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Evaluation of the Development of Questioning Skills in Artificial Intelligence-Based Instruction

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Abstract: *The aim of this study is to reveal how students' questioning skills have improved as a result of the use of AI according to university students' opinions and how the interaction is as a result of the use of AI. Qualitative research methods were also used in the study. The qualitative study group of the study was formed with a total of 240 education faculty students in the December 2024 period. The students who participated in the study were selected according to the purposive random sampling method while creating the study group. According to the views of the stakeholders, in terms of the findings on how AI has improved questioning skills as a result of its use, it can be said that it provides opportunities especially in language processing and information access, offers different types of questions, and provides important contributions to students' learning by asking correct and effective questions. It has been observed that with the use of AI students can gain the ability to ask questions in a more accurate and meaningful way over time. Since AI gives variable answers according to the way of asking questions, we can say that it provides very positive contributions to the questioning skill since the questions should be asked more properly and understandably in order to get exactly the desired answers. It is understood from the participant views that students can expand the ways to access information as a result of the use of AI, thus enabling students to think more deeply and thus enabling the development of questioning skills. In terms of the findings regarding the contribution it put forward regarding providing interaction as a result of the use of artificial intelligence, it is understood from the participant views that due to the fact that artificial intelligence does not provide sufficient interaction on students, students argue among their friends, and instead of socialising by talking, students ask their questions to AI, and therefore the interaction that should be with their friends cannot be provided. We can say that students can develop their questioning skills based on the questions suggested by AI, and that it also contributes greatly to the development of their solution-finding skills by seeking solutions to questions.*

Keywords: *artificial intelligence; teacher; student; education; questioning skills.*

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1. Introduction

Today, artificial intelligence (AI) is an indispensable technological development within the scope of the needs of our age and has shown itself as indispensable. At the core of artificial intelligence, attempts have been made to simulate human behaviour. We see that it can perform many functions that humans can do (Devasena, 2024). In addition to these, artificial intelligence has also been likened to humans, especially in terms of learning and understanding, by performing activities and events that require cognitive processes (Galindo-Domínguez et al., 2024). We see that mechanisms are established in order to resemble humans in newly built systems and tools with artificial intelligence, such as education, guidance, mutual interactions, and guidance (Aggarwal et al., 2022; Mijwil et al., 2022). In this context, what especially catches our eye in artificial intelligence is that it constantly tries to learn on its own (Murad, Rejeb, & Said, 2022).

Artificial Intelligence is a branch of science based on the acquisition of human comprehension and thinking functions by machines. The foundation of artificial intelligence was first laid by John McCarthy at the 1956 Dartmouth Conference. In this context, artificial intelligence was defined as “the science and engineering of making machines intelligent” (Terzioğlu & Çakır, 2021, p.359).

Artificial intelligence, which has recently started to have an increasingly important place in today's world, can be said to have a significant impact on individuals' lifestyles and daily activities (Altun, 2019). According to Sarel (2017), since the early days of the idea of artificial intelligence, the idea that these systems could one day get out of control and lead to the end of humanity has been widely seen in many scientific studies. According to Köroğlu (2017), it has been stated that whether artificial intelligence has a limit and whether it poses a danger to humanity will be a constant topic of discussion. It is understood that it is of great importance for countries and societies to develop very serious planning and strategies in order to eliminate these concerns (Judijanto, Atsani, & Chadijah, 2024). It manifests itself as the shaping, modelling, and structuring of "what" and "how" questions within the scope of the basic logic of all computer systems in the world. To prevent artificial intelligence, which is one of the biggest fears, from getting out of human control, it is of great importance that computer science is seriously structured, shaped, and modeled on the question of “why”. However, humans are far superior to artificial intelligence (Fullan et al., 2023). The greatest proof of this is that humans have “consciousness” and “will”. Today's artificial intelligence still cannot show this superior aspect of humans, namely, consciousness and will.

In today's world, artificial intelligence mechanisms do not particularly prefer low-qualified human performance. It is understood that artificial intelligence systems have reached the highest level, especially in a way that the need for human power, which is at a much more qualified level, will be at its peak (Rahiman & Kodikal, 2024). Artificial intelligence needs to be expanded and disseminated more and more each passing day. It seriously affects almost every segment of society, from the world of education to the business world, from students to teachers, and from business owners to workers. It affects every segment of society, from managers to employees. Therefore, in today's world, all countries' education systems and economic platforms need to make strategic plans and action plans with the use of artificial intelligence in a very comprehensive and detailed way (Demir, 2019). Artificial intelligence, which has entered every sector, has not only changed the human profile expected to be trained by education systems but also changed the structure and functioning of education. As a result of artificial intelligence applications in education, the world has been able to present personalised education programs for students using big data mining. In addition to these, we can see that artificial intelligence applications have brought course content, teaching principles and methods, and student performance to a much better level (Karaca & Telli, 2019).

It is seen that the applications developed for teachers to benefit in the context of artificial intelligence technologies (except for a few applications) are only methods that can be used through computers. However, these methods are not sufficient to provide evidence that artificial intelligence

is actively used in education (İşler & Kılıç, 2021). However, developing technology and artificial intelligence-based studies have made change in education mandatory. Especially with the pandemic process, it has been observed more closely how usable these developments are, how effective they are, and where they are useful and where they are harmful (Arslan, 2020).

One of the most important purposes of artificial intelligence in education is to provide personalised learning guidance or support for individual students according to their learning situations, preferences, or personal characteristics. Using artificial intelligence in education creates new opportunities to design productive learning activities and to develop better technology-enhanced learning applications or environments. However, it seems that most researchers and practitioners in both the computer and education fields have not yet fully implemented the relevant activities or systems

In addition to these, with the significant developments in many sectors in the field of artificial intelligence in recent years, the contributions of artificial intelligence to the education sector have been very great (Altınay et al., 2024). While teachers in traditional classrooms have great difficulties in dealing with each student individually and eliminating learning deficiencies, many studies have shown that students' education and training have been greatly improved through personalised educational content as a result of artificial intelligence applications. Especially since artificial intelligence used in education can analyse students' status and success at a very good level, it can reveal more detailed and successful results than old classical evaluation methods (Altınay et al., 2024). Due to the prominence of artificial intelligence-based systems in new education methodologies, it provides many advantages for students in education and training. However, states should urgently make detailed strategic plans to prevent classroom teachers from being removed from the education system through artificial intelligence. Because people are social beings, it is an obvious fact that classroom teachers can provide these aspects (Chassignol et al., 2018).

Technological advances and transformations in the field of education have also caused necessary changes in leadership styles. Today, the digital leadership style is considered an effective factor in achieving the goals of educational organisations. The increasing interest and communication in the use of technologies in today's schools, design workshops, science, technology, engineering, and mathematics applications, interactive boards, robotics and coding activities are some of the effects of the change that we encounter in both lessons and school practices (Öz, 2020).

The aim of this study is to reveal how students' questioning skills develop as a result of the use of artificial intelligence, according to the opinions of university students, and how interaction occurs as a result of the use of artificial intelligence. To achieve this aim, the questions of the research presented below and the opinions of the participants were determined. In this context, the questions of the research;

1. How should artificial intelligence education be?
2. How does it develop questioning skills as a result of the use of artificial intelligence?
3. What was the contribution of artificial intelligence in providing interaction as a result of the use of artificial intelligence?

2. Method

2.1. Research Model

Qualitative research methods were also used in the research. "Qualitative research can be defined as research in which qualitative data collection methods such as observation, interview and document analysis are used, and a qualitative process is followed to present perceptions and events in a realistic and holistic way in a natural environment" (Yıldırım & Şimşek, 2018). According to Kuş (2003), "The basic feature of qualitative research is to reveal the perspectives and worlds of meaning of the participants in the research, and to see the world through the eyes of the participants".

2.2. Data Collection Tool

As a qualitative data collection tool in the study, a semi-structured interview form was used for analysis, semi-structured interview questions were prepared, and research questions were asked. In the qualitative research approach, in-depth interviews (face-to-face interviews), direct observation, and document analysis techniques are generally used to collect data (Legard, Keegan, & Ward, 2003). The data of this study were obtained through the “face-to-face interview technique”, which cannot be directly observed with other data collection tools, provides an in-depth understanding of the participants’ perspectives on the subject, and is frequently preferred in the qualitative research approach. The face-to-face interview technique also provides the source for revealing many dimensions, such as reasons, feelings, thoughts, and beliefs that form the basis of the participants’ answers (Legard, Keegan, & Ward, 2003).

2.3. Creating Research Questions

The semi-structured interview form created within the scope of this study includes three open-ended semi-structured interview questions. To ensure the internal validity of the interview form, it was presented to a review of academicians from the Department of Educational Sciences, Faculty of Education, Near East University, to obtain expert opinions. In line with these opinions, the form was rearranged. After this, a pilot interview was conducted by selecting a study group equivalent to the study group. In this way, answers to the questions are checked to see if they are clear and understandable. After that, the process of preparing interview questions was started based on expert opinions. Education management experts and Turkish Language linguists were consulted for software rules, and help was received for control purposes by examining the transcripts. The clarity of the questions was checked, and the data collection process started. In this study, content analysis and interpretation of the qualitative data obtained from the participants were used.

2.4. Validity and Reliability

The finalised code list for the interview questions was previously developed based on the research framework and key concepts. This code list served as a key list in organising the data. Research questions become separate from coding. The coding keys and interview transcripts were considered separately by the researchers. After that, appropriate conditions were established by discussing the issues of “consensus” and “difference of opinion”. The reliability formula suggested by Miles and Huberman (1994) was used to calculate the reliability of the research, and an average of 94% was calculated. Reliability calculations above 70% are considered reliable for the research (Miles & Huberman, 1994). The result obtained here is considered reliable for the research. The codes that showed agreement in the coding made by the researchers were taken as the basis for reaching the themes.

2.5. Study Group

This study was conducted with 240 participants from the current students of the university's faculty of education in December 2024. The participants who participated in the study were selected according to the purposeful random sampling method.

Purposeful sampling methods are mostly used in qualitative studies. It is a technique widely used in qualitative research to identify and select information-rich cases for use. In this type of sampling, much richer and more in-depth data is obtained by collecting the research the researcher wants to do from people or objects nearby. Purposive random sampling is the classification of systematic and randomly selected case examples in line with the purpose of the study (Marshall & Rossman, 2014). At the same time, the reliability of the information collected with this method is accepted as higher. In accordance with the purpose of this research, data were collected using purposive random sampling.

The qualitative study group was formed with a total of 240 students from the faculty of education in December 2024. The students who participated in the study were selected according to the purposeful random sampling method while forming the study group.

2.6. Data Collection

240 participants were interviewed during the collection of qualitative data in the study. The participants were informed in advance about the study's purpose and that the interview method would be used as the data collection method. A meeting was held to explain the subject and purpose of the interview to the participants. In the meeting, participants were given extensive information about the data to be obtained being stored, that names would not be disclosed, all confidentiality and ethical rules would be adhered to, and the participants' trust in the research was increased. Data collection for the study began in December 2024 with the participants who volunteered to participate.

2.7. Analysis of Data

Interviews were conducted with the participants using the interview form, which is a data collection tool for qualitative data analysis. According to the views of the interviewed participants, the answers given to each question were categorised one by one and placed in tables. After this initial categorisation, the data were re-examined. The main themes and categories were identified by the researcher and screened based on relevant literature. Categories with similar characteristics were merged, while those with distinct differences were grouped separately and coded. The participant who responded to these categories was written in a numbered manner next to them. In the research, answers to interview questions were examined through content analysis that has four sections (Yıldırım & Şimşek, 2018).

1. Coding of Data: In this first stage of content analysis, after each participant was given a number and the interview transcripts were made, data were analysed in the context of the research background and divided into different parts. Each part conveyed specific meanings, which were then identified, addressed, and coded.

2. Finding Themes: At this stage, the codes determined during the data coding stage were accepted as separate categories and evaluated as separate themes.

3. Organising and Defining the Data According to Codes and Themes: The participants' views were presented clearly and understandably, with footnotes added to support their statements as interview notes.

4. Interpreting the Findings: The researcher interpreted the findings, which were defined and presented in detail, and explained some results at this final stage.

3. Findings and Comments

The findings of the research were analysed to answer each research question, and the results of these analyses are given below in order.

Dimension I: Findings on How Artificial Intelligence Education Should Be

The first dimension of the research was created within the scope of revealing the findings on how artificial intelligence education should be according to the stakeholders' opinions. In this context, 240 participants were asked for their opinions. The answers given to these questions were coded, themes were extracted, and the distributions regarding these themes are given in Table 1.

Table 1. Findings on how artificial intelligence education should be.

Category	Themes	Frequency (f)	Percentage (%)
Thoughts on the findings regarding how artificial intelligence education should be according to stakeholders' views	The infrastructure of artificial intelligence should be strong, artificial intelligence teaching should remain in the background, first of all, learning should be provided in the classroom in education, then lessons and questions should be asked with artificial intelligence teaching,	155	% 65
	It should give importance to real-world applications and ethical issues	190	% 79
	Students should not learn everything with artificial intelligence, they should be affected and benefit from their environment and life; they should develop in a useful, safe, and ethical way; it should be designed in a way that does not cause discrimination, prejudice, or exclusion of all people	98	% 41
	It should provide continuous learning skills, it should teach how artificial intelligence can create effects on people and how these effects can be managed, and information should be integrated correctly for the education to be successful	123	% 52

According to the stakeholders' views, some of the participants' opinions are as follows:

K(75) "In my opinion, I can say that the infrastructure of artificial intelligence should be strong, artificial intelligence should remain in the background in education and training, and learning in the classroom should always be the priority in education".

K(38) "In my opinion, students should not learn everything with artificial intelligence; they should also be affected and benefit from their own environment and life. In addition to these, they should develop themselves in a useful, safe and ethical way, and I think that great care should be taken to design it in a way that does not cause discrimination, prejudice or exclusion of all people".

According to the stakeholders' views, we can say that the infrastructure and equipment of artificial intelligence in education should be very strong. It is understood from the participants opinions that great importance and sensitivity should be given to the use of artificial intelligence in education and training in a way that will remain in the background. It can be said that in education, first of all, it is necessary to provide learning in the classroom and then to ask questions with artificial intelligence teaching. In addition, it is understood from the participant views that great attention should be paid to issues such as real-world applications and ethics in the use of artificial intelligence in education. It should be noted that students should not learn everything with artificial intelligence and that they should also be affected by and benefit from their own environment and life. It can be said, according to the participant views, that it should not be disregarded that all people should be designed in a way that will not lead to discrimination, prejudice, or exclusion, especially in terms of the use of artificial intelligence. In addition, it can be suggested that both students and educators should be given lessons on topics such as providing continuous learning skills with artificial intelligence, how artificial intelligence can create effects on people, and how these effects can be managed. It is also understood from the participants' views that studies should be carried out on the correct integration of information in order for teaching to be successful.

Dimension II: Findings on How the Use of Artificial Intelligence Improved the Ability to Ask Questions

The second dimension of the research was created within the scope of revealing the findings on how the use of artificial intelligence improved the ability to ask questions according to the stakeholders' views. In this context, 240 participants were asked for their opinions. The answers given to these questions were coded, themes were extracted, and the distributions regarding these themes are given in Table 2.

Table 2. Findings on how the use of artificial intelligence improved the ability to ask questions

Category	Themes	Frequency (f)	Percentage (%)
Thoughts on the findings on how the use of artificial intelligence has improved the questioning skill according to the views of the stakeholders	As a result of the use of artificial intelligence, it provides different question types, especially in language processing and information access, and correct and effective questions make significant contributions to students' learning.	204	% 85
	It provides significant benefits in the development of questioning skills, and since artificial intelligence gives variable answers depending on the questioning style, it provides quite positive contributions to questioning skills since questions need to be asked more properly and understandably in order to get exactly the desired answers.	197	% 82
	It provides positive benefits to questioning skills in the form of asking questions more accurately and meaningfully over time.	128	% 53
	It develops students' questioning skills based on the questions suggested by artificial intelligence, contributes to the development of solution skills by also seeking solutions to questions, and enables students to think more deeply by expanding the ways of accessing information.	161	% 67

According to the stakeholders' views, some of the participants' opinions regarding the findings on how the use of artificial intelligence improved the questioning skill are as follows;

K(81) "In my opinion, I think that it provides significant contributions to students' learning, especially in terms of language processing and information access, by providing different question types, and by asking correct and effective questions as a result of the use of artificial intelligence".

K(224) "In my opinion, I think that it provides significant benefits in the development of questioning skills, and since artificial intelligence gives variable answers depending on the question asking style, I think that it provides quite positive contributions to questioning skills, since questions need to be asked more properly and understandably in order to get exactly the desired answers".

According to the stakeholders' views, according to the findings regarding how the use of artificial intelligence improved the questioning skill, according to the participant opinions, it can be said that it provides significant contributions to students' learning, especially in terms of language processing and information access, by providing different question types, by asking correct and effective questions as a result of the use of artificial intelligence. It is understood from the participant views that the use of artificial intelligence provides significant benefits in the development of questioning skills. Since artificial intelligence gives variable answers depending on the question-asking method, we can say that it provides very positive contributions to the questioning skill since the questions need to be asked more properly and understandably in order to get exactly the desired answers. In addition to these, it is understood from the participant views that the use of artificial intelligence provides very positive benefits in gaining the ability to ask questions in a more accurate and meaningful way over time. We can say that students can develop their questioning skills based on the questions suggested by artificial intelligence and that it contributes greatly to the development of their solution-finding skills by searching for solution suggestions for questions. In addition to these, it is understood from the participant views that students can expand the ways to access information as a result of the use of artificial intelligence, thus enabling students to think more deeply and enabling the development of questioning skills.

Dimension III: Findings Regarding the Contribution It Has Made Regarding Interaction as a Result of the Use of Artificial Intelligence

The third dimension of the research was created within the scope of revealing the findings regarding the contribution it has made regarding interaction as a result of the use of artificial intelligence, according to the stakeholders' view. In this context, 240 participants were asked for their opinions. The answers given to these questions were coded, themes were extracted, and the distributions regarding these themes are given in Table 3.

Some of the participant opinions regarding the findings regarding the contribution it has made regarding providing interaction as a result of the use of artificial intelligence are as follows;

K(88) "I believe that the importance of interaction within the course is better understood as a result of using artificial intelligence, it is more difficult to convey the course with less contact with artificial intelligence, and effective education cannot be provided due to low interaction".

K(228) "In my opinion, artificial intelligence does not provide sufficient interaction, it distances people even more, and I think that they cannot socialise enough because they stay in their own inner worlds more".

Table 3. Findings regarding the contribution it has made regarding interaction as a result of the use of artificial intelligence

Category	Themes	Frequency (f)	Percentage (%)
Thoughts on the contribution of artificial intelligence to providing interaction	Since artificial intelligence does not provide interaction, students ask for artificial intelligence instead of discussing and talking among their friends, and as a result, instead of interacting with their friends, they turn to digital technology more.	214	% 89
	A better understanding of how important interaction is in the lesson is achieved as a result of using artificial intelligence. It is more difficult to convey the lesson with less contact with artificial intelligence, and effective education cannot be provided due to low interaction.	122	% 51
	Artificial intelligence does not add much to providing interaction, but as a result of using artificial intelligence, they gain more time and have the opportunity to chat with their friends.	78	% 33
	Artificial intelligence does not provide enough interaction; it distances them from people even more, and they cannot socialise enough because they stay in their own inner worlds.	199	% 83

According to the participant opinions regarding the findings regarding the contribution it has made regarding providing interaction as a result of the use of artificial intelligence, it is understood from the participant opinions that since artificial intelligence does not provide sufficient interaction on students, students argue among their friends, and instead of socialising by talking, students ask their questions to artificial intelligence, and therefore the necessary interaction with their friends cannot be provided. Therefore, we can say that students turn to digital technology more and become isolated, according to the participants' opinions. In addition, we can say that interaction is very important in the lessons, especially as a result of using artificial intelligence, and it allows for much better understanding according to the participants' views. It is understood from the participant views that effective education cannot be provided due to low interaction in lessons with artificial intelligence. It is understood that artificial intelligence does not add much in terms of providing interaction, but as a result of the use of artificial intelligence, students sometimes have the opportunity to chat by gaining more time. In this context, according to the participant views, we can say that interaction between students is not sufficiently provided with the use of artificial intelligence, students are becoming more distant from each other, and especially students cannot

socialise enough and are distanced from interaction because they stay in their own inner worlds more as a result of the use of artificial intelligence.

4. Conclusion and Recommendations

The results of the research were analysed to answer each research question, and the results of these analyses are given below in order.

Dimension I: Results on How Artificial Intelligence Education Should Be

According to the stakeholders' views, within the scope of the findings and thoughts on how artificial intelligence education should be, we can say that the infrastructure and equipment of artificial intelligence in education should be very strong. It is understood from the participants' views that great importance and sensitivity should be given to the use of artificial intelligence in education and training, leaving it in the background. It can be said that, in education, first of all, learning should be provided in the classroom. Then, it can be said that importance should be given to the issue of teaching artificial intelligence and asking questions and questions. These results are consistent with the results of Devasena (2024). In addition to these, it is understood from the participant views that great attention should be paid to issues such as real-world applications and ethics in the use of artificial intelligence in education. It should be noted that students should not learn everything with artificial intelligence and that they should also be affected by and benefit from their own environment and life. It can be said, according to the participant's views, that especially in the use of artificial intelligence, it should not be disregarded that it should be designed in a way that does not cause discrimination, prejudice, or exclusion for all people. These results are similar to the results of Aggarwal et al. (2022). In addition, it can be suggested that courses should be given to both students and educators on topics such as providing continuous learning skills with artificial intelligence, how artificial intelligence can affect people, and how these effects can be managed. In addition, it is understood from the participants' views that studies should be conducted on the correct integration of information in order for teaching to be successful. These results are parallel to the results of Galindo-Domínguez et al. (2024). In this context, according to the results obtained from the research findings, artificial intelligence studies are experiencing their most productive days today, and these studies affect all sectors separately. As a result of the interactions, new needs, requirements, positions, and even concepts emerge. Undoubtedly, one of the areas most affected by artificial intelligence studies is education. With the pandemic process, it has been understood how effective and important artificial intelligence-based studies are during distance education, and the process has created positions that require mastery of technology and digitalisation. Digital leadership is just one of them (Arslan, 2020).

Dimension II: Results on How the Use of Artificial Intelligence Improves Questioning Skills

According to the views of the stakeholders, in the dimension of the results on how the use of artificial intelligence improves questioning skills, it can be said that according to the participant views, it provides opportunities especially in language processing and information access, offers different types of questions, and provides important contributions to students' learning by asking correct and effective questions. These results are consistent with the results of Mijwil et al. (2022). It is understood from the participant views that the use of artificial intelligence provides significant benefits in the development of questioning skills. Since artificial intelligence gives variable answers depending on the way of asking questions, we can say that it provides very positive contributions to the questioning skill since the questions need to be asked more properly and understandably in order to get exactly the desired answers. These results are parallel to the results of Murad, Rejeb, and Said (2022). In addition, it is understood from the participant views that the use of artificial intelligence provides very positive benefits in gaining the ability to ask questions more accurately and in a meaningful way over time. We can say that students can improve their

questioning skills based on the questions suggested by artificial intelligence and that it contributes greatly to the development of their solution-finding skills by searching for solutions to questions. In addition, it is understood from the participant views that students can expand the ways to access information as a result of the use of artificial intelligence, thus enabling students to think more deeply and enabling the development of questioning skills. These results are consistent with the results of Judijanto, Atsani, and Chadajah (2024). In this context, it would be a very realistic approach to talk about the fact that the impact of systems working with artificial intelligence will increase in almost all other areas, including the education sector, in the future, in terms of the results of how the use of artificial intelligence improves the ability to ask questions. In addition, it can be said, according to research findings, that the areas of use of systems working with artificial intelligence will be much more effective than other systems working with traditional methods (İşler & Kılıç, 2021).

Dimension III: Results Regarding the Contribution It Has Made Regarding Providing Interaction as a Result of Using Artificial Intelligence

According to the participant opinions regarding the contribution it has made regarding providing interaction as a result of using artificial intelligence, it is understood from the participant opinions that since artificial intelligence does not provide sufficient interaction on students, students argue among their friends and instead of socialising by talking, students ask their questions to artificial intelligence, thus, the interaction that should be with their friends cannot be provided. These results are similar to the results of Fullan et al. (2023). Therefore, we can say that students are becoming more isolated by turning to digital technology, according to the participants' opinions. In addition, we can say that the importance of interaction in the lessons is much better understood, especially as a result of using artificial intelligence, according to the participants' opinions. It is understood from them that effective education cannot be provided due to low interaction in lessons with artificial intelligence. These results are parallel to the results of Rahiman & Kodikal (2024). It is understood that artificial intelligence does not add much in terms of providing interaction, but as a result of the use of artificial intelligence, students sometimes have the opportunity to chat by gaining more time. In this context, according to the participant opinions, we can say that the use of artificial intelligence does not provide sufficient interaction among students, students are becoming more distant from each other, and especially students are unable to socialise enough and are alienated from interaction because they stay in their inner worlds more as a result of the use of artificial intelligence. These results are similar and overlap with the results of Altınay et al. (2024). In this context, it is understood from the results of the research that students are pushed into more loneliness, remain in their inner worlds more, and fall behind in terms of socialisation in terms of the contribution it makes to interaction as a result of the use of artificial intelligence (Terzioğlu & Çakır, 2021).

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