaching processes, taking into account the changing educational paradigms and educational approaches. Liao (2007) in his research conducted in Taiwan revealed that the effect of interactive education technologies on student achievement is more effective than traditional methods.

In their study, Masalimova et al. (2021) discussed the transformations in the educational approach of universities during the COVID-19 pandemic from the perspective of interactive educational technologies. As a result, the positive effects of interactive educational technologies on learning activities were revealed. Markoska (2021), on the other hand, aimed to reveal the acceptance level of university students in interactive educational technologies. As a result, it was emphasised that the use of interactive educational technologies by university students increases student success and the necessity of using them in wider areas.

1.3. Purpose of the research

The purpose of this research is to evaluate the use of interactive educational technologies as a factor in the development of university students' characteristics with student views. In line with this purpose, answers are sought for the following sub-objectives:

1. What are the tendencies of university students to use interactive educational technologies?
2. What are the opinions of university students about the positive effects of interactive educational technologies on the development of students' characteristics?
3. What are the opinions of university students about the negative effects of interactive educational technologies on the development of students' characteristics?

2. Method and materials

This section contains information about the method, technique, data collection tools, participant group and data analysis of the research.

2.1. Research method

This research was designed in accordance with the phenomenological method, one of the qualitative research methods. Qualitative research can typically focus on a single case, purposefully selected, to allow for a deeper understanding and examination of a phenomenon on relatively small samples (Patton, 2002). Phenomenological studies are concerned with how people experience the world at a particular time and in a particular context. In other words, phenomenological studies aim to describe, understand and interpret the structure of phenomena that occur in consciousness as a result of the interaction of the individual with the world (Bloor & Wood, 2006). The rationale for using the phenomenology pattern in the research can be explained as follows: The focus of the research is how university students make sense of their experiences with the technologies of interactive education. In this focus, the role of interactive educational technologies in the development of students' characteristics is examined in depth.

2.2. Participants

The study group of the research was tried to be formed in such a size that an in-depth analysis of the answers to be taken from the questions in the semi-structured interview form prepared in accordance with the phenomenological method could be made. Some authors also gave the number of samples according to the research design. For example, Creswell (2007) recommends 3–5 participants for case study, 10 participants for phenomenological research and 15–20 participants for grounded theory (Creswell & Poth, 2016). In this direction, it was deemed appropriate to form the study group of the research with 25 students. The study group of the research consists of students who are studying at various universities in Almaty, Kazakhstan, in the 2021–2022 academic year and who voluntarily agreed to participate in the research. Of the university students participating in the research, 6 are studying in the Faculty of Education, 11 in the Faculty of Engineering and 7 at the Faculty of Health Sciences. 2 students are in the first year, 4 students are in the second year, 10 students are in the third year and 9 students are in the fourth year. Of the university students participating in the research, 11 are male and 14 are female.

2.3. Data collection tools

Research data were collected through a semi-structured interview form created by the researchers. In this direction, interviews were held with the study group of the research. The interviews were conducted by determining the appropriate place and time for the university students participating in the research. The semi-structured interview form prepared to collect the research data is given in Table 1.

Table 1. Semi-structured interview form

Demographic information				
Your gender:	Female ()		Male ()	
Class You're Studying:	1. Class ()	2. Class ()	3. Class ()	4. Class ()
Faculty where you studied:				
Questions on Interactive Educational Technologies				
What is your tendency to use interactive educational technologies?				
What are your views on the positive effects of interactive educational technologies on the development of students' characteristics?				

What are your views on the negative effects of interactive educational technologies on the development of students' characteristics?

The semi-structured interview form given in Table 1 was presented to three experts during the preparation phase for their opinions. The semi-structured interview form created was then applied to four university students and it was determined that the questions in the form were clear and understandable.

2.4. Data collection process

In the process of collecting research data, one-on-one interviews were conducted with university students. The interviews were held in the university, in an area where a quiet environment was provided where the interviews could be conducted. During the interviews, the students were given in-depth information about the content and ethical principles of the research. Permission was then requested to record the interviews. Each interview lasted for approximately 45 minutes. The process of collecting the data by completing the interviews with all students took an average of 4 weeks.

2.5. Data collection analysis

The research data were converted into findings by the content analysis method. Content analysis requires a more detailed examination of the collected data and reaching the concepts, categories and themes that explain this data. Content analysis focuses on collected data; codes are extracted from the events and facts that are frequently repeated in the data set or which the participant emphasises heavily on. One can go to categories from codes and to themes from categories. In short, data (codes) that are found to be similar and related to each other are interpreted by bringing them together within the framework of certain concepts (categories) and themes. In content analysis, the content of participants' views is systematically separated (Bengtsson, 2016). The findings obtained from the interviews with the university students participating in the research were obtained by the analysis of the audio recordings. Student responses recorded during the interviews were transferred to semi-structured interview forms by the researchers. Transferred responses were compared by cross-checking by two researchers. Student responses transferred to the semi-structured interview form were categorised by content analysis method in order to turn them into findings. The findings are given in tables with frequency and percentage calculations. In addition, in each table, sample answers are given by keeping the information of the students hidden and coding (S1, S2, S3 ...).

3. Results

In this section, the opinions of university students participating in the research on the use of interactive educational technologies as a factor in the development of their characteristics are given.

In Table 2, the tendencies of university students participating in the research to use interactive education technologies are evaluated.

Table 2. Teachers' tendencies to use interactive educational technologies

Categories	Theme	Student Feedback	F	%
I tend to use interactive educational	Tendency to use in terms of effect on learning	S2: I think interactive educational technologies have a positive effect on learning. It has a feature that reinforces learning and makes it permanent.		
		S13: In my opinion, interaction and technology in education are among the factors that positively affect		

		<i>learning.</i>	15	60
I tend to use interactive educational technologies partially	Tendency to use in terms of the development of student characteristics	<i>S4: My tendency to use interactive educational technologies mostly stems from my belief that new technologies improve me.</i>	6	24
		<i>S20: I find it very positive and have a tendency to use it. I find it very important for personal development.</i>		
	The tendency to use it partially in terms of its effect on learning	<i>S1: I'm partial to using it. Using educational technologies too much can cause laziness in learning.</i>		
		<i>S7: Using educational technologies in a way that does not replace learning in the classroom is partially beneficial to learning.</i>		
	Partial use tendency in terms of the development of student characteristics	<i>S11: Interactive educational technologies need to be used to a certain extent. Too much can cause technology addiction.</i>		
		<i>S25: I believe that the combination of formal education and interactive learning technologies is more efficient in terms of the personal development of the student.</i>		
I do not tend to use interactive educational technologies	Tendency not to use in terms of its effect on learning	<i>S14: I do not find it as efficient as in school, using interactive educational technologies in education.</i>	4	16
		<i>S18: I haven't gotten used to learning through technology yet. I am not inclined to use it.</i>		
	Tendency not to use in terms of the development of student characteristics	<i>S22: I think it negatively affects student motivation. I am reluctant. I can't learn.</i>		
		<i>S23: It lowers motivation. I think it makes the student lazy. I do not support the use of interactive educational technologies in education.</i>		

In Table 2, the tendencies of university students participating in the research to use interactive education technologies are evaluated. The students participating in the research evaluated their tendency to use interactive educational technologies in two categories: the tendency to use it in terms of its effect on learning and the tendency to use it in terms of the development of student characteristics. 60% of the university students participating in the research stated that they tend to use interactive educational technologies. 24% of the students stated that they tend to use interactive educational technologies partially. 16% of the students stated that they tend not to use interactive educational technologies.

In Table 3, the opinions of university students participating in the research on the positive effects of interactive educational technologies on the development of students' characteristics are evaluated.

Table 3. Students' views on the positive effects of interactive educational technologies on the development of students' characteristics

Category	Theme	F	%
Learning skills	Increases the love of learning	21	84
	Increases effectiveness in learning		
	Have motivation to learn		
Technology skills	Gains the ability to use technology effectively	17	68
	Technology gains awareness		
	Approaches technology from different angles		
	Gains the ability to blend digital and real environment		
Cognitive skills	Gains the ability to be solution oriented	12	48
	Gains the ability to be creative and open to innovation		
	Acquire critical thinking and problem-solving skills		
Core skills	Increases self-confidence	9	36
	Realises what they can do		
	Manages and evaluates self		
Social skills	Gains communication skills	3	12
	Will be open to sharing		

In Table 3, it is seen that university students participating in the research evaluated the positive effects of interactive education technologies on the development of students in five categories. These categories are learning skills, technology skills, cognitive skills, self-skills and social skills. 84% of the students stated that they found interactive educational technologies useful in terms of gaining learning skills, 68% technology skills and 48% cognitive skills. 36% of the students stated that interactive education technologies had a positive effect in terms of gaining self-skills and 12% social skills.

In Table 4, the opinions of university students participating in the research on the negative effects of interactive educational technologies on the development of students' characteristics are evaluated.

Table 4. Students' views on the negative effects of interactive educational technologies on the development of students' characteristics

Category	Theme	F	%
Unwillingness to learn	Affects motivation negatively	22	88
	Negatively affect learning		
	Does not fulfil learning needs		
Technology addiction	Technology creates addiction	10	40
	Addiction to technological tools		

Cognitive difficulties	Creates laziness		
	Creates aversion to inadequacy	7	28
	Difficulty of belonging due to inability to solve technological problems		

In Table 4, the views of students participating in the research are evaluated based on the negative effects of interactive educational technologies on the development of students' characteristics in three categories. They are learning reluctance, technology addiction and cognitive difficulties. 88% of the students expressed their reluctance to learn as a negative effect of interactive educational technologies on student characteristics. 40% of the students stated technology addiction and 28% stated that cognitive difficulties and interactive educational technologies have negative effects on the development of students' characteristics.

4. Discussion

The tendency of university students participating in the study to use interactive educational technologies was evaluated, and the majority of students stated that they tended to use interactive educational technologies. Sahin and Namli (2019) stated that the attitudes of university students to use technology in education are moderately positive. Gross and Latham (2007) similarly stated in their study that students' tendency to use educational technologies is moderate and positive. In addition, it is seen in the literature that researches were conducted to determine the educational technology use levels of university students and teacher candidates. The common feature of these studies is that students' tendency to use educational technologies is positive (Blankson, Keengwe, & Kyei-Blankson, 2010; Evans, 2006; Giles & Kent, 2016; Judge & O'Bannon, 2007).

The university students participating in the research were asked about the positive effects of interactive educational technologies on the development of students' characteristics. Students evaluated the positive effects in five categories: learning skills, technology skills, cognitive skills, self-skills and social skills. The majority of the students participating in the research stated that interactive educational technologies have a positive effect on learning skills from student characteristics. Gedera (2014) revealed in his study that interactive educational technologies provide students with flexibility, interaction and cooperation. Asadi et al. (2019) revealed that students who receive education in an interactive education environment perform better and communicate better than those who receive education in a traditional classroom environment. Liu (2015) revealed that virtual classrooms, an interactive educational technology environment, can visualise logical reasoning and abstract theory, so students in virtual classroom groups can learn logical reasoning skills and abstract theoretical knowledge more easily.

The university students participating in the research were asked about the negative effects of interactive educational technologies on the development of students' characteristics. Students' negative effects were evaluated in three categories as reluctance to learn, technology addiction and cognitive difficulties. The majority of the students who participated in the study revealed that interactive educational technologies have a negative effect on the unwillingness to learn from student characteristics. Dumont and Raggo (2018) revealed in their research that interactive educational technologies negatively affect the interaction between students. In addition, when the studies in the field are examined, it has been revealed in some studies that interactive education technologies trigger students' Internet addiction (Lin & Tsai, 2002; Nalwa & Anand, 2003; Sally, 2006; Simkova & Cincera; 2004).

5. Conclusion

It is possible to say that the integration of educational technology has gained momentum in recent years all over the world. Learning environments equipped with interactive educational technologies

are seen as an important platform aiming to meet the learning needs of our age. In this direction, in this study, it is aimed to evaluate the use of interactive educational technologies as a factor in the development of university students' characteristics with student views. As a result, it has been revealed that university students tend to use interactive educational technologies. Students stated the positive effects of interactive educational technologies on improving student characteristics and in terms of learning skills, technology skills, cognitive skills, self-skills and social skills. In addition, university students stated unwillingness to learn, technology addiction and cognitive difficulties as the negative effects of interactive educational technologies on student characteristics.

6. Recommendations

In this study, the effect of the use of interactive educational technologies on the characteristics of university students was evaluated. In this direction, the following are recommended:

1. Educational seminars should be given at universities to improve the level of use of interactive educational technologies by university students.
2. Immediate solution-oriented technical support should be provided by universities to improve the level of use of interactive educational technologies by university students.
3. Interviews should be organised within universities to increase the motivation of university students to use interactive educational technologies and to enable students to share their problems.

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