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# The Opinions of Academics on the Usage of Artificial Intelligence Tools in Primary Schools

**ABSTRACT**

Within the scope of this research, it is aimed to obtain academician opinions on the use of artificial intelligence applications such as ChatGPT in the teaching-learning process and classroom applications in primary schools. In this research, the case study method, which is one of the qualitative research approaches, was used. The study group of the research consists of 10 academicians working in state and foundation universities. A semi-structured interview form prepared by the researchers was used as a data collection tool. The data obtained were analyzed by content analysis method. The findings reveal that artificial intelligence tools make significant contributions to the teaching-learning process in areas such as measurement and evaluation and material preparation; to teachers in terms of saving time and understanding the curriculum; to professional development in terms of following the literature and improving field knowledge; and to students in areas such as increasing motivation and supporting individual learning. However, negative aspects such as ethical and security issues, weakening of higher-order thinking skills in students, and mislearning were also pointed out. In addition, it was stated that artificial intelligence tools can be used effectively in various classroom applications in social studies, Turkish, mathematics and science courses. The study emphasizes the importance of balanced and conscious integration of artificial intelligence in education.

**Keywords:** Academic opinions, ChatGPT, artificial intelligence.

## Introduction

The rapid development in technology has led to the expansion of information and communication networks at a similar pace to the beginning of the 21st century; in this period, the use of artificial intelligence technologies in many fields, like the business world, social media, and health research has led to significant changes in education systems. The habits of the new generation called digital natives, who have been interacting with computers, the internet, and social media tools since childhood, are naturally affected by these developments. In this context, the need for new tools and methods in education is increasing.

Innovations in education, intelligent applications, and learning platforms equipped with mobile infrastructure have started to be preferred by teachers (Xiaogang, 2018). Artificial intelligence opens personalized spaces for both the learner and the teacher. These applications play an important role in improving the quality of education in various areas, like personalized education programs, preparation of course content, selection of teaching models, and monitoring student performances (Meço & Coştu, 2022). Artificial intelligence technology is thought to be used in more applications in the coming years by providing feedback to learners and receiving support as a learning assistant (Kır & Şenocak, 2022). In addition, artificial intelligence systems can create visual, text, and different content without human intervention. This feature of artificial intelligence also causes discussions on the use of various methods in terms of measurement and evaluation.

The momentum of studies on using artificial intelligence in education has been increasing recently. Studies show that these technologies have positive effects on education. In the research by Meço and Coştu (2022), it is stated that artificial intelligence facilitates individual learning in education and helps teachers to use their time more efficiently. In addition, studies conducted in computer education, classroom education, distance education, foreign language learning, and museum education also emphasize the importance of this field. Similarly, Aslan (2022), in his research examining the effectiveness of the use of artificial intelligence in museum education,

concluded that artificial intelligence enables students to discover and develop their learning skills in different subjects instead of memorizing information. Thus, it was determined that it supports students in a way that they can use the information they have learnt throughout their lives.

The use of ChatGPT in education offers opportunities to overcome geographical barriers imposed by national and international boundaries, as educational resources are now easily accessible via the internet and the global web (Chen et al., 2020). This provides teachers resources, innovative teaching methods, cutting-edge technologies, and materials. So, these resources enable teachers to stay informed about the latest developments in education (Kasneci et al., 2023). Liu et al. (2022), found that AI tools such as GPT and chatbots had a positive effect on children's reading experiences, leading to increased interest and participation in reading activities. Liu et al. (2022), found that is has a positive effect on children's reading experiences, leading to increased interest and participation in reading activities. Another positive feature of using artificial intelligence models like ChatGPT is that it supports students' knowledge, development, and creativity (Bozkurt et al., 2023). In addition, there are also studies showing that tools like ChatGPT contribute to foreign language teaching. In their study on foreign language learning, Liu and Ma (2023) emphasized that artificial intelligence tools like ChatGPT provide instant feedback by involving students in interactive conversations, allowing them to apply what they have learned and use their creativity. Considering the effect of need generation and exposure to the target language on language learning in foreign language teaching, it can be said that ChatGPT creates a great opportunity. In studies focusing on foreign language teaching, dialogue-based applications are used by providing practice with oral and written interactions with chatbots (Belda-Medina & Calvo-Ferrer, 2022a). In addition, Pradana et al. (2023), in their literature review study discussing ChatGPT in education, stated that these tools can contribute to educational efficiency plans using ChatGPT as a data collection tool.

There are also some studies showing that textual communication-based tools like ChatGPT may have negative effects in the field of education. Steele (2023), in his study on the use of GPT models, mentioned that teachers experience some dilemmas regarding these applications and emphasized that they may sometimes have uneasiness in the assessment and evaluation process. In addition, Zhou et al. (2023) underlined that the world has evolved from algorithmic intelligence to linguistic intelligence with the use of ChatGPT but emphasized that these robots, which develop with purely textual and conversational features, may lead to ethical problems, various academic problems, and abuse in the future (Chomsky, 2023).

Based on literature findings, teachers' needs and preferences should be carefully approached in using different tools. The use of ChatGPT for learning and education brings along various controversies (Luo et al., 2023). Whereas it is emphasized in many studies that the integration of ChatGPT into education may have possible benefits like facilitate personalized learning, develop or adjust instructional materials and evaluation process in education (Baldoo-Anu & Ansah, 2023; Chiu, 2024), some of them mentions the drawbacks of using ChatGPT like checking the accuracy of the sources, not providing in-text references, checking the suitability of plagiarism, and being far from originality (Sallam, 2023). Based on this dilemma, Farrokhnia et al. (2023) evaluated the effects of ChatGPT with SWOT analysis in their study. Accordingly, while the strengths of ChatGPT include the use of advanced natural language, self-improvement ability, and personalized real-time answers, the weaknesses include lack of in-depth understanding, inability to measure the quality of answers, and lack of higher-order thinking skills. In the same study, while the threats to education include not understanding the context and normalization of plagiarism, the education opportunities include reducing the teacher's workload, supporting personalized learning, and accessibility of information. In addition, Su and Yang (2024), in their study on kindergarten teachers' views on the use of ChatGPT, stated that some kindergarten teachers saw ChatGPT as a powerful tool, while others described it as mediocre. Liu et al. (2022), stated the reasons for these differences as teachers' perceptions of ChatGPT use, pedagogical beliefs, technological skills, and openness to innovation.

As a result, the growth of the new generation, called the digital natives of the 21st century, intertwined with technology and the integration of these technologies into educational processes has led to radical changes in learning and teaching methods. Artificial intelligence applications have many advantages, like providing personalized learning experiences to students, helping teachers to prepare course content more efficiently, and increasing overall efficiency in education. However, it should be remembered that these technologies also bring ethical, pedagogical, and technical challenges. The OECD publication on the opportunities created by digital transformation and the risks it poses to human well-being has stated that the use of digital resources by teachers who do not have appropriate digital skills can actually distract teachers and students and therefore have a negative impact on learning outcomes (OECD, 2019). The teacher's digital competence is an integral part of their professional practices (McGar, 2024).

When the literature is examined, it is emphasized that

academicians should have knowledge about current developments in technology-integrated courses, but studies have yet to be found to determine their views on the use of artificial intelligence tools like ChatGPT in primary school. This study aims to provide valuable insights and guidance for educators, policy makers, and technology developers by examining in detail the applicability and impact of tools like ChatGPT in primary school education. In this way, while shaping the educational environments of the future, it will contribute to the adoption of a balanced and conscious approach in the integration of technological developments into education. Within the scope of the research, by focusing on the use of artificial intelligence technologies like ChatGPT in primary school education, it is aimed to reveal the potential and challenges of technological innovations like ChatGPT in education. Within the scope of this purpose, the research question is as follows:

1. What are the academicians' views on using artificial intelligence tools like ChatGPT in the teaching-learning process in primary school?

## Method

A case study design, one of the qualitative research approaches, was used in this study. The case study involves the researcher's detailed and in-depth examination, description (Creswell, 2013), and evaluation of the factors related to that situation from different perspectives with a holistic approach by using various data collection tools (observation, interview, document, etc.) within the limited context of one or more situations (Patton, 2014; Yin, 2009). In this study, the only situation analyzed was determined as academician opinions on the application of artificial intelligence tools like ChatGPT in primary school courses. The reflections of these applications in terms of teacher, student, and teaching-learning process in line with the opinions of academicians, which is a single unit of analysis, were tried to be examined with a holistic approach to obtain more detailed and in-depth information about this situation. Therefore, this research was designed as a holistic single-case design. In the holistic single-case design, it is aimed to examine situations that have not been sufficiently examined and to provide an opportunity to form a basis for further research (Yıldırım & Şimşek, 2013).

### Participants

The participants of this research are academicians working in the field of teacher education (classroom education). Criterion sampling, one of the purposeful sampling techniques, and maximum diversity sampling were used together to determine the study participants. The basic understanding in using the criterion sampling method is to examine situations that meet a set of predetermined criteria. The criteria or criteria mentioned here can be determined by the researcher (Yıldırım & Şimşek, 2013). In this context, actively using artificial intelligence applications like ChatGPT was determined as a criterion for the participants. Participants working in the department of classroom education were included in the study. These participants were diversified according to their scientific research in different fields of expertise at the primary school level (primary literacy and Turkish teaching, life science and social studies teaching, mathematics teaching, science teaching). The main purpose of maximum diversity sampling is to maximally reflect the diversity of individuals who may be parties to the problem being studied in a small sample (Yıldırım & Şimşek, 2013). In order to obtain opinions on the in-class applications of ChatGPT application in different courses, diversity was tried to be provided by including participants working in different fields of science. This sampling method provides heterogeneity among the participants and allows for revealing the standard dimensions and experiences of a situation (Patton, 2014). Codes like P1, P2, P3, etc., were used for each participant to protect the confidentiality of the participants included in the study. Demographic information about the participants is given in Table 1.

### Data Collection Process

The data of the study were collected in the autumn term of the 2023-2024 academic year with a semi-structured interview form prepared by the researchers. According to Packer (2011), semi-structured interviews are the most common and useful qualitative research interview technique. In such interviews, the interview questions are prepared within the framework of the research questions. However, different questions may need to be asked according to the course of the interview and the course of the interview may need to be managed. In this context, the interview form, developed as a data collection tool, was prepared within the framework of the research questions. The interview form generally includes questions aimed at identifying the potential positive and negative aspects of artificial intelligence tools concerning teachers, students, and the teaching-learning process. Based on the interview questions, data were sought regarding the contributions of artificial intelligence tools to teachers' professional and personal development, their impact on students' cognitive, emotional, psychomotor, and social development, and their appropriateness for use in primary schools in terms of safety, ethics, and privacy. Additionally, questions were included about how artificial intelligence tools can be integrated into classroom practices in primary school lessons. Through the interview questions prepared in this context, efforts were made to gather data on how artificial intelligence tools can be utilized in the teaching-learning process in primary

schools for learning outcomes, content delivery, instructional materials, learning environments, methods, techniques, strategies, and assessment and evaluation activities. The interviews were conducted face-to-face by the researchers. Each interview lasted approximately 25 minutes and the interviews were completed within 2 weeks. During the development of the interview form, an extensive review of the literature on the subject was initially conducted. Expert opinions were sought to ensure that the prepared questions were capable of addressing the research questions effectively. Moreover, in order to ensure the content and opinion validity of the data collection tool by evaluating its suitability for the purpose, language expression, and technical adequacy, the opinions of a subject area expert, a measurement and evaluation expert, and an expert working in the field of Turkish education who have scientific research on the use of artificial intelligence tools and technologies like ChatGPT in education were consulted. A pilot interview was conducted with an academician to test the prepared interview questions. The instructor included in the pilot study was excluded from the participant group. In line with the feedback received from the expert opinions and after the pilot interview, two questions were removed from the interview form, the instructions for the questions with similar content were changed, and one question was added. In addition, some adjustments were made to the sequence of the questions to ensure the smooth flow of the interview. The finalized and restructured interview form was used as the data collection tool in this study.

**Table 1.**
*Participant Information*

| Participant | Gender | Title | Professional Seniority | University | Area of Expertise |
|---|---|---|---|---|---|
| P1 | Female | Dr. | 7 | Foundation University | Primary Education/ First Reading and Writing Education |
| P2 | Male | Research Assistant | 5 | Foundation University | Primary Education/ Mathematics Education |
| P3 | Female | Research Assistant | 3 | Foundation University | Primary Education/ Turkish Education |
| P4 | Male | Dr. | 6 | State University | Primary Education/ Social Sciences Education |
| P5 | Male | Dr. | 11 | State University | Primary Education |
| P6 | Female | Prof. Dr. | 21 | State University | Primary Education/ Turkish Education |
| P7 | Female | Prof. Dr. | 35 | Foundation University | Primary Education/ Science Education |
| P8 | Male | Dr. | 17 | Foundation University | Primary Education/ Science Education |
| P9 | Male | Dr. | 11 | State University | Primary Education/ Literacy, Digital Literacy |
| P10 | Male | Dr. | 11 | State University | Primary Education/ Use of Technology in Education |

In addition, some changes were made in the order of the questions to ensure the interview's fluency. The finalized and restructured interview form was used as a data collection tool in this study.

The ethical process in the study was as follows:

- Ethics committee approval was obtained from the Ethics Commission of Fatih Sultan Mehmet Foundation University. Committee (Date: 07.12.2023, Number: 30/25)
- Informed consent has been obtained from the participants.

**Data Analyses**

The content analysis method was used to analyze the qualitative data obtained in this study. Different researchers have tried to carry out content analysis in a holistic manner. The main purpose of content analysis is to examine and interpret a certain amount of data in a detailed, in-depth, and systematic manner to extract meanings to explain the collected data (Berg & Latin, 2008). In the first stage of content analysis, firstly, the interview records were converted into a regular written text. Then, codes were analytically created within the framework of the research questions, and data were determined inductively. Meaningful relationships were established between the codes and categorical labels were created. Similar structures, relationships and differences were identified, and these categories were classified and explained under certain themes. In the last stage, in order to give meaning to the codes, categories and themes obtained, a cause-effect relationship was tried to be established between the data and findings, the findings were interpreted, and some conclusions were reached.

**Validity and Reliability**

By the nature of qualitative research, the procedures carried out in this research were tried to be explained with credibility, transferability, consistency, and confirmability

strategies (Shenton, 2004). In order to ensure the credibility of the research, information about the participants was presented (Johnson & Christensen, 2004), and expert opinions were consulted in the preparation of the interview forms (Merriam & Tisdell, 2015) in order to reach the saturation point regarding the collection of data, the number of participants interviewed in the study groups was increased and the interaction time during the interview was extended. Again, to ensure credibility, data sources were tried to be diversified by selecting lecturers working in different fields of science in the field of classroom education. Diversification of data sources is considered necessary in terms of including participants with different characteristics in the research and reaching multiple realities by revealing different experiences and perceptions (Yıldırım & Şimşek, 2013). In order to ensure transferability, participant opinions were supported with direct quotations while presenting the findings, a purposeful sampling technique was used in determining the participants, and the research process was explained in detail. In order to ensure the consistency of the findings obtained as a result of qualitative data analysis, the data obtained were coded by the researchers conducting the research, similarities and differences were compared, and inter-coder reliability was applied. The consistency of the research was calculated using Miles and Huberman's (1994) formula (Reliability= Consensus/ [Consensus + Disagreement] x 100) by determining the number of "consensus" and "disagreement" for each code made by each researcher. For the cases where there was disagreement, the researchers met and reached a consensus. The percentage of agreement on the coding made by the researchers was determined as 92%. According to Miles and Huberman (1994), the agreement percentage of the code lists created by the researchers being 70% and above indicates a sufficient reliability value. In order to ensure the confirmability of the research, the quotations of the participants were given directly in the relevant sections and the readers were allowed to comment on the inferred situations (LeCompte & Goetz, 1982; Silverman, 2010).

## Results

In this section, an answer to the research question "What are the academicians' views on using artificial intelligence tools like ChatGPT in the teaching-learning process in primary school?" was sought. The codes formed in line with the findings obtained in the research were categorized and the themes of "Contributions" and "Negative Aspects" were determined. Secondly, an answer was sought to the question "How are the academician views on the use of artificial intelligence tools like ChatGPT in classroom applications in primary school lessons?" and the codes and categories obtained within the scope of the findings were grouped under the theme of "Using in Classroom Applications". In the figures, the arrows of the codes with high frequency are shown as thicker and the arrows of the codes with low frequency are shown as thinner.

### Contributions of Using Artificial Intelligence Applications like ChatGPT in Primary School

Firstly, within the scope of the findings obtained from the questions asked, the theme of potential of using Artificial Intelligence (AI) applications like ChatGPT for the education-training process was reached. The data obtained are categorized under the theme of contributions and shown in Figure 1.

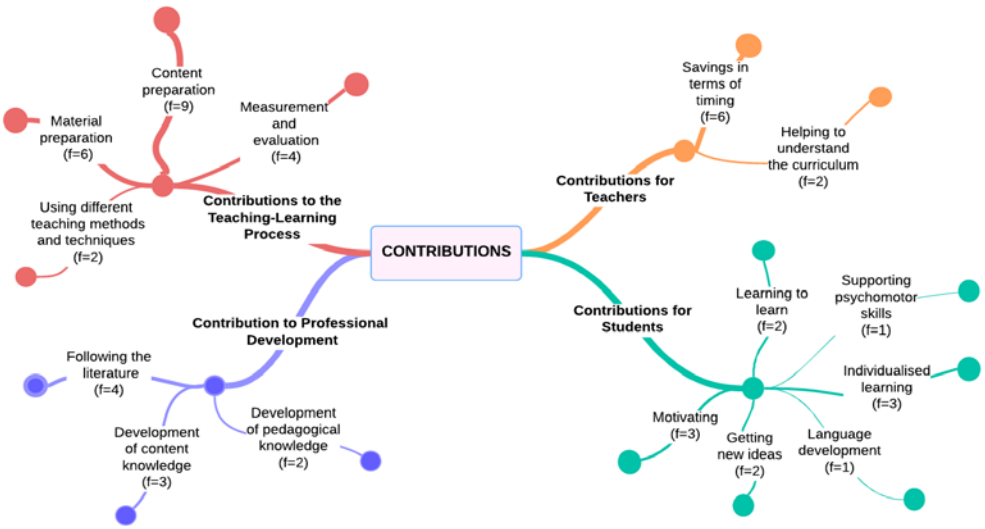


**Figure 1.**
*Contributions to Using AI Applications like ChatGPT in Primary School*

Figure 1 shows that ChatGPT applications consist of four categories of codes for teachers, students, teaching-learning process, and professional development. It was determined that it contributed to teachers mostly in terms of time. One of the participants, P2, expressed this view by saying *"It will enable the teacher to use his/her time more efficiently and to reach various environments quickly."* The other contribution to the teacher is to ensure that the curricula are understood. P1 of the participants expressed this view by saying *"Teachers who have deficiencies about what the curriculum is, its limitations and explanations can benefit from artificial intelligence. It can help the teacher to make sense of that outcome. It can ensure that the gains are examined, and appropriate content is prepared."*

Another category contributed by artificial intelligence applications like ChatGPT is students. Within the scope of the data obtained, it was determined that these applications contribute to the development of students' psychomotor skills, individualized learning, motivation, learning to learn, language development, and discovering new ideas. P5 said, *"Artificial intelligence provides the opportunity for the learner to learn at his own pace, independent of time and space."* and *"The student is looking for answers to his questions there. Everyone's way of asking questions may be different. This will lead to personalization."* The answer is that these applications support individual learning, P10 *"It makes their learning process more fun, more motivating. When you define the answers given in use well, it reflects exactly what you have in your head and this situation motivates the child."* The answer reveals that it supports motivation. In addition, P1 emphasizing that artificial intelligence applications use natural language processing said, *"Language can be used as a very effective tool in such applications. A child who has difficulty in communicating with a person in communication and interaction, a child with speech difficulties, a child who has problems with self-confidence can support a child with language development."*

It has been determined that these applications are most beneficial in the teaching-learning process category. All participants mentioned that content could be prepared with the help of ChatGPT applications. P4 shared their view on the topic as follows: *"Preparing lesson plans feels burdensome to our teachers in terms of time. During this process, artificial intelligence can come as a relief to teachers, aiding in the preparation of plans."* It is also believed that these applications significantly contribute to material preparation. One participant highlighted their contribution to material preparation by stating, *"During the concrete operational stage, we need to present visuals to help children visualize certain things. Finding visuals related to every learning outcome can be challenging. If you ask artificial intelligence to draw a sad cat, it can easily do so, even though we can't use existing visuals due to copyright issues."* In addition, it is thought that in large classes, the assessment and evaluation process take time, and can be challenging for teachers, and AI applications like ChatGPT could offer solutions to these problems. A participant, identified as P5, expressed their thoughts on this matter by saying, *"Using it for at least preliminary evaluations of portfolios, project reports, and lengthy written assignments can be beneficial."*

The data obtained indicate that AI applications like ChatGPT also contribute to professional development. The most significant contribution of these applications to professional development is enabling teachers to follow developments more easily in their field's literature. Participant P4 has expressed their views on this topic as follows: *"When you ask what the current competencies of a teacher are, it generates a few points for you. For example, a teacher who graduated 10 years ago knows the theoretical framework of pedagogical knowledge, while now, ChatGPT will bring up technological pedagogical content knowledge. I think this will lead to awareness and a search for seminars, webinars, etc.*

### Negative Aspects of Using AI Applications like ChatGPT in Primary Schools

Secondly, within the scope of the findings obtained from the questions asked, the theme of negative aspects of AI applications like ChatGPT in education was reached. The data obtained were categorized under the theme of negative aspects and presented in Figure 2.

In Figure 2, the negative characteristics related to teachers, students, the teaching-learning process, and professional development categories of AI applications like ChatGPT, as identified by academics, have been coded. According to the data obtained, these applications most negatively affect teachers in terms of ethical concerns. The use of data by teachers without citing any source or the failure to investigate the source of the obtained data is indicated among the ethical violations. P1 has articulated this violation by stating, *"The teacher does not know where the information source is coming from. This is an ethical issue."* Additionally, another significant negative aspect of AI applications is causing teachers to feel inadequate. It is thought that students obtaining information from AI leads to questioning the necessity of the teaching profession. Participant P2 expressed their opinion on this matter as follows: *"After using these applications, a teacher might once ask themselves, 'What need is there for me?' If the student can get all the answers from AI, it might be considered that there is no need for a teacher."*

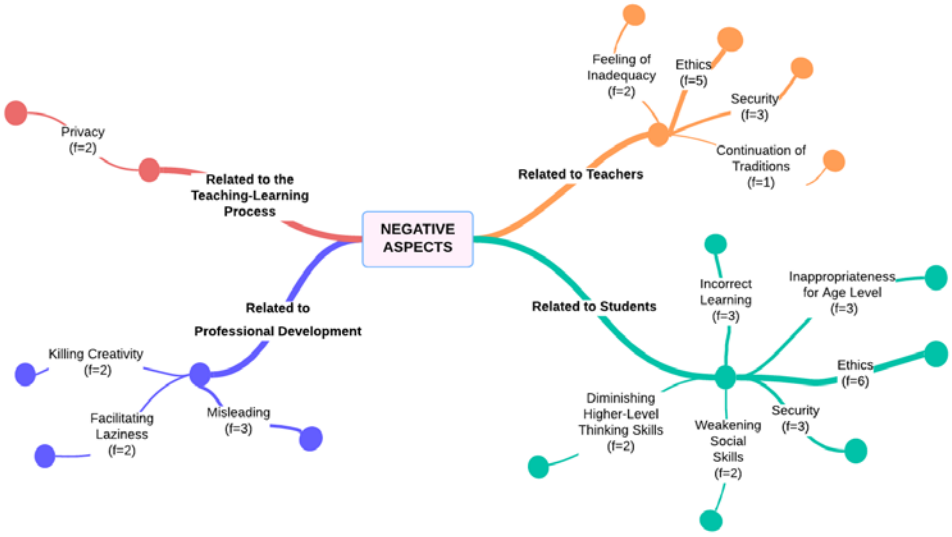


**Figure 2.**

*Negative Aspects of Using AI Applications like ChatGPT in Primary Schools*

According to the data obtained, it has been determined that students are the most negatively affected by AI applications like ChatGPT. As P3 put it, *"When students copy something and bring it, they are not aware that it's a form of theft. They unwittingly fall into ethical issues."* This highlights that students can unintentionally commit ethical violations. Additionally, some academics emphasized the need to question the accuracy of the information provided by these platforms, noting that accepting information without scrutiny can lead to incorrect learning. Regarding this issue, participating academician P7 shared their thoughts, *"If students ask ChatGPT about a topic they do not know and trust its response as correct, it can lead to incorrect learning."* and *"Students are not proficient enough to filter and use the information from ChatGPT. They accept whatever comes as correct."*

The applications have been identified to negatively affect the teaching-learning process solely in terms of privacy. The negative impact in this area is described as, *"A student can open up to their teacher, share an incident, and exchange feelings. However, when narrating an incident to ChatGPT, it cannot reflect emotions. Teacher-student interaction is more tangible and emotional, which ChatGPT cannot provide. Moreover, ChatGPT could use this data elsewhere.* (P1)"

Lastly, it has been found that there are negative effects related to professional development. These applications could lead to incorrect learning in students and, at the same time, provide misleading information for teachers' professional development. This conclusion is supported by P9 *"One should not be too trusting in obtaining information. If you ask for a summary about a topic you know nothing about, you could encounter problems because it can insert absurdly incorrect information. It's unreliable in providing accurate information."* and *"It has the potential to cause confusion by giving wrong information and data to many people indeed."*

### The Use of AI Applications like ChatGPT in Classroom Applications in Primary Schools

Lastly, within the scope of the findings obtained from the questions asked, the theme of potential uses of ChatGPT applications in classroom applications in primary schools was reached. The data obtained were categorized under the theme of usage in classroom applications and presented in Figure 3.

In Figure 3, the use of artificial intelligence applications like ChatGPT in classroom applications is divided into codes in four categories: social studies, Turkish, mathematics, and science. P4 stated that these applications can be used to present a case study in a social studies course. He expressed his opinion on this as follows:

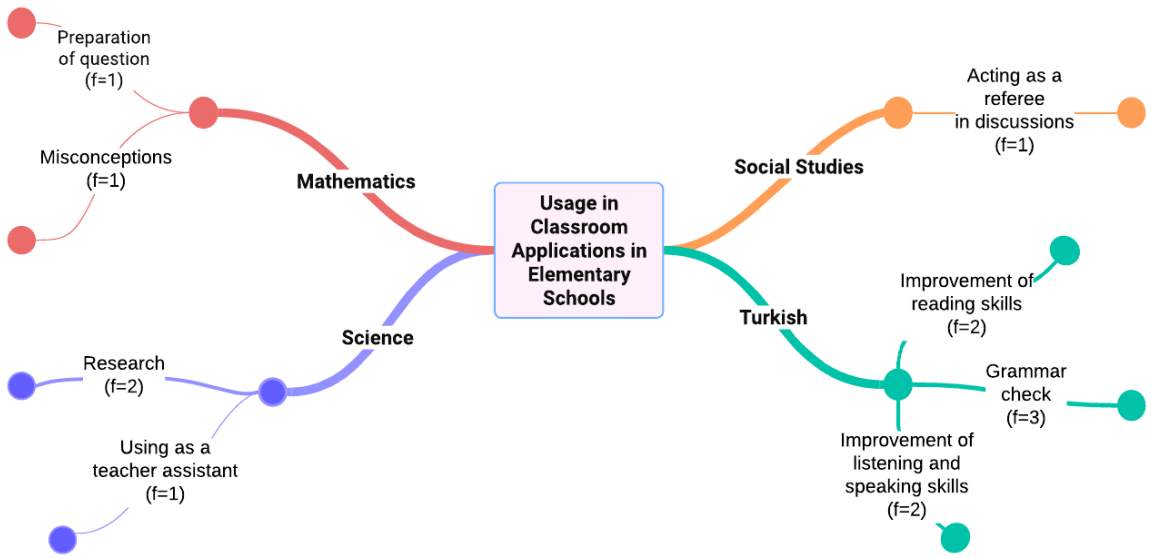


**Figure 3.**
*Using AI Applications like ChatGPT in Classroom Applications*

*"Since social studies courses are not clear lessons, they are very suitable for our lessons because they are open to interpretation and interpretation. We generally use methods like case studies. In these case studies, we always give situations that create dilemmas so that their views can emerge. For example, if we create a discussion in the classroom about whether nuclear energy should be established or not, we can appoint ChatGPT as an arbitrator. Some of the students presented the following reasons and some of them presented the following views, and they can evaluate these with the share of reality and say which one is the thing. Or we can use ChatGPT at the beginning and ask him to present evidence for both cases without revealing his opinion, as we are going to discuss about whether nuclear energy should or should not be used in our class. We can discuss it."*

These applications are also used in classroom applications in Turkish lessons. The participant academician P1, who is an expert in the field of Turkish education, stated that such applications can be used for grammar control during the Turkish lesson: *"When the student writes a paragraph, he can ask artificial intelligence to check it grammatically."* P9, on the other hand, supported P1 by saying *"We can provide feedback to the sentences formed by children."* Within the scope of the mathematics course, two different areas of use were identified: preparing questions and learning misconceptions. The participant stated that it can be used during the writing of sample questions to be solved during the lesson with the words *"We can get sample question types to be done in the class from artificial intelligence."* At the same time, it was determined that it can be used to learn what the misconceptions in literature are in mathematics subjects where misconceptions are high. Finally, within the scope of the data obtained, two codes, namely conducting research and using it as a teacher's assistant, were reached for use in classroom applications in the science course. P7 stated that these applications can be used while conducting research in the science course: *"If I want students to conduct scientific research, where and what will they research, what key concepts will they use? I can set up and use a system that will guide them ChatGPT on such issues".*

## Discussion

The study aimed to obtain academician opinions on the application of artificial intelligence tools like ChatGPT in primary school lessons. Within the scope of this purpose, semi-structured interviews were conducted with academicians working in the field of classroom education at different universities. Findings were obtained after the semi-structured interviews with the participants. Codes were created with the findings obtained, categories were determined with the codes created and themes were reached as a result of these. As a result of the interviews, the themes of a) the contributions of using artificial intelligence applications like ChatGPT in primary school, b) the negative aspects of using artificial intelligence applications like ChatGPT in primary school, c) the use of artificial intelligence applications like ChatGPT in classroom applications in primary school were obtained. In this section, the themes in the findings section are summarized and compared with the literature.

### Theme 1: Contributions to Using Artificial Intelligence Applications like ChatGPT in Primary School

*"The academics in the study group explained the contributions of using ChatGPT and similar artificial intelligence applications to teach in four categories: "for teachers, for students, for the teaching-learning process, for professional development".*

The category for teachers consists of two codes: "saving in terms of timing" and "helping to understand the curriculum". In this category, the code "saving in terms of timing" was the code in which academicians presented similar opinions. This result coincides with literature. In the literature, there are findings that the use of artificial intelligence tools in education saves time for teachers by preparing lesson plans, accessing teaching resources (Luckin et al., 2016), facilitating the work of teachers (İşler & Kılıç, 2021) and alleviating the workload of teachers (Gao & Hu, 2018). It is similar to the findings of Sumakula et al. (2022), who concluded that it could help the teacher prepare content and guide the teacher.

It can be said that the teaching profession includes studies like preparing for the lesson, preparing for evaluation, student follow-up, making plans for individuals with special needs, material preparation, and social activities with students who are not directly related to education. All these activities increase the workload of the teacher. Therefore, the most frequently mentioned issue in this category by academics was that artificial intelligence can be used to reduce teachers' workload.

The category for students consists of the codes of supporting psychomotor skills, individualized learning, motivating, learning to learn, language development, and acquiring new ideas. Academicians stated that the use of artificial intelligence can support psychomotor skills. The researchers could not find a study supporting this finding in the literature on the code of supporting psychomotor skills. The individualized learning code obtained from the interviews is similar to the findings in the literature. The findings that artificial intelligence will individualize the learning experience and materials (Fadel et al., 2019; Sumakula et al., 2022); provide students with individualized learning experience (Khosvari & Misra, 2019) and facilitate the learning process (Erdemir & İngenç, 2014) support the "individualized learning" code in the study. The "motivating" code expressed by the academics in the study overlaps with the results found in the studies of Dinçer and Doğanay (2016) and Sumakula et al. (2022) in the literature. The codes of learning to learn and acquiring new ideas are like the findings of Williams et al. (2019) on planning, improving learning skills, and facilitating the acquisition of new ideas. There were no findings in the literature regarding the opinion expressed by the participants regarding the language development code. It is seen that the findings in the literature on language development are generally aimed at facilitating students' foreign language learning (Belda-Medina & Calvo-Ferrer, 2022b).

It is thought that the use of artificial intelligence will have positive aspects for students as well as teachers in the education process. It was observed that the results obtained in the category of students in the theme of contributions were very different from each other. It is thought that this difference may be because the fields of study and subjects of the academicians participating in the study are different from each other

The category for the teaching-learning process consists of four codes: content preparation, material preparation, using different teaching methods and techniques, measurement, and evaluation. The content preparation category obtained in the study is supported by the results of Luckin et al. (2016), who concluded that artificial intelligence tools will provide advantages in preparing lesson plans and creating content. Participants mentioned that the content visualization feature of the artificial intelligence application could be used in "material preparation". However, it is seen that the findings obtained in the studies about material are in the form of individualization of teaching materials (Fadel et al., 2019; Luckin et al., 2016). It is seen that the opinions of academicians in the measurement and evaluation code are like the result of Gao and Hu (2018) that artificial intelligence tools can be used for monitoring and evaluating student progress.

Teaching-learning process consists of content, teaching process and method, and evaluation dimensions. In the teaching-learning process category, it was seen that the codes obtained from the answers received from academicians were related to these dimensions. However, it is seen that the codes are not in a holistic structure and different codes are formed. It is thought that these differences may be since academicians are not in a common field of study.

The category for professional development consists of three codes: following the literature, development of content knowledge, and development of pedagogical knowledge. The academicians in the study group mentioned that artificial intelligence applications can provide convenience for teachers to follow the literature. Luckin et al. (2016) reached a similar finding in the code of following the literature in this category in their study. It was found that artificial intelligence applications would be beneficial for the development of content knowledge and pedagogical knowledge. In this code, a similar finding was found in the study conducted by Demir-Dülger and Gümüşeli (2023).

Demir-Dülger and Gümüşeli (2023) concluded in their study that artificial intelligence applications provide opportunities for teachers in terms of professional development.

Professional development can be considered as an important part of career development in all professions. In this category, the view that academicians can be used to follow the literature came to the fore. In this category, various codes were reached due to the different fields of study of the academicians in the study group.

### Theme 2: Negative Aspects of Using Artificial Intelligence Applications like ChatGPT in Primary School

*Academics in the study group explained the negative aspects of ChatGPT and similar artificial intelligence applications in four categories: "for teachers, for students, for the teaching-learning process, for professional development".*

The category for teachers consists of four codes: ethics, security, continuation of traditions, and feeling of inadequacy. In the results obtained from the studies conducted by obtaining opinions on the use of artificial intelligence tools, the most frequently mentioned difficulty was ethics and safety. The ethical and security codes obtained in the study are similar with the findings of Huang (2023), Fadel et al. (2019) that artificial intelligence will create ethical, security, data security and privacy problems. Findings supporting the continuation of traditions and feeling of inadequacy codes obtained in the study could not be found in the literature. In the studies in the literature where teachers' views on the use of artificial intelligence are taken, it is seen that the results of the studies show that the level of curiosity about artificial intelligence is high, they are curious about using it and they believe that artificial intelligence should be used today (Sumakula et al., 2022).

The category for students consists of six codes: ethics, safety, blunting high-level thinking skills, wrong learning, inappropriate for age level, and weakening social skills. When we look at the frequency distribution of these six codes, it is seen that academicians have different opinions within themselves. In the literature, it is stated that there will be ethical, security and pedagogical problems for students in the studies where the use of artificial intelligence and opinions on artificial intelligence are taken. In this context, the ethical and security codes reached in the category of students in the research are similar with the results obtained in the studies of Huang (2023), Fadel et al. (2019). In the study, it was found that artificial intelligence applications blunt higher-order thinking skills and the code of blunting higher-order thinking skills was obtained. This result contrasts with the findings obtained in the study conducted by Caro et al. (2014), which suggest that "artificial intelligence will increase metacognition in students". No findings were found to support the wrong learning code obtained in the study. There is no finding that supports the code "not suitable for the age level" and does not overlap with this code. In studies conducted in countries like the USA and China, there are findings showing that age level is not important in the use of artificial intelligence, provided that pre-school and primary school students are taught ethical rules and safety rules regarding the use of artificial intelligence. In the study conducted by Su and Yang (2024), some of the kindergarten teachers considered this application as strong for the age group they work with, while others evaluated it negatively. These findings show that there are many question marks about the age level. The data obtained with the code of weakening social skills in the study are similar to the findings of a study (Saengudomlert & Wongwanich, 2019), where the result showed that students would weaken their social relationships with both their peers and teachers (Saengudomlert & Wongwanich, 2019) However, it is seen that it does not overlap with the result of the study stating that it will contribute positively to the social skill development of students who come together on the same platforms with artificial intelligence applications (D'Mello & Grasser, 2012).

The category for the teaching-learning process consists of a single code, the privacy code. In the findings obtained, the expressions in the answers given regarding the "privacy" code are "the classroom is a general privacy area and this privacy area will be disturbed". The researchers could not find any studies in the literature that would support or contrast the views stated in this code.

In the category of professional development, there are three codes: killing creativity, simplicity, and misleading. These codes obtained in the research coincide with the findings obtained by Luckin et al. (2016) in the literature that "it will make the teacher lazy as a result of easy access to information as a result of fast access to information". The misleading code is like the result of the study conducted by Luo et al. (2023) in the literature, which is similar to the result of presenting data suitable for plagiarism and not confirming the accuracy of the sources used.

### Theme 3: Using Artificial Intelligence Applications like ChatGPT in Classroom Applications in Primary School

*Academics in the study group explained the use of ChatGPT and similar artificial intelligence applications in classroom applications in four categories: "Life Science/Social Studies course, Turkish course, Mathematics course, Science course".*

The Social Studies course category consists of a single code with the code of acting as a referee in discussions. The Turkish course category consists of a single code, grammar control. It was observed that the studies on grammar control were mostly related to foreign language teaching and

grammar issues in foreign language learning (Sumakula et al., 2022; Virvou et al., 2000). The category of mathematics course consists of two codes: preparing questions and knowing misconceptions. The category of science lesson consists of two codes: conducting research and using as a teacher's assistant. Although there is no study directly related to the science course in the research conducted in this category, the results obtained suggest that students can facilitate research with artificial intelligence (Khosvari & Misra, 2019; Williams et al., 2019). In the studies conducted in the literature, the use of "teacher assistant" was not encountered. In particular, no study was found in which this concept was associated with the Science course. In the studies, the results of alleviating the teacher's workload and facilitating the teacher's work were generally emphasized (Gao & Hu, 2018; İşler & Kılıç, 2021). In general, it can be said that the codes of undertaking the role of referee in the discussion, grammar control and preparing questions obtained from the answers obtained from the lessons are related to the code of "using as a teacher assistant".

It is seen that the answers given by academicians regarding the use of artificial intelligence in the classroom do not exhibit a holistic structure. This may be due to the specialization of academicians in different fields. For this reason, it is thought that academicians give answers based on their own areas of expertise and their own experiences in classroom applications.

It can be thought that academics' specialization in different disciplines is related to how much they are interested in artificial intelligence and their attitudes towards artificial intelligence. The limited number of academics reached in the research and the fact that only interviews were conducted in the data collection process constitute the limitation of the research. The fact that the views of academics differ from each other may be a reflection of the different views and experiences of each academician regarding the use of artificial intelligence. This situation is both positive in terms of drawing attention to different dimensions of the use of artificial intelligence, but at the same time, it is negative in terms of the fact that the answers received do not form a holistic perspective.

## Conclusion and Recommendations

It is seen that the academicians included in the research have more positive opinions about the use of artificial intelligence during interviews. The findings of the study indicate that participating academics expresses positive views regarding the use of artificial intelligence in classroom environments and the teaching-learning process. One of the positive aspects mentioned that artificial intelligence could be used to reduce teachers' workload. Additionally, artificial intelligence usage has been highlighted as a tool for providing students with personalized learning experiences and assisting in lesson planning and content preparation. Another positive feature noted by the participants has been the ability of artificial intelligence to generate visual content which could be useful in material preparation.

However, academics also pointed out some challenges related to the use of artificial intelligence in the classroom and teaching- learning process. One major concern of the teachers' perspective was ethical and security issues. The negative aspects mentioned from the students' perspective included the weakening of social skills, the potentional hindrance of higher-order thinking skills and the risk of misinformation. It was stated by the participants that the artificial intelligence application which we have started to see more frequently in all areas of our lives, has started to take its place in the classrooms and that studies should be carried out on how it can be used positively in the classrooms. It was stated by the participants that the artificial intelligence application, which we have started to see more frequently in all areas of our lives, has started to take its place in the classrooms and that studies should be carried out on how it can be used positively in the classrooms.

Based on the findings of the research, the following recommendations are suggested for researchers, policy makers and teachers:

### Recommendations for Researchers

1. In the study, ethical and security problems related to the use of artificial intelligence technologies in education were addressed. In order to solve these problems, it is recommended that experts from different disciplines like education, law, engineering and psychology could work in cooperation.
2. Academics stated that artificial intelligence technologies have been used for various purposes in different courses. It is recommended to investigate the effectiveness of these applications used in future research.
3. Academicians stated that artificial intelligence applications may have negative effects on students like killing creativity and wrong learning within the scope of the research. With experimental research to be conducted by primary school students, it can be examined whether artificial intelligence applications have a negative effect or not as stated by academicians.

## Recommendations for Policy Makers

1. Academics stated that one of the biggest challenges encountered for the use of artificial intelligence tools is ethical and security issues. Therefore, comprehensive ethical and safety regulations should be developed for the use of AI technologies in education.
2. Research findings show that artificial intelligence tools offer significant advantages for teachers and students. However, in order to use these tools effectively, teachers need to receive adequate training and support for these technologies. In this context, in-service trainings can be organised for the use of artificial intelligence in education.

## Suggestions for Teachers

1. Academics think that artificial intelligence technologies provide significant advantages to teachers in preparing course materials. So the teachers can be encouraged to enrich their course content by using artificial intelligence tools.
2. Research findings reveal that the ability of artificial intelligence tools to track student performance and provide individual feedback supports the teaching-learning process. Teachers can support students' learning processes more closely by using these tools.

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