

INVESTIGATION OF TEACHERS OPINIONS ON THE INCLUSION OF ARTIFICIAL INTELLIGENCE IN EDUCATIONAL ACTIVITIES

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It's dedicated to Assoc. Prof. Rıdvan KÜÇÜKALİ, who left us untimely and very early...

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Abstract: Rapid advances in technology and the creation of some tools that make our lives easier increase our curiosity about artificial intelligence, which we hear news about every day. Artificial intelligence appears in every field and in every sense. One of these areas is the field of education. Especially the rapid changes experienced recently have led to the evolution of educational practices towards artificial intelligence. However, it is debatable how efficient artificial intelligence is in education. At this point, the research aimed to examine teachers' opinions about the inclusion of artificial intelligence in educational activities. In the research, phenomenological case design, one of the qualitative research methods, was used. In the research, 21 classroom teachers from 21 different schools working in Yakutiye, Palandöken and Aziziye, central districts of Erzurum province, were studied. The sociodemographic data collection tool and semi-structured interview form developed by the researchers were used as data collection tools in the study. As a result of the research, it was determined that teachers who implemented face-to-face education found the use of artificial intelligence in education robotic. It has been determined that the use of artificial intelligence in educational activities can provide students with a different view, but problems may arise in students' development areas. At the same time, it was concluded that teachers have a lack of knowledge about what artificial intelligence application is. Based on the results obtained from the research, it may be recommended to inform teachers about artificial intelligence and to focus on hybrid education in education.

Keywords: Teacher, child, virtual teacher, virtual classroom.

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Introduction

Teachers, who undertake the challenging task of building the next generation, have the power to change and transform individuals and societies in accordance with the educational philosophy adapted by the education system (Karataş et al., 2017). This process of transformation and change is a phenomenon that has been on the agenda lately, has been transferred from past experiences to the present, and has gained a place with the awareness of societies (Öztemel, 2020). The most important figure that creates this awareness in societies is the teacher. Teachers are professional professionals who know children and optimize their development in addition to the educational activities they carry out (Çelikten et al., 2005; Karadoğan, 2019). Teachers, who prepare children for the future and ensure social development in this sense, must be ready for new developments and transformations, and in another sense, they must constantly renew and improve themselves (Karaoğlu et al., 2020). Today, the place of technology, in performing this function is undisputed.

It is known that technology has been so intense in human life that, it has been reshaped according to the conditions in the past and today (Ersöz and Bülbül, 2022). In this context, the technological development that has been emphasized in recent years is artificial intelligence. Artificial intelligence, in the broadest sense, can be expressed as a tool that imitates the human brain, thinks, decides and demonstrates learning behaviors (Dereli, 2020; Nabiyeve and Erümit, 2020; Sucu, 2019; Uzun et. al., 2021). However, although it is described in this direction, it is also emphasized that it greatly reduces the workload of people and at the same time it is necessary to integrate it into the education system in the future. At this point, the necessary programming is being done both abroad and in Türkiye, and efforts are being made to integrate artificial intelligence into the education system, just like in other fields (Arkan and Kaya, 2018). However, in order for artificial intelligence to be successful in the education system, teachers, who implement education and are very important stakeholders, must also believe in artificial intelligence and create their applications in this direction (Küçükali and Coşkun, 2021;

Luckin and Holmes, 2016; Nabiyeve and Erümit, 2020; Timms, 2016). Moreover, studies an artificial intelligence have become a phenomenon that must be realized not only in the future but also today.

With the Covid-19 process, which affected the whole world, especially Türkiye, schools were closed and the distance education process was started. However, it has been observed that there are deficiencies in the application parts of distance courses. Virtual reality and augmented reality can play an important role in eliminating these deficiencies. Teachers' attitudes are also decisive regarding virtual reality and augmented reality (Alalwan et. al., 2020; Türksoy and Karabulut, 2020). There are studies on the roles and responsibilities of teachers in artificial intelligence (Ahmad et. al., 2022; Getchell et. al., 2022). However, it has been determined that these studies were conducted with academics who are interested in artificial intelligence (Çetin and Aktaş, 2021) or teacher candidates (Öztürk and Malkoç, 2022) instead of teachers who are active professionals. A limited number of studies have been found in which teachers' opinions were taken (Chounta et. al., 2022; Kaya, 2023; Zhou et. al., 2021). For this reason, it is thought that the research will contribute to the literature under these thoughts, the research aimed to evaluate the opinions of teachers regarding the use of artificial intelligence application in educational activities.

Method

This section includes the research model, study group, data collection tools, and data collection method and data analysis.

Research Model

In the research, phenomenological case design, one of the qualitative research methods was used. Phenomenological case design is defined as a technique that requires in depth interviews with participants about a topic (Creswell, 2017). In this context, the phenomenological case pattern was used to obtain the opinions of teachers about the application of artificial intelligence in education.

Study Group

In the research, 21 classroom teachers from 21 different schools working in Yakutiye, Palandöken and Aziziye, central districts of Erzurum province, were studied by appointment method.

57,1% of the teachers participating in the research were male (n=12) and 42,9% were female (n=9). 66,7% of teachers have a professional experience of 16 years or more and 66,7% have a bachelor's degree while 66,7% of the teachers work as specialist teachers (n=14), 23,8% work as head teachers (n=5) and 9,5% work as teachers (n=2).

Data Collection Tools

In the study, data were collected with the "General Information Form" and "Interview Form" created by the researchers.

General Information Form: It is a form created by researchers to determine the sociodemographic characteristics of teachers. The form contains questions to determine the teachers' gender, years of work, educational background and career status in the institution where they work.

Interview Form: This is the form developed by researchers to determine teachers' views and opinions regarding the use of artificial intelligence in educational activities. After the form was created, it was presented to faculty members who are experts in their field, and the experts were asked to evaluate the items in the form in terms of meaning and content. The form was finalized by removing the items below .78 (Yurdugül, 2005), in which a total of 9 expert opinions were received, 7 in the field of educational administration, 1 in the field of Philosophy, and 1 in the field of Sociology. The questions in the form are about what virtual teaching practice means, feasibility of virtual teachers, what are the differences between virtual teachers and real teachers? There are questions about the effects of virtual teachers on children.

Data Collection Method

To collect the data, ethical permission was first obtained from Erzurum Ataturk University Ethics Committee, dated 25.05.2023 and decision number 30. After obtaining ethical permission, the necessary work permit was obtained from Erzurum Provincial Directorate of National Education. After obtaining work permits, 21 different primary schools were determined in the central districts of Erzurum, Yakutiye, Aziziye and Palandöken, using the appropriate sampling method. After the schools were determined the schools were visited and the necessary verbal permissions were obtained from the school principals. After obtaining the necessary verbal permission from the school principals, teachers were interviewed information was given about the purpose of the study and the research was conducted with teachers who agreed to participate in the research voluntarily. In this context, audio recordings were made by the researchers. Each question was asked to the teachers one by one. An interview of approximately 10 minutes was held with a teacher. After all interviews were completed, the audio recordings were transcribed by two independent researchers.

Analysis of Data

In the analysis of the data, a content form consisting of categories and subcategories was created for the answers given by the teachers. The content form was presented to the opinion of faculty members who are experts in their field (1 associate professor, 1 doctor faculty members in the field of statistics, 1 doctor faculty member in the field of Information technology, 2 associate professors, 2 doctor faculty members in the field of Education). According to expert opinions, the content analysis form was given its final form. The categories and subcategories of the content analysis form are presented in Table 1.

Table 1: Categories and Subcategories of the Content Analysis Form

Category	Subcategory
Thoughts about the virtual teacher	Being robotic/ Being an artificial intelligence robot Lack of emotion Being able to perform more transactions Providing fast feedback and analysis Not enough Not healthy / Not possible
Feasibility of the virtual teacher idea	It can be applied in the future Applicable It was depending on the technological infrastructure Not applicable
Thoughts about the virtual teacher's teaching method	Repeat ability Being eye-catching Inability to focus on gains Suitable for student level
The effect of virtual teachers on children's social emotional development	It doesn't contribute It contributes relatively well It contributes Contributes with coding
Differences between real teacher and virtual teacher	A real teacher pays attention to emotions A real teacher supports children's social development Keeping the virtual teacher from getting tired Virtual teacher separating student content Virtual teacher is better equipped Quick response of the virtual teacher A real teacher attaches importance to cognitive development The virtual teacher is artificial
Thoughts on the virtual teacher's appearance and body language	Having a straight narrative Physical identification status Inability to use gestures and facial expressions
Situation of virtual teacher replacing real teacher	In older age groups Partially It may happen in the future Don't just focus on the narrative

The categories and subcategories in the content analysis form were coded by two independent researchers. Inter- rater reliability was found to be 100%. The answers given by the teachers are presented with example sentences in the findings section.

Findings

The findings of the research, which was conducted to investigate in depth the opinions of teachers who carry out face-to-face educational activities regarding the use of artificial intelligence in education are given below.

Teachers were asked what they thought about virtual teachers. The distribution of the answers given by the teachers is presented in Figure 1.

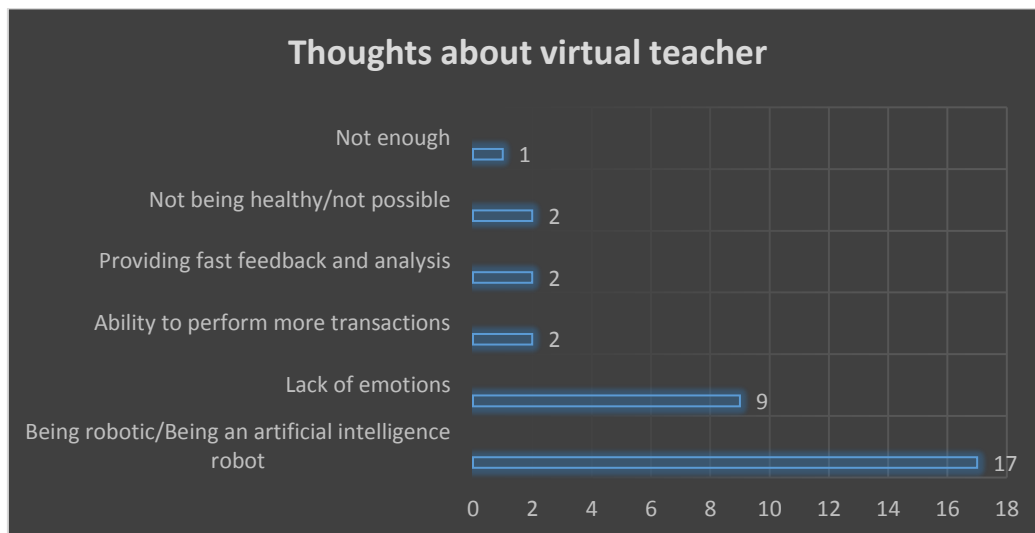


Figure 1: Distribution of Teacher Opinions Regarding Virtual Teachers

Figure 1 shows the distribution of teachers' answers to virtual teachers. As can be seen in the figure, teachers mostly answered that virtual teachers were robotic/were an artificial intelligence (n=17). This answer was answered respectively by not having any emotions (n=9), being able to take more actions (n=2), providing quick feedback and analyzing (n=2), not being healthy/possible (n=2), and not being enough (n=1) were followed the answers. Teacher T₁₄ said *"I look at it positively. It can be remarkable for the students, statistics are easier to keep, it is better for the students in their interests, it enables the student to progress individually, it can get down to the student's level, and it can enable the students to socialize emotionally by creating a community. A community can be created with students interested in space. They can be organized. But the virtual teacher cannot give emotion."* He expressed his thoughts as follows.

Teachers were asked to what extent the idea of a virtual teacher was feasible. The distribution of teachers' answers is presented in Figure 2.

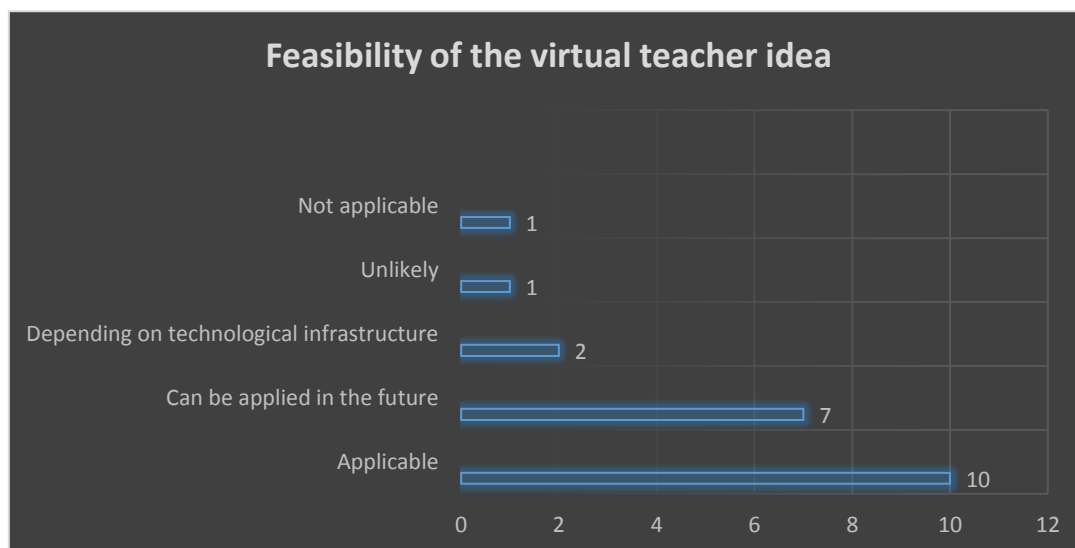


Figure 2: Distribution of Teacher Opinions on the Feasibility of the Virtual Teacher Idea

Figure 2 shows the distribution of teachers' answers regarding the feasibility of the virtual teacher idea. As can be seen in the figure, the teachers gave the highest possible answer regarding the feasibility of the virtual teacher idea (n=10), followed by the answer that it could be applied in the future (n=7), depends on the technological infrastructure (n=2), and could be applied with a low probability (n=1), and not applicable (n=1) responses were followed. Teacher T₁₇ said *"I think the idea of virtual teacher can be applied more in virtual classes over the internet. But I see less applicability in physical school environments."* and T₉ said *"Well, it can be implemented, but as I said, there is no such thing as not being implemented. It was implemented, we saw it, and we experienced it. I mean, if we didn't live, maybe we wouldn't have any problems, but if happens. It is applicable, as I said, the benefit and harm need to be calculated."* They expressed it as follows.

The teacher were asked what they thought about the virtual teacher teaching the lesson. The distribution of the answers given by teachers is presented in Figure 3.

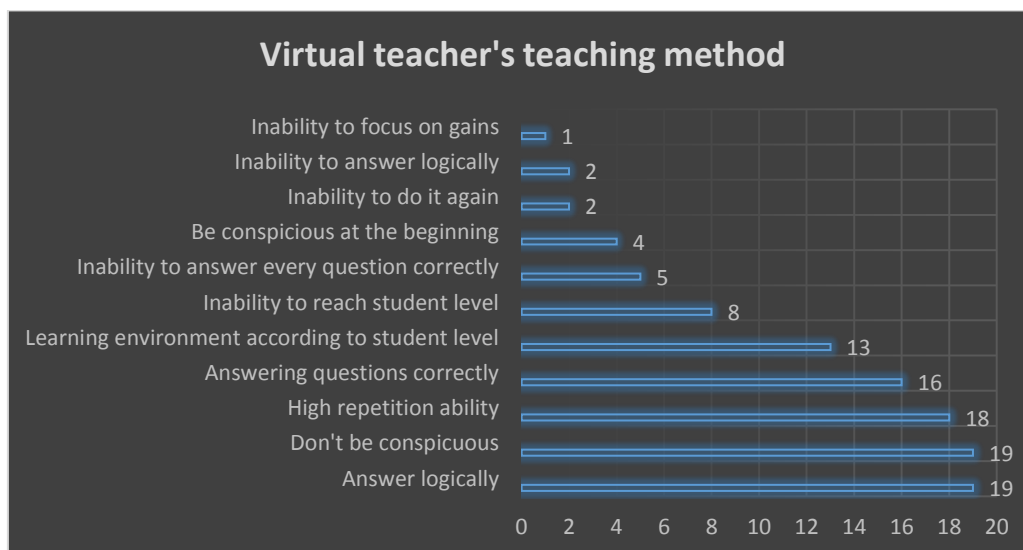


Figure 3: Distribution of Opinions on the Virtual Teacher's Lesson Teaching Method

Figure 3 shows the distribution of teachers' opinions regarding the virtual teacher's teaching method. As can be seen in the figure, the teachers mostly responded that the virtual teacher would have the characteristics of giving logical answers (n=19), and being attention-grabbing (n=19) while teaching. The answers were followed, the ability to repeat these answers is high (n=18), being able to answer the questions asked by children correctly (n=16), creating a learning environment according to the student level (n=13), not being able to get down to the student level (n=8), answering each question correctly, by not being able to give a logical answer (n=5), being distracting at the beginning (n=4), not being able to do it again (n=2), not being able to give a logical answer (n=2) and not being able to focus on the achievements (n=1). Teacher T₃ said "Yes, it will be remarkable for children at first. But I don't think it will attract much attention as I think it will become commonplace in the future." T₆ "Virtual teachers cannot be useful to children. Because children have very creative questions. No matter how powerful virtual intelligence or artificial intelligence is, it cannot answer every question. The child derives different things from different places." T₁₀ "I believe that he can repeat more than us. Because after all, they have no emotions." T₁₅ "He cannot answer them. But it can answer questions based on knowledge better than humans" they expressed their thought as follows.

Teachers were asked "Do virtual teachers contribute to the social-emotional development of children?" the question was posed. The distribution of teachers' answers is presented in Figure 4.

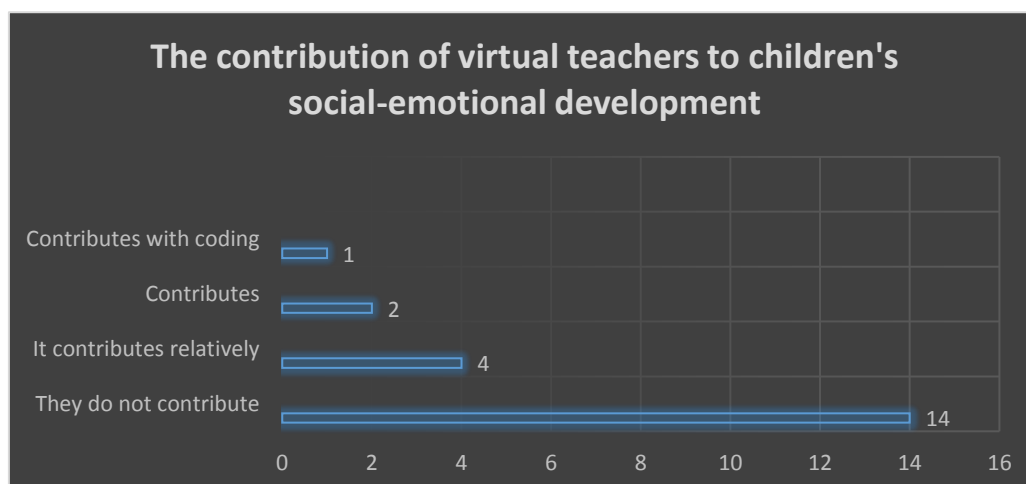


Figure 4: Distribution of Teachers' Opinions on the Contribution of Virtual Teachers to Children's Social- Emotional Development

Figure 4 shows the distribution of the teachers' answers regarding the contribution of virtual teachers to children's social-emotional development. As can be seen in the figure, the teachers mostly stated that virtual teachers do not contribute to the social-emotional development of children (n=14), followed by relatively contributing (n=4), contributing (n=2) and contributing with coding (n=1) followed the answers. Teacher T₁₁ said "No, it doesn't offer it. Because the virtual teacher neither knows the child nor knows what to do where. It will just be a literal explanation." T₁₂ "The virtual program allows the child to interact with other students" and T₂₁ "If the student level is introduced, it can offer content suitable for this level. He can give training without getting tired. It can contribute to social and sensory development, but as I said these need to be loaded to into the program."

Teachers were asked "What are the differences between a real teacher and a virtual teacher?" the question was posed. The distribution of teachers' answers is presented in Figure 5.

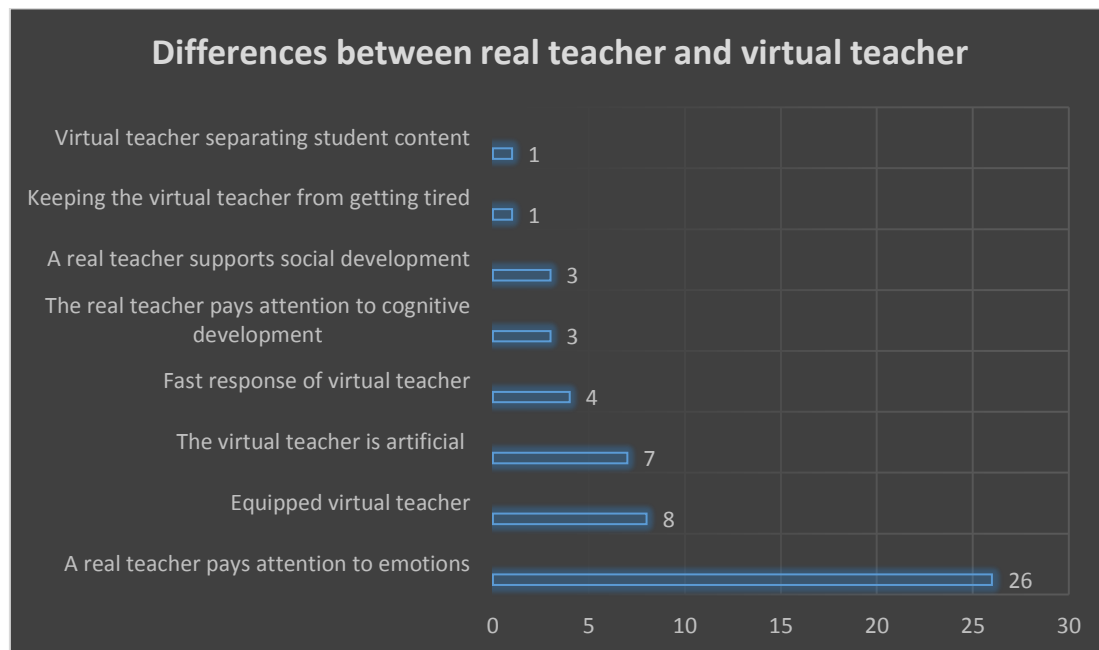


Figure 5: Distribution of Teachers' Opinions on the Differences between Real Teachers and Virtual Teachers

Figure 5 shows the distribution of teachers' answers regarding the differences between real teachers and virtual teachers. As can be seen in the figure, teachers stated that real teachers attach importance to emotions at the highest rate ($n=26$). This ratio is respectively, the virtual teacher is better equipped ($n=8$), the virtual teacher is artificial ($n=7$), the virtual teacher reacts quickly ($n=4$), the real teacher pays attention to cognitive development ($n=3$), the real teacher pays attention to children's social developments supports ($n=3$), the virtual teacher does not get tired ($n=1$), the virtual teacher separates the student's content ($n=1$) and followed the answers. Teacher T_{13} said, *"There is a difference in emotion and approach to children. Because the virtual teacher cannot understand the children. A virtual teacher delivers whatever he or she sets out to do. He cannot do anything on his own. For example, the robot cannot use tone of voice and facial expressions and cannot give these to the student. In other words, a machine and technology and humans cannot be one. After all, artificial intelligence is also produced by humans. The benefit of artificial intelligence is that it attracts attention and provides more practical information. But it only gives attention and provides more practical information. But it only gives information to the student. It cannot teach how and where to use information. Education is not just about knowledge. That's why virtual teachers are weak on the morality, guardianship, and even problem-solving part of the job. This is where the normal teacher comes into play. In short, virtual teachers have an advantage over normal teachers because they provide knowledge attention and individual learning opportunities, but they are weak because they cannot teach skills, humanity, values and morals."* He expressed his thoughts as follows.

Teachers were asked about their opinions on whether the virtual teacher's appearance would be different and what his body language would be like. The distribution of the answers given by the teacher is presented in Figure 6.

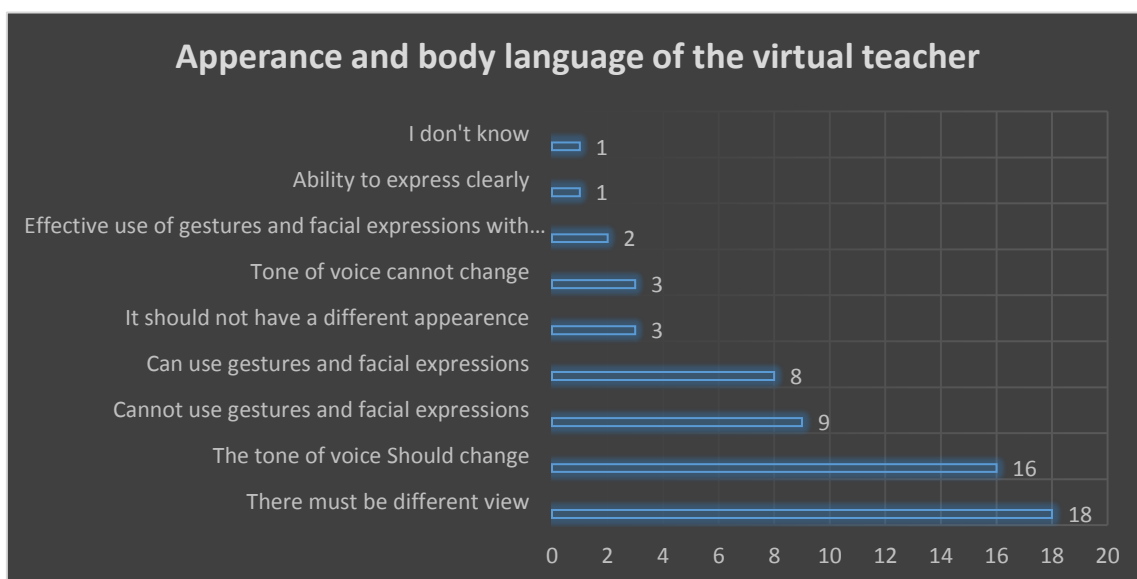


Figure 6: Distribution of Teacher Opinions Regarding the Virtual Teacher's Appearance and Body Language

Figure 6 shows the distribution of teachers' opinions regarding the appearance and body languages of virtual teachers. As can be seen in the figure, teachers mostly stated that there should be a different appearance other than digital identity (n=18). This idea was expressed respectively that the virtual teacher's tone of voice will change (n=16), that he/she cannot use gestures and facial expressions (n=9), that he/she can use gestures and facial expressions (n=8), that there is no different appearance (n=3), that the tone of voice cannot be different (n=3), his gestures and facial expressions will be effective if he enters the physical identity (n=2), he can give direct expression (n=1), and I don't know (n=1). Teacher T₁ said, "May be. As technology advances different physical images and genders can be placed on them." T₂ "Of course it varies. So, of course it shows the readiness of the class at that moment. Here is a class, for example. When the class concentrates, the calmer person continues, but when his concentration is broken, he can addresses the class accordingly, with a different tone of voice." T₂₁ "As for gestures and facial expressions, the virtual teacher cannot use them like the normal teacher." They expressed their thoughts as follows.

Teachers were asked "Can virtual teachers replace real teachers?" the question was posed. The distribution of the answers given by the teachers is presented in Figure 7.

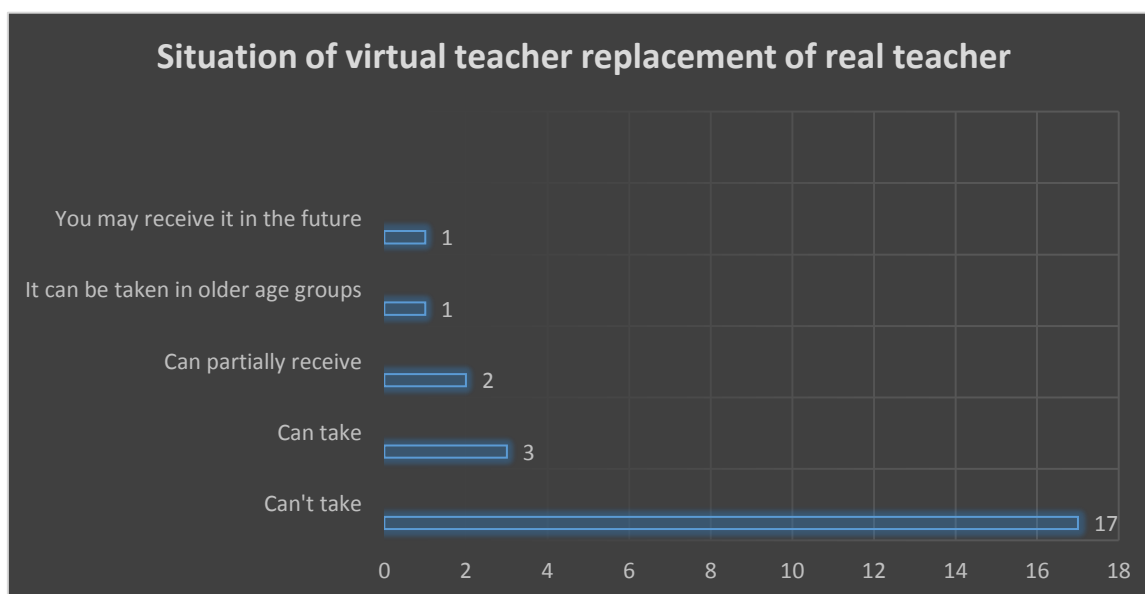


Figure 7: Distribution of Teacher Opinions on the Situation of Virtual Teachers Replacing Real Teachers

Figure 7 shows the distribution of teachers' answers regarding the virtual teacher replacing the real teacher. As can be seen in the figure, the highest number of teachers answered that they could not get it (n=17). The following responses were followed you can take (n=3), you can get it partially (n=2), you can get it older age groups (n=1) and you can get in the future (n=1). Teacher T₂₀ said, "I don't think he will get it. Man is the most superior being on earth. Since everything else is made by human hands, it is not possible to surpass humans. Completely distance education can only happen during disasters. But since the school also has informal function, it is not necessary to dispense with the school and the school will not disappear. Virtual teachers cannot do what we do. How can machine or program become one with me? A person is not equal to what a person does. They cannot replace us because as I said, how can what humans produce replace humans? Teaching is not a labor force, there are professions that require a labor force, but teaching will never happen." He expressed his thoughts as follows.

Discussion

As a result of the research, which aims to investigate in depth the opinions of teachers who carry out face-to-face educational activities regarding the application of artificial intelligence teachers, it has been determined that a high percentage of teachers think that virtual teachers are robotic. It is possible to explain this result by connecting it to the meaning of artificial

intelligence and virtual teachers for both societies and teachers. Nowadays, the rapidly increasing perception of artificial intelligence is generally thought to be a product of technology and robotic (Çam et al., 2021; Dülger and Gümüşeli, 2023; Edwards and Choek, 2018). In this case, it is thought that as in the research results, teachers equate the virtual teacher with a robotic application. Especially when we look at the other answers given by the teachers, it is stated that it cannot contribute to the social-emotional development of the students, it will lack emotion, it will be remarkable if it has a different identity view and it can use gestures and facial expressions. An issue that is highly emphasized in society is that robotic applications lack emotion and this will be emphasized in future applications (Assuncao et al., 2022; Bayuk and Demir, 2019; Prentice, Dominique – Lopes and Wang, 2020). This situation supports the opinions of the teachers reached as a result of the research.

Teachers reported that they thought that the virtual teacher, which is artificial intelligence, could answer every question correctly. This situation can be explained by artificial intelligence finding the most correct answer by scanning existing databases. It is known that the information coming from databases is examined with artificial intelligence and has the ability to respond instantly (Kaplan and Haenlein, 2019; Koçyiğit and Darı, 2023). This situation was also reflected in the thoughts of the teachers. Teachers also stated that virtual teachers can get down to the student level. Kazu and Özdemir (2009) stated in their study

that computer systems can be used to detect individual differences, which is an important step in the realization of learning, and to make educational arrangements accordingly.

Another finding obtained from the study is that the virtual teacher will constantly repeat the topics to ensure that the students understand the course objectives. This may indicate that virtual teachers can track student progress individually and allow each student to learn at their own pace. One of the important findings in artificial intelligence is that it can detect distraction in students with the data obtained from databases (Çetin and Aktaş, 2021). Considering that the developed software is aimed at education, it can be thought that it can monitor students' attention and improve itself accordingly. At the same time, this situation brings about frequent repetition. In this way it is thought that it can contribute to learning as stated by teachers.

In the study, teachers stated that it is not possible for virtual teachers to replace real teachers. The teaching profession is very important in shaping society. Teaching affects society both with, its field knowledge and its behavior and attitudes towards children and their parents. It is thought that the teachers' thoughts and the debate about whether emotions will be included in the artificial intelligence that is being developed are reflected in the teachers' answers. It is known that today's artificial intelligence products work business oriented and therefore do not include emotions (Coşkun and Gülleroğlu, 2021; Dülger and Gümüşeli, 2023; Edwards et al., 2018; İşler and Kılıç, 2021; Schiff, 2021). This situation also supports the idea that he cannot replace the real teacher and cannot use gestures and facial expressions.

Suggestions

It is possible to make the following suggestions regarding the results obtained from the research.

- When the answers given by the teachers were examined, it was determined that they had a lack of knowledge about artificial intelligence. For this reason, providing teachers with in service training an artificial intelligence,
- Although current developments in technology are very intense in every field, it is also known that not all segments of society have equal conditions. Accordingly, providing the necessary infrastructure for technology,
- Although education is currently carried out in the form of distance education, it is seen that we are not ready for this as Türkiye yet. Therefore, it may be recommended to develop hybrid education and ensure its effectiveness.

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