ijonse International Journal on Studies in Education
www.ijonse.net

# Artificial Intelligence in the Scientific Research Process: The Views of Academics

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## Article Info

***Article History***

Received:
27 August 2025

Revised:
12 November 2025

Accepted:
11 December 2025

Published:
1 January 2026

***Keywords***

Artificial intelligence
Scientific research
Academics
Social studies education

## Abstract

This study aims to determine the opinions of academics in the field of Social Sciences Education regarding the use of artificial intelligence in the scientific research process. The study was conducted with 26 academics working in the field of Social Sciences Education at state universities. Within the scope of the research objective, qualitative research processes are utilized, and a case study design of the situation analysis type is employed. Participants who volunteered to participate in the data collection process were selected using the convenient sampling method. A semi-structured interview form prepared by the researchers was used to obtain the academics' views on the use of artificial intelligence in the scientific research process. The trial form of the semi-structured interview, used as a data collection tool, was previously submitted to three field experts for their opinions. The first section of the form contains personal information, while the second section contains interview questions. The data obtained were analyzed and reported using descriptive analysis and content analysis techniques. Based on the study's findings, it was concluded that artificial intelligence is utilized in scientific research processes, including literature review, editing, control, and translation. The study also found that the use of artificial intelligence tools is efficient and facilitates research processes. However, it was also concluded that the use of artificial intelligence, especially in terms of ethical and security dimensions, can lead to problems and results in issues such as plagiarism.

***Citation:*** Akcan, F. & Tural, A. (2026). Artificial intelligence in the scientific research process: The views of academics. *International Journal on Studies in Education (IJonSE), 8*(1), 155- 178. https://doi.org/10.46328/ijonse.5319

ISSN: 2690-7909 / © International Journal on Studies in Education (IJonSE).

## Introduction

Artificial intelligence has recently emerged as a concept that has brought about profound changes and developments not only in the field of technology but also in social, economic, and cultural areas. Artificial intelligence, which encompasses various dimensions such as machine learning, natural language processing, and deep learning, stands out with its potential to mimic processes like thinking, decision-making, and learning, much like a human being. Artificial intelligence technology offers opportunities in various areas, including health, education, production, and art, making human life easier. This technology, which offers numerous benefits and facilitating elements, is an area that has recently been deemed necessary to be explored, researched, and examined in the scientific world, and is being understood.

Artificial intelligence is defined by Russell & Norvig (2003, p. 2) as a computer science that can think like human intelligence and solve problems, while at the same time acting rationally to find and develop tools. The term 'artificial' here refers to the use of a machine, separate from nature and humans, to produce solutions to specific problems. The concept of intelligence broadly encompasses the fundamental cognitive functions inherent to human beings. While artificial intelligence (AI) was initially conceived as a rudimentary attempt to replicate these functions, it has undergone significant evolution. In recent years, AI has advanced far beyond its original scope, achieving capabilities that were once considered unattainable. During this rapid development process, it has been determined that artificial intelligence is much more functional. As a result, definitions of artificial intelligence have been addressed more broadly in recent times. As an example, the same researchers have redefined artificial intelligence. Russell & Norvig (2021, pp. 2-3) have recently defined artificial intelligence as thinking and behaving like a human, as well as thinking and acting rationally, and performing cognitive functions specific to human intelligence, such as learning, problem solving, perception, language comprehension, and decision making, in detail. Waly (2024, p. 1) similarly defines artificial intelligence as a rapidly developing field of technology that involves the development of intelligent machines capable of performing tasks that typically require human intelligence, such as understanding natural language, recognizing patterns, and making data-driven decisions. In this context, we can say that artificial intelligence, which is rapidly advancing and developing, is a process that functionally mimics human intelligence and analyses and synthesizes existing information, resulting in the production of responses. Therefore, it can be said that artificial intelligence is a scientific field that aims to enable machines to think, learn, solve problems, and make decisions in a manner similar to humans.

The historical development of artificial intelligence has progressed due to scientific advancements and societal needs. In fact, the concept of artificial intelligence can be traced back to philosophical discussions about artificial minds in Ancient Greece. However, its scientific origins can be traced back to the 20th century. Turing (1950) initiated the process with the question, 'Can machines think?' Turing considered the concepts of information-processing machines and intelligence together (Pirim, 2006, p. 83). Turing sought to answer the question of whether machines could possess the same decision-making and problem-solving abilities as humans, leading to the creation of the Turing Test (Arslan, 2020, p. 77).

A machine that passes this test is considered intelligent. In 1955, McCarthy, one of the pioneers of artificial intelligence, organized a conference at Dartmouth College and made his mark on the history of artificial intelligence by being the first person to define the term "artificial intelligence" (Ertel, 2024, p. 1). McCarthy invented high-level language comprehension in 1958 and wrote programs that could modify themselves. In the 1960s, Newell and Simon's 'General Problem Solver' failed to satisfactorily mimic human thought (Russell & Norvig, 2003, p.3), but it was an important development in the evolution of artificial intelligence. In 1961, the first commercial robot was built, and in 1968, it was demonstrated that computers could understand English sentences (İşler & Kılıç, 2021, p. 3). Following this, the first mobile robot was produced at Stanford University, and in 1974, the term' internet' was first used (Yılmaz, 2021, p.16). However, these developments failed to meet expectations due to limited hardware, and artificial intelligence did not develop at the same pace until the 1990s. In the 1990s, artificial intelligence gained momentum again with the development of machine learning. In the 2000s, the emergence of deep learning models accelerated. Ertel (2024, pp. 7-8) particularly highlights the advancements in robotics with deep learning and RoboCup robots in the 2000s, Google's testing of self-driving cars, Watson's ability to understand natural language and quickly answer complex questions, and the revolutionary breakthrough in image recognition in 2015, indicating that artificial intelligence has opened new horizons and will continue to show even greater advancements.

The emergence of models like ChatGPT, along with recent developments in natural language processing and generative artificial intelligence, has demonstrated the potential of artificial intelligence in complex tasks. As a result of these developments, artificial intelligence has become a valuable tool for use in scientific research processes in recent years. Jordan & Mitchell (2015, p.255) also mention the use of artificial intelligence in scientific research processes. Salvagno, Taccone & Gerli (2023, p.2) also state that ChatGPT has the potential to assist in the writing process of scientific research, conduct literature reviews, formulate research problems, and perform formatting and language processing. Artificial intelligence, particularly in its capabilities for natural language processing techniques and big data analysis, enables academics to benefit from processes such as literature reviews and writing, data collection, and data analysis. Waly (2024, pp. 255-256) states that artificial intelligence can obtain data from multiple data sources, query this data, and gain insights using tools such as predictive analytics and machine learning. Such advantages demonstrate that artificial intelligence technology has become an exciting field, and its use facilitates individual learning and scientific research processes. This evidence can be seen more clearly by typing 'artificial intelligence' into search engines and conducting a search. To put it more concretely, artificial intelligence is used every day in smartphones as virtual voice assistants, navigation systems, chatbots, email filtering, social media recommendations, and smart translations. More specifically, it is undeniable that artificial intelligence is used in scientific research processes. Resnik & Hosseini (2024, pp. 1499-1500) state in their studies that artificial intelligence has greatly influenced the world of scientific research and is used to perform or enhance various scientific tasks. In light of this information, it can be said that artificial intelligence has influenced topics that originated in scientific research and now significantly impact our daily lives. However, how artificial intelligence will affect our lives, work styles, and communication in the future remains a question mark (Long & Magerko, 2020, p. 1). For this reason, it is necessary to understand artificial intelligence and increase scientific research in this field.

The topics mentioned above regarding artificial intelligence include the advantages and benefits of using it. But is artificial intelligence only an area that provides advantages? Recent studies have also addressed concerns about artificial intelligence. Huang, Zhang, Mao & Yao (2023, p. 1) state in their work that artificial intelligence poses ethical problems and carries various risks. Floridi (2023, pp. 484-486), on the other hand, warns about the ethical and social risks of artificial intelligence, stating that with the development of artificial intelligence, there are problems such as algorithmic bias and discrimination, labor and employment, privacy and data protection, lack of transparency and accountability, and the applicability of ethical rules, and that a careful and responsible approach should be adopted to ensure that artificial intelligence is beneficial to humanity. In this regard, it is concluded that artificial intelligence is a technology frequently used among today's technologies, that it greatly affects human life, that it is impossible to stay away from it due to the advantages it provides, and that its ethical and responsible use is a preventive measure against potential problems and should be adopted for the sake of social order. In this context, technological transformation and integration, which are effective in all areas of life, particularly in interdisciplinary fields, come to the forefront. In today's contemporary education model, a qualified and sustainable education approach is emphasized. In line with the technological transformation process, the view of adapting to technology and keeping up with the times prevails at different levels of education in the context of quality education. However, İşler & Kılıç (2021, p. 4) state that although artificial intelligence tools are used in education, they are not utilized in a sustainable manner; however, artificial intelligence tools can be beneficial for learning in terms of access to information and individual learning speed. In this process, the use of innovative and creative technologies, especially artificial intelligence, in educational environments and scientific processes should be encouraged. Academics, as individuals who hold the potential to serve as role models for society, are expected to assume a leading role in the adoption and effective use of artificial intelligence tools. Accordingly, it is essential to develop a comprehensive understanding of artificial intelligence and to assess the current state of its integration and use.

It is essential to comprehend how this topic, which has a profound impact on human life, is currently being utilized, particularly by scientists, in specific areas and for particular purposes, and what popular topics can be developed that may cause problems. Education is one of the areas most affected by artificial intelligence in recent years, and there are studies on artificial intelligence in education (Alanoğlu & Karabatak, 2020; Arslan, 2020; Çetin & Aktaş, 2021; İşler & Kılıç, 2021; Uzun et al., 2021; Bozkurt, 2023; Güzey et al., 2023; İncemen & Öztürk, 2024; Seyrek et al., 2024). There are also studies in the international literature on the use of artificial intelligence in the scientific research process (Musib, 2017; Xu et al., 2021; Krenn et al., 2022; Bianchini et al., 2022; González-Esteban & Patrici Calvo, 2022; Cheng, 2023; Hammad, 2023; Salvagno et al., 2023; Elbadawi et al., 2024; Messeri & Crockett, 2024; Resnik & Hosseini, 2024). In addition, there are studies on artificial intelligence in the field of social studies in Turkey, and these studies have been conducted specifically for teachers, students, and graduate students (Yetişensoy, 2022; Atıf Seyhan, 2024; Yeşilyurt, Dündar & Aydın, 2024; Dündar, Yeşilyurt, Demir & Yeşilyurt, 2025; Yeşilyurt, Dündar, Demir & Yeşilyurt, 2025).

When examining both national and international studies, it is evident that the relationship between education and artificial intelligence is aligned with today's prominent technological transformation process. In their recent study on artificial intelligence and education, İncemen & Öztürk (2024, p.28) state that artificial intelligence

technologies are used in a knowledge, data, and logic-based manner. Accordingly, within the context of technological transformation, it is anticipated that innovative technologies, such as artificial intelligence, will be utilized in educational environments with a qualified, sustainable, and innovative understanding of education (Yeşilyurt, Dündar, & Aydın, 2024, p. 3). They state that the use of artificial intelligence in interdisciplinary social studies education will enrich learning environments due to its advantages, such as individualizing learning. Indeed, the use of artificial intelligence is also important in social studies, a multifaceted and interdisciplinary field. Therefore, it is believed that the opinions of academics working in fields such as social studies, which aim to prepare individuals for life, will contribute to the literature. For this reason, the aim is to determine the opinions of academics in the field of social studies education regarding the use of artificial intelligence in scientific research processes. In line with this basic aim, answers to the following sub-aims were sought.

In scientific research processes,

1. What are the areas of application and purposes of artificial intelligence?
2. What are the advantages and disadvantages of using artificial intelligence?
3. What should be considered when using artificial intelligence?
4. What are your views on improving the development and functionality of artificial intelligence?
5. What role will artificial intelligence play in the future?
6. What are the artificial intelligence tools used and their effects?

## Method

This section provides information about the research model, study group, data collection, and analysis processes.

### Research Model

This study, which examines the views of academics in the field of social studies education on the use of artificial intelligence in academic studies, is conducted using qualitative research methods. The study, conducted using qualitative research methods, employs a case study design, and the opinions are presented through case analysis. While qualitative research is used to represent the opinions of participants and the ideas underlying their opinions in studies conducted based on social sciences (Vishnevsky and Beanlands, 2004, p. 234), the case study design stands out in qualitative studies for identifying participants' ideas in a multifaceted manner and presenting the findings in a systematic way (Heale and Twycross, 2018, p. 7).

### Study Group

The study group consists of 26 participants who were actively employed in Departments of Social Sciences Education at 12 different universities located across 12 provinces during the Spring Semester of the 2024–2025 academic year. Participation in the study was entirely voluntary. Descriptive information regarding the participants’ demographic and professional characteristics is presented in Table 1.

Table 1. Personal Information of the Participants

| **Gender** | **n** | **%** | **Participants** |
|---|---|---|---|
| Female | 10 | 38.5 | P1, P2, P9, P11, P12, P16, P17, P23, P24, P26 |
| Male | 16 | 61.5 | P3, P4, P5, P6, P7, P8, P10, P13, P14, P15, P18, P19, P20, P21, P22, P25 |
| **Age** | | | |
| 20-30 | 2 | 7.7 | P2, P20 |
| 31-40 | 9 | 34.6 | P4, P6, P7, P8, P11, P12, P16, P19, P21 |
| 41-50 | 13 | 50.0 | P1, P3, P5, P9, P13, P14, P15, P17, P18, P22, P23, P24, P25 |
| 51+ | 2 | 7.7 | P10, P26 |
| **Seniority** | | | |
| 0-5 years | 6 | 23.1 | P11, P12, P13, P15, P20, P21 |
| 6-10 years | 2 | 7.7 | P2, P4 |
| 11-15 years | 5 | 19.2 | P1, P6, P7, P16, P19 |
| 15+ | 13 | 50.0 | P3, P5, P8, P9, P10, P14, P17, P18, P22, P23, P24, P25, P26 |
| **Academic Title** | | | |
| Professor | 7 | 27.0 | P3, P5, P6, P10, P14, P25, P26 |
| Associate Professor | 12 | 46.1 | P4, P7, P8, P9, P11, P16, P17, P18, P19, P22, P23, P24 |
| Assistant Professor | 5 | 19.2 | P1, P2, P12, P13, P15 |
| Lecturer | - | - | |
| Research Assistant | 2 | 7.7 | P20, P21 |
| **University of Employment** | | | |
| University 1 | 6 | 23.1 | P1, P4, P11, P15, P20, P21 |
| University 2 | 5 | 19.2 | P2, P5, P7, P13, P17 |
| University 3 | 3 | 11.5 | P3, P6, P18 |
| University 4 | 3 | 11.5 | P9, P22, P23 |
| University 5 | 2 | 7.7 | P24, P25 |
| University 6 | 1 | 3.9 | P8 |
| University 7 | 1 | 3.9 | P10 |
| University 8 | 1 | 3.9 | P12 |
| University 9 | 1 | 3.9 | P14 |
| University 10 | 1 | 3.9 | P16 |
| University 11 | 1 | 3.9 | P19 |
| University 12 | 1 | 3.9 | P26 |
| **Frequency of AI Use** | | | |
| Frequently | 10 | 38.5 | P2, P6, P7, P8, P10, P12, P16, P20, P24, P25 |
| Sometimes | 14 | 53.8 | P1, P3, P4, P9, P11, P14, P15, P17, P18, P19, P21, P22, P23, P26 |
| Never | 2 | 7.7 | P5, P13 |
| **Total** | 26 | 100.0 | |

According to Table 1, out of a total of 26 participants, 10 (38.5%) were female and 16 (61.5%) were male. Two participants (7.7%) were in the 20-30 age group, 9 (34.6%) were in the 31-40 age group, 13 (50.0%) were in the 41-50 age group, and 2 (7.7%) were in the 51+ age group. Six participants (23.1%) have 0-5 years of seniority, 2 (7.7%) have 6-10 years, 5 (19.2%) have 11-15 years, and 13 (50.0%) have 15+ years of seniority. Seven participants (27.0%) hold the title of Professor, 12 (46.1%) hold the title of Associate Professor, 5 (19.2%) have the title of Assistant Professor, and 2 (7.7%) hold the title of Research Assistant. No participants with the title of teaching assistant were included in the study. Six participants (23.1%) work at University 1, 5 (19.2%) at University 2, 3 (11.5%) at University 3, 3 (11.5%) at University 4, and 2 (7.7%) at University 5. One participant each (3.9%) is employed at universities 6, 7, 8, 9, 10, 11, and 12. When examining the frequency of artificial intelligence use among participants, it is observed that 10 (38.5%) indicated they use it 'frequently,' 14 (53.8%) indicated they use it 'occasionally,' and 2 (7.7%) indicated they 'never' use it.

**Data Collection and Analysis**

In this study, which examines the use of artificial intelligence in academic research, data were collected using a semi-structured interview form prepared by the researchers. In this context, the "interview form approach" was used in the process. The interview form approach, often preferred in qualitative research, aims to reveal participants' views in line with the research objective and identify the fundamental similarities and differences between these views (Küçük, 2016, p. 109). The form, prepared by the researchers and containing questions focused on the use of artificial intelligence in academic studies, was presented to two social studies educators for their opinions, and opinions were obtained from field experts. The form was revised based on the opinions of the field experts and finalized.

The consistency coefficient between the expert opinions was also calculated and found to be 0.82 (Miles & Huberman, 1994, p. 64). Thus, it is understood that the prepared form, in terms of its application of artificial intelligence, is consistent with the prevailing opinion of the experts. The form prepared for the opinion-gathering process was sent by email to field educators working at various universities, and data were collected.

The raw data collected were examined in the context of answering all questions in accordance with the research process and purpose (Love, 2003, p. 86) and analyzed and interpreted. In the analysis of the data, descriptive analysis (Yıldırım and Şimşek, 2008, p. 187) and content analysis (Armstrong, 2021, p. 5), which contribute to the in-depth analysis of participants' opinions when used together or separately in qualitative research processes, served as the basis. The data analysis process was supported by sharing direct examples from the participants' views.

## Results

This study examines the views of academics actively involved in social studies education regarding the use of artificial intelligence in the scientific research process. The findings obtained from the research process and interpretations of these findings are presented in this section.

**Findings regarding the Areas of Application and Purposes of Using Artificial İntelligence in the Scientific Research Process**

The findings regarding academics' opinions on the areas of application and purposes of using artificial intelligence in the scientific research process are presented in Table 2.

Table 2. Areas of Use and Purposes of Artificial Intelligence in the Scientific Research Process

| Theme | n | Participants |
|---|---|---|
| In the scientific research process (literature review/content preparation, language editing/reference generation) | 26 | P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26 |

At this stage, academics' views on the question 'What are the areas and purposes of using artificial intelligence in the scientific research process?' were examined with the sub-themes identified by the researchers.

When examining Table 2 regarding academics' views on the areas of application and purposes of using artificial intelligence in the scientific research process, the theme of 'in the scientific research process (literature review/content preparation, language control/bibliography creation)' stands out. Accordingly, it is understood that the participants agree on the functionality of artificial intelligence in the academic work process (26) in terms of its areas of use and purposes. Social studies educators utilize artificial intelligence technologies in various areas and for diverse purposes within the scientific research process, including academic work, research, and preparing and designing lesson presentations and visuals. In this context, one participant (P1) who expressed the opinion on the areas and purposes of artificial intelligence use in the scientific research process said,

> "To be honest, I am a bit strict on this issue. As academics, our brains should not rust. We can benefit from AI without causing ethical violations, but there should be a limit that we cannot cross (such as creating content with AI in original data analysis). It is quite useful in terms of literature review and translation support...'

Meanwhile, another participant (P3) states,

> “Artificial intelligence can be used in academic studies for language, expression, and writing errors, as well as for reference checking.”

According to (P6),

> “I believe that AI technologies can be used for appropriate purposes, especially in technical and algorithmic areas in academic studies. For example, its use in areas such as topic determination, journal selection, literature review, formatting, citation, and reference list organization, etc., would better serve academic purposes."

Meanwhile, (P22) and (P7) note that,

> "The use of artificial intelligence in academic research is quite diverse. For example, I frequently use it for translation or proofreading translated texts” (P22).
>
> “It has a structure that can be frequently used in academic studies. It will make important contributions in terms of providing and analyzing sources in multiple layers within the framework of ethical rules”

(P7)

(P7) draws attention to the fundamental issues that stand out in the use of artificial intelligence technologies, while (P25) states,

> "Artificial intelligence can be used in many areas, from literature reviews to data analysis, from survey interpretation to generating original ideas. I use it specifically for developing research questions, finding original ideas, and creating a framework for research. Saving time and gaining creative perspectives are also among the objectives."

When examining the participants' views on the areas of application and purposes of using artificial intelligence in the scientific research process, it is seen that it can be used in a multifunctional and functional manner in academic studies and research, at different technical stages and processes, with prominent points such as supporting creativity, increasing original idea generation, and effective use of time. It is also understood that emphasis is placed on the need to consider ethical principles in the process.

**Findings on the Advantages and Disadvantages of Using Artificial İntelligence in the Scientific Research Process**

The findings related to academics' perceptions of the advantages and disadvantages of utilizing artificial intelligence in the scientific research process are presented in Table 3.

Table 3. Advantages and Disadvantages of AI Use in the Scientific Research Process

| Theme | n | Participants |
|---|---|---|
| Advantages of AI Use | 26 | P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26 |
| Disadvantages of AI Use | 26 | P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26 |

At this stage, academics' opinions on the question 'What are your views on the advantages and disadvantages of using artificial intelligence in the scientific research process?' were examined in relation to sub-themes determined by the researchers.

When examining Table 3 regarding academics' views on the advantages and disadvantages of using artificial intelligence in the scientific research process, the themes of "advantages" and "disadvantages" stand out. Accordingly, regarding the advantages and disadvantages of using artificial intelligence, it is understood that the participants consciously expressed their opinions and agreed on the advantages and disadvantages of using artificial intelligence in the academic work process (26). In this regard, when looking at the opinions of academics on the advantages and disadvantages of using artificial intelligence in the scientific research process, it is seen that, in addition to the advantages of quick access to organized information and support for research in various areas, such as literature, language and expression, opinions are also expressed on various disadvantages that may

arise, such as ethical violations and plagiarism issues. In this regard, participant P2 expressed their views on the advantages and disadvantages of using artificial intelligence.

'The use of artificial intelligence in academic studies can provide advantages in terms of facilitating literature review, inspiring research topics, and determining research methods, but the fact that there are still some questions about the reliability of the information obtained from artificial intelligence tools raises the disadvantage of plagiarism.' Another participant (P4) stated that;

> 'It is quite advantageous in terms of efficient use of time, accessing much more information in an organized manner in a short time, and the effective use of various visualization tools. The possibility of its use becoming a habit due to the conveniences it provides, leading to mental laziness, reducing productivity, and making one prone to unethical behavior such as plagiarism, can be cited as negative aspects.'

Again, according to (P6),

> "I believe that the greatest advantages of using artificial intelligence technologies in academic work are that they alleviate some labor-intensive tasks and save significant time. The disadvantages are that it can provide misleading guidance and encourage researchers to become lazy. In some cases, the benefits of the output are overshadowed by the time spent verifying its accuracy."

While emphasizing the advantages and disadvantages of artificial intelligence, (P10) states,

> "I can say that artificial intelligence provides advantages in many areas of academic work. Some of these are: it saves time, it offers the opportunity for a comprehensive literature review, it provides foreign language support, it offers alternative ideas and different perspectives, and it provides the opportunity to analyze large amounts of data."

Another participant (P16) states,

> 'Among its advantages are saving time, helping to organize thoughts, and simplifying certain technical tasks (such as text editing and creating a bibliography). At the same time, it can broaden the researcher's thinking horizon by offering different perspectives. However, when we look at the disadvantages, the inaccuracy of the information produced, problems with citing sources, and blurred ethical boundaries are noteworthy. Sometimes, content obtained through artificial intelligence may not be sufficiently original or meet academic standards. This shows that the researcher's critical filter must always be in place,"

He expresses his thoughts on the advantages and disadvantages, while (P20) said,

> "At this stage, I think the most important advantage of artificial intelligence applications is that they provide editing and language control for foreign language publications. People are enhancing their foreign language skills through artificial intelligence applications, making it easier to verify the linguistic accuracy of written materials. The biggest problem, however, is that our cognitive capacities are becoming dependent on it. Many people now prefer to have artificial intelligence generate a short summary of a topic rather than taking the time to research it in depth. In my opinion, this not only reduces the cognitive capacity of these individuals but also paves the way for significant laziness."

When looking at the participants' views on the advantages and disadvantages of using artificial intelligence in the scientific research process, it is clear that the most important advantages of artificial intelligence are saving time

in scientific processes, accessing planned, organized information and literature support, and access to diverse and multifaceted support ranging from language proficiency checks to translation support. However, the potential to lead individuals into laziness, inefficient time use, issues with questionable sources and information, the erosion of a critical perspective and the researcher's mindset, and ethical problems are also highlighted as significant drawbacks.

**Findings regarding Considerations for the Use of Artificial İntelligence in the Scientific Research Process**

Findings regarding academics' views on points to consider when using artificial intelligence in the scientific research process are presented in Table 4.

Table 4. Considerations Regarding the Use of AI in the Scientific Research Process

| Theme | n | Participants |
|---|---|---|
| Academic Ethics | 24 | P1, P3, P4, P5, P6, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26 |
| Digital Security | 21 | P1, P2, P3, P4, P6, P7, P8, P9, P10, P11, P12, P15, P16, P17, P18, P21, P22, P23, P24, P25, P26 |
| Principle of Integrity | 14 | P3, P5, P8, P12, P16, P17, P18, P20, P21, P22, P23, P24, P25, P26 |

At this stage, the participants' responses to the question "What are your views on the considerations regarding the use of AI in the scientific research process?" were analyzed based on the sub-themes identified by the researchers.

When examining Table 4 regarding academics' views on the considerations related to the use of artificial intelligence in the scientific research process, the themes of "academic ethics", "principle of integrity", and "digital security" stand out. Accordingly, it is understood that, regarding the considerations related to the use of artificial intelligence in the scientific research process, the participants mostly prioritized the principle of academic ethics (24), drew attention to the principle of digital security (21), and expressed their views on the necessity of basing their work on the principle of honesty (14).

When examining the opinions of academics on the issues to be considered regarding the use of artificial intelligence in the scientific research process, the topics of "academic ethics, the principle of honesty, and security" stand out. Participant P1 emphasizes the need to pay attention to issues such as ethics and security in the use of artificial intelligence in the scientific research process, stating that

'If AI is used for writing support or visual creation, this must be stated in the work. In recent years, academic opinions have advocated for the acknowledgment of AI use in literature reviews. While we used to access information from libraries and subscribed journals, after the internet became widespread, we started using search engines. Still, we did not feel the need to specifically mention these search engines (such as Google Scholar). There is no need to mention the use of AI for literature reviews or translation support.

Another disadvantage is that it may create unfair competition. Some AI programs are paid and only available in English. Researchers who cannot access them may experience a negative impact on their publication performance. Ultimately, AI should be viewed as an auxiliary academic tool… The support obtained from AI is entirely the user's ethical responsibility. Participant K7, who pays attention to digital security in the use of artificial intelligence, states,

> "First of all, we must be aware that artificial intelligence draws data from the web environment. For this reason, we must always question the content we obtain. For example, we must determine the sources from which it obtained the answer it presented to us. Again, we should not allow it to take precedence over our own expressions in our academic research. Producing content is very easy, but we should only use artificial intelligence to generate ideas."

For (P8),

> "From an ethical standpoint, AI-supported content must be disclosed. Additionally, attention must be paid to issues such as data security, protection of personal information, and copyright. I believe that content generated by AI should not be used directly without being reviewed, and that humans should perform accuracy checks."

Another participant (P9) states,

> "The accuracy of information obtained from AI tools must be verified. Sources contain significant errors,"

while (P12) states,

> "When using artificial intelligence, I try to pay particular attention to ethical issues. I believe it is necessary to cite sources in the content produced, verify the accuracy of quotations, and avoid situations that could compromise academic integrity. Additionally, I take great care with data security when working with personal data. Checking the accuracy of every piece of information coming from artificial intelligence is, in my opinion, part of the user's responsibility," emphasizing the priorities of artificial intelligence in academic processes,

while (P18) states,

> "At this point, issues such as the risk of plagiarism, failure to make proper citations, and copyright infringements come to mind. The privacy of student and participant data may be overlooked,"

and highlights a current issue.

Indeed, in the opinions of academics on noteworthy issues that may arise in the use of artificial intelligence in the scientific research process, principles of academic ethics, integrity, and responsibility stand out. At the same time, concerns about digital security, information pollution, and the protection of personal data are also expressed.

**Findings regarding the Support of the Development and Functionality of Artificial İntelligence Use in the Scientific Research Process**

Findings regarding academics' views on the support of the development and functionality of artificial intelligence use in the scientific research process are presented in Table 5.

Table 5. Support for the Development and Functionality of AI Use in the Scientific Research Process

| Theme | n | Participants |
|---|---|---|
| Supportive Training and Program Process | 20 | P1, P2, P4, P5, P6, P7, P11, P12, P13, P14, P15, P17, P18, P19, P20, P22, P23, P24, P25, P26 |
| Use of Reliable Sources | 12 | P2, P4, P9, P10, P15, P16, P19, P21, P23, P24, P25, P26 |
| Browser/Interface Support | 8 | P1, P4, P8, P19, P20, P24, P25, P26 |

At this stage, academics' opinions on the question 'What are your views on the development and functionality of artificial intelligence use in the scientific research process?' were examined concerning sub-themes identified by researchers.

When examining Table 5 regarding academics' views on supporting the development and functionality of artificial intelligence use in the scientific research process, the themes of "support training and program process", "use of reliable sources", and "browser/interface support" stand out. Accordingly, it is thought that the participants focused on support training and program process (20), drew attention to the use of reliable sources (12), and agreed that providing browser/interface support (8) would contribute to the development and functionality of artificial intelligence in the scientific research process.

In the context of employing artificial intelligence in the scientific research process, social studies educators highlight several key areas for improvement, including the provision of training on the introduction and conscious use of AI tools, enhanced browser and interface support, and strengthened data security measures. These issues are considered critical for advancing the development and functionality of AI processes and applications. In this regard, directing users to reliable sources, supporting the process, and integrating frequently used programs (P4) are prioritized in terms of development and functionality in the use of artificial intelligence.

'There are enough alternative AI tools available. Therefore, the parameters used in artificial intelligence should direct users to more reliable sources. Additionally, when conducting academic research, utilizing multiple AI tools to verify content (e.g., Jenni, Elicit) can be beneficial. Integrating almost every AI tool into PDF and Word applications increases usability," while (P5) states,

> "First and foremost, it is essential to organize educational seminars for us. I am not an academic who works directly with technology, but some areas interest me. I believe that educational activities conducted by experts in these areas would be beneficial. In the first question, I said that I am working on values education and that I do not need artificial intelligence, but perhaps it has functions that could greatly simplify our work. We can only understand this through training provided by experts. I also believe that it would be useful to examine examples of artificial intelligence use and to hear the opinions of academics who use it."

Another participant (P7) said,

> "First of all, artificial intelligence literacy must be developed in individuals. We must have a good understanding of how artificial intelligence works. If we can do this, controlled functionality and productivity will increase. For this, in-service support is needed at every level of education,"

emphasizing the importance of artificial intelligence literacy. Participant K12, who highlights the need to support the functionality of artificial intelligence applications according to the diversity of work areas, states,

> "I believe that to make better use of the potential of this technology, academics must first understand these tools correctly and be able to use them effectively. Increasing education on this subject at universities and creating ethical use guidelines would be beneficial. In addition, developing artificial intelligence tools tailored to the needs of each field could greatly increase functionality."

Another participant (P19) stated,

> "We now need to accept artificial intelligence as part of our lives. I believe it is essential to offer both theoretical and practical education on the possibilities and applications of artificial intelligence, particularly from the age when children are introduced to the internet and computers, which, to the best of my knowledge, is around 13-14 years old. This could be a course directly related to artificial intelligence or an approach that includes supporting students' existing courses with artificial intelligence. For example, in Social Studies classes, teachers could integrate artificial intelligence into their lessons by using it to review assignments, create visualizations, and conduct web research. However, I view artificial intelligence as a kind of intelligent personal assistant. I view it as an assistant that can perform research that would take a human a very long time to complete, albeit in a shorter time, albeit sometimes with errors, omissions, or flaws."

According to (P23),

> "Ensuring that plagiarism detection programs can detect works created with artificial intelligence may contribute to the safe use of this technology in academic circles,"

emphasizing development and functionality.

When examining participants' views on the development and functionality of AI use in the scientific research process, there is a need to increase educational seminars and training programs on AI, integrate it into various programs, provide interface support, begin teaching courses on AI at different levels, and adapt it to different fields.

**Findings regarding the Role Artificial İntelligence Will Play in the Scientific Research Process in the Future**

Findings regarding academics' views on the role artificial intelligence will play in the scientific research process in the future are presented in Table 6.

Table 6. The Future Role of AI in the Scientific Research Process

| Theme | n | Participants |
|---|---|---|
| Alternative Auxiliary Element / Research Partner | 26 | P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26 |

At this stage, academics' views on the question 'What are your views on the role that artificial intelligence will play in the scientific research process in the future?' were examined concerning sub-themes identified by the researchers.

Examining Table 6, which presents academics' views on the role artificial intelligence will play in the scientific research process in the future, the theme of "alternative auxiliary element/research partner" stands out. According to this, it is understood that the participants share a common view on the role that artificial intelligence will play in the future, particularly as an alternative auxiliary element/research partner (26).

Participants' views on the role and transformation of artificial intelligence in the scientific research process in the future highlight ideas such as an alternative platform, auxiliary element, advisor, tool, or research partner. Regarding the future role of artificial intelligence, (P1) states,

> "I believe it will be very beneficial as a virtual advisor. It can be used to generate ideas when starting a new study. It can also be used as a virtual referee. By asking it to evaluate our work as a referee, it can shed light on points we may have overlooked."

Another participant (P5) states,

> “Looking at the praise on the internet, it seems that artificial academics will be able to conduct some research...”

According to (P7),

> "I think it will be an important assistant. It will be a supervisor, almost like a co-author. However, we should never allow it to become a true co-author by giving it complete freedom. In the future, it will take on a role that adds a unique perspective to our research and provides us with more detailed data."

Meanwhile, according to (P8),

> "I think that in the future, artificial intelligence will not only be an assistant but also a ‘co-researcher' who works alongside us. Through advanced text analysis, academic recommendation systems, and automatic evaluation mechanisms, it will create transformative effects in both education and research."

Another participant (K10) emphasizes the transformative process of artificial intelligence, stating,

> “Potentially, artificial intelligence may increasingly become not just a tool but a research partner. We may even see more articles co-authored with artificial intelligence, where it makes significant contributions to methodology, writing, or data interpretation.”

Another participant (P17) said,

> "I think artificial intelligence will be used much more widely and effectively in academic work in the future. Even now, it makes tasks such as source searching, text editing, and correcting writing errors much easier. Thanks to this supportive role, researchers save time and can continue their work with greater focus. In the future, it seems possible that artificial intelligence will function not just as a tool, but as a personalized academic assistant. For example, more advanced academic systems may emerge that track developments in a specific field, make recommendations based on the researcher's area of study, and even help them plan their work."

Regarding the role that artificial intelligence is expected to play in the future, academics' opinions highlight its role as an alternative support, assistant, and complementary aid in the scientific research process. However, there are also questions about whether it will replace individuals as a collective brain in the education and training process, as well as in the scientific research process. In this context, it is acknowledged that attention is drawn to

the role of artificial intelligence in development, without overlooking the importance of individual motivation, creativity, and original work processes in an academic sense.

**Findings on the İmpact of Artificial İntelligence on the Scientific Research Process and Examples of İts Use**

Findings on academics' views on the impact of artificial intelligence on the scientific research process, along with examples of its use, are presented in Table 7.

Table 7. The Impact of AI and Examples of Its Use in the Scientific Research Process

| Theme | n | Participants |
|---|---|---|
| Activities Based on Alternative Generative AI Tools and Programs (ChatGPT, Gemini, Copilot, SciSpace, Grammarly, Quillbot, etc.) | 26 | P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26 |

At this stage, academics' opinions on the question 'What are your views on the impact and examples of use of artificial intelligence in the scientific research process?' were examined concerning sub-themes identified by researchers.

When examining the opinions of academics regarding the impact and usage examples of artificial intelligence in the scientific research process, as shown in Table 7, the theme of "activities based on alternative generative artificial intelligence tools and programs" stands out. Accordingly, regarding the impact and usage examples of artificial intelligence in the scientific research process, it is understood that all participants agree (26) on the impact of activities based on alternative productive artificial intelligence tools and programs on the scientific research process.

In the participants' views, which emphasize the impact of AI use in the scientific research process, it is known that they use AI tools that are different and alternative, adapted to the field of study. The participant (P1), who emphasizes the beneficial effects of AI in the scientific research process and draws attention to the application examples they use, states:

> "I find Researchrabbit useful for seeing the research network in literature searches. It goes from one source to another. It is quite useful. Grammarly and QuillBot are useful for reviewing the grammar and academic style of the texts I write in English. Chatpdf is particularly effective in finding the answers I am looking for while reading articles. They speed up my research process and enable me to work more efficiently."

One of the participants (P4) gave the following example:

> “ChatGPT, Jenni, Gemini, Elicit, DeepL, Area. They help me speed up and improve my work.”

Another participant (P7) said:

> "I use the Quillbot tool. I use it to edit academic sentences that I find problematic and to utilize the translation service. I also develop materials using the artificial intelligence features of the Canva tool.

> Additionally, I utilize chatbot development applications. By using these, I can provide my students with support outside of class. These applications save me time and increase my productivity,"

sharing examples of artificial intelligence applications and expressing its impact on the scientific research process. According to (P8), the impact of artificial intelligence on the scientific research process and prominent application examples are as follows:

> "I frequently use tools such as ChatGPT, Gemini, Copilot, DeepSeek, Elicit, Scite, Scıspace, Grammarly, and Quillbot. I utilize these tools in various areas, including literature summarization, suggestion generation, writing improvement, and survey analysis. They increase my productivity and allow me to discover different perspectives. I can say that they also contribute significantly to time management."

Meanwhile, according to (P11),

> "Copilot. I think this artificial intelligence tool influences my ideas about the topic I plan to work on. (For example, by quickly scanning studies on the subject to form an opinion about it. This allows me to gain an understanding of the literature."

One of the participants (P19) states,

> "… Connected Papers, Scite.ai, ChatGPT, Grammarly, Canva, Gemini, Notion. These tools contribute significantly to preparing my publications in a shorter time, encountering more examples, and developing a more positive attitude towards my work,"

while (P22) states,

> "ChatGPT, Claude, gamma. These tools contribute significantly to speeding up my work."

Participant (P24), who emphasizes the impact of AI's domain-specific use, states,

> "ChatGPT... I can do activities such as creating stories using Storyboard tools in my lessons. It is also very useful in creating activities and creating supporting materials for activities,"

while participant (P25) states,

> "Among the tools I use, the most important one is ChatGPT. It saves time in the writing process, brings different perspectives, and helps me adopt a more professional approach. I also use Gamma to improve the quality of presentations. However, I always perform the final check using my mind and scientific filter,"

discussing the examples they use and the impact of artificial intelligence on the scientific research process.

When looking at academics' views on the effects and usage examples of artificial intelligence in the scientific research process, it is understood that participants use different and alternative artificial intelligence tools (ChatGPT, Canva, Deepseek, Gamma, Grammarly, Storyboard, etc.) in their academic processes and studies, emphasizing their potential contributions in terms of effective use of time, gaining speed in the process, and developing innovative ideas.

## Discussion

In terms of the areas and purposes of artificial intelligence use, Chirichela, Mariani & Pêgo-Fernandes (2024)

state in their study titled 'Artificial Intelligence in Scientific Writing' that artificial intelligence is used in the scientific writing process and that scientists prefer it because the writing process is very time-consuming. In addition, it is stated that artificial intelligence tools are actually used in the scientific research process, including designing research questions, determining databases, conducting literature reviews, analyzing literature, and interpreting and synthesizing data. The results of this study align with our findings, and the study supports our research in this regard. Similarly, in the study conducted by Torre-López, Ramírez, & Romero (2023), it is stated that artificial intelligence is used in scientific research processes due to its advantages, such as saving time, as it is used in literature review, writing, and reporting processes in terms of areas of use and purposes. In this respect, the results of the study are consistent.

In França's (2023) study on the advantages and disadvantages of using artificial intelligence, the advantages and disadvantages of using artificial intelligence in scientific research processes are discussed. As advantages, it states that it provides powerful reference tools, facilitates a better understanding of research problems, aids in the development of research questions, optimizes research design, and offers advantages in draft data creation, data analysis, and reporting. As disadvantages, it mentions bias and privacy concerns. In this respect, it is consistent with the results of this study's sub-objective of advantages and disadvantages.

Similarly, Bahammam et al. (2023) mention in their study on artificial intelligence in scientific writing that artificial intelligence has numerous advantages, particularly in the scientific writing and publication process, while also acknowledging its disadvantages. Similarly, Bahammam et al. (2023) state that artificial intelligence has numerous advantages, particularly in scientific writing and the publication process; however, its disadvantages are also a cause for concern. These disadvantages include ethical issues, bias, fake publications, and malicious use. In this regard, the findings related to the advantages and disadvantages of the study largely align with the disadvantages section.

In terms of considerations regarding the use of artificial intelligence in scientific research processes, Lin (2024) emphasizes the importance of respecting confidentiality, privacy, and copyright, as well as paying attention to plagiarism, and utilizing artificial intelligence beneficially and ethically, particularly in relation to its ethical principles. In this respect, the findings of this study are consistent with the sub-objective of identifying important considerations regarding the use of artificial intelligence in scientific research processes. Unlike the findings of this study, however, this study also discusses strategies for reducing bias in the use of artificial intelligence. Hosseini, Resnik & Holmes (2023) state in their study titled 'The Ethics of Disclosing the Use of Artificial Intelligence Tools in Academic Writing' that attention should be paid to the issue of plagiarism when using artificial intelligence in the academic writing process, that artificial intelligence and ChatGPT should be cited if necessary, and that sources and content should be checked if ChatGPT is used. The results of this study are consistent with and support the findings of this research.

In the context of supporting the development and functionality of AI use, Ye, Varona, Huang, Lee, Liut, & Nobre (2025) in their study titled 'The design space of the latest AI-assisted research tools for idea generation, meaning extraction, and scientific creativity' recommend that in the use of artificial intelligence in academic research, the

user should take the initiative and maintain control, ensure adaptability, and prioritize transparency and verifiability. In this regard, the findings of this study align with the recommendations for academics to prioritize verification, control, and diversification of tools when using AI in the scientific research process.

Regarding the role that artificial intelligence will play in the future, Zheng, Deng, Tsang, Wang, Bai, Wang, & Song (2025) state that artificial intelligence, especially large language models, started as a tool, evolved into an analyst, and will transform into a scientist in the future. Similarly, in this study, academics also note that artificial intelligence has developed significantly, that certain tools are particularly useful, and that they can produce results comparable to those of an academic. However, unlike this, it is stated that even if artificial intelligence is used as a co-author, supporter, and controller, it should never be left free and should not be allowed to become a real co-author. This stems from concerns that artificial intelligence will eventually replace humans.

Similar to the results obtained from academic opinions regarding the impact and usage examples of artificial intelligence, Torre-López, Ramírez, & Romero (2023) state in their studies that artificial intelligence is effective in terms of saving time and effort thanks to its advantages such as accelerating scope analysis, useful filtering, summarizing, and reporting in literature reviews. The results of this study, which express effects such as time and labor savings, rapid analysis, and filtering, support the results obtained in our research. In contrast, Buholayka, Zouabi, & Tadinada, (2023) state that artificial intelligence should not be left unchecked, but must be controlled by the researcher, as it can cause problems in terms of accuracy and integrity. This conclusion suggests that artificial intelligence can pose problems in terms of reliability and ethics in the scientific research process, and that, in addition to its rapid and economic benefits, there are also accuracy issues. This result is consistent with the study's findings.

This study presents a multidimensional analysis of the use of artificial intelligence (AI) in scientific research processes within the field of social studies education, based on the perspectives of academic experts. It explores the purposes and areas of AI application in research, its advantages and disadvantages, methodological and ethical considerations, as well as the development, functionality, and potential future roles of AI in this context. AI has the capacity to support various stages of scientific inquiry, including literature review, hypothesis generation, research design, data analysis, interpretation, and academic writing. However, while offering such contributions, it is imperative to remain vigilant about the risks associated with AI, particularly concerns related to the reliability of content, data transparency, ethical integrity, and plagiarism.

Findings related to specific sub-questions of the study indicate that enhancing the functionality of AI in research is only feasible under human oversight. Furthermore, the process must be guided by ethical principles and adapted to the specific context of the field. It is emphasized that AI should not be granted full autonomy or control over the entire research process. Looking ahead, it is anticipated that AI may act as a scientific agent capable of transforming the cycle of academic knowledge production. Therefore, it is recommended that AI be integrated into research processes responsibly and effectively, with due attention to ethical standards and the reliability of information.

## Conclusion

This study aims to reveal the perspectives of academics in the field of social studies education regarding the use of artificial intelligence in the scientific research process. Therefore, the opinions of academics are examined through various questions within this framework. The research examines the current situation in terms of academics' views on the areas and purposes of artificial intelligence use, the advantages and disadvantages of artificial intelligence use, considerations regarding artificial intelligence use, supporting the development and functionality of artificial intelligence use, the role artificial intelligence will play in the future, and the impact and usage examples of artificial intelligence.

According to the results of the study, it is seen that academics use artificial intelligence as an alternative channel that supports creative thinking and motivation in the scientific research process, and that they receive support from artificial intelligence for various purposes in stages such as presentation, content and visual preparation and creation in classroom and out-of-class learning processes, in addition to academic studies. While the various advantages of artificial intelligence in the scientific research process, such as effective use of time, translation and grammar support, and ease of access to sources in literature searches, are highlighted, it is understood that a cautious approach is taken towards its various disadvantages, such as the risk of encouraging laziness among academics. These issues could constitute ethical violations and data security breaches.

In the application of artificial intelligence in the scientific research process, issues such as information pollution and digital security, as well as academic ethics and integrity, are highlighted as important points to consider. In terms of focusing on the development and functionality of artificial intelligence use, it is emphasized that providing training and seminars on artificial intelligence applications, processes and tools, incorporating courses on artificial intelligence use at different levels into programs, and developing artificial intelligence tools and technologies according to the needs of different fields of work, particularly in terms of content and interface, will increase functionality.

Regarding the role that artificial intelligence may assume in the future, particularly in the scientific research process, emphasis is placed on its complementary roles as an assistant, academic assistant, or advisor. It is understood that these roles can support the creativity and professional motivation of academics in the scientific research process. In line with the opinions of academics, it is well known that numerous artificial intelligence applications and tools are utilized for scientific purposes at various stages and processes. The use of alternative artificial intelligence applications in the process is highlighted for its impact on effectively and efficiently using time, as well as producing original ideas and content from an academic perspective.

## Recommendations

Based on the study's findings, the following recommendations are provided regarding the use of artificial intelligence in academic research.

- Opinions of educators at different educational levels can be gathered regarding AI tools and their use in

academic contexts.

- Elective courses that support the integration of artificial intelligence applications can be incorporated into educational programs to enhance their effectiveness.
- Practice-based studies enriched with various methods and techniques, facilitated by the use of AI tools, can be conducted.
- The inclusion of discussions on the role and presence of AI in academic environments can be encouraged in forums such as conferences and symposiums.

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