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# Artificial Intelligence in Research: Benefits, Challenges, and Strategies for Implementing AI Tools in Research in Afghanistan

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**Abstract:** This study aims to evaluate the benefits and challenges of integrating artificial intelligence (AI) into research within Afghanistan and to propose practical strategies for the effective adoption of these technologies to advance and enrich the research landscape. The primary objective is to explore the advantages and drawbacks of using AI tools in research from the perspective of researchers, assess the prevalence and extent of their usage, and outline actionable strategies for their optimal application to enhance the quality, efficiency, and impact of research. An online survey was conducted among 190 university professors and other researchers across the country, then the data was analyzed with SPSS (Statistical Package for the Social Sciences) and MS Excel software tools. The survey results showed that 62.6% of participants use AI tools in their research, while the rest do not. The main reasons for non-use were concerns about data privacy, limited familiarity with these tools among researchers, and the high cost of the tools. The analysis indicates that 36% of the researchers use ChatGPT, a general AI tool, in their research. It also shows that researchers aged 41 years or older use AI tools less in their research compared to younger researchers. High-speed data analysis, time saving, easy access to multiple information sources, and facilitating collaboration between researchers are the key benefits of AI tools in research. However, they also present challenges such as a high learning curve, concerns about data accuracy, poor integration with existing research systems, and overreliance on technology. Strategies that more than 50% of respondents identified as effective include: organizing seminars for researchers on AI, publishing in national languages, conducting public awareness campaigns, adding AI and machine learning (ML) to the curricula of some related fields, and encouraging scholars to conduct research and use AI in their work.

**Keywords:** artificial intelligence, benefits, challenges, AI tools in research, implementing AI, research infrastructure, ChatGPT

## 1. Introduction

Artificial intelligence (AI) has played a crucial role as a vital element of the Fourth Industrial Revolution (4IR), a transformative era characterized by the integration of digital, biological, and physical systems [1–3]. This integration will enable revolutionary advances in research methods, improving data analysis, predictive modeling, and automating complex tasks, thereby dramatically accelerating the pace of scientific discovery. AI technologies enable the processing of massive amounts of data and give researchers the ability to gain insights that were previously inaccessible, thereby encouraging and enhancing innovation in diverse fields such as health, engineering, and social sciences [4, 5]. However, the application of AI in research also comes with challenges, including ethical concerns related to data privacy and the need for significant investment in infrastructure and training [6, 7]. Today, narrow artificial intelligence (NAI) is inferior to human intelligence, but it is predicted to equal human intelligence by 2040 and far surpass human intelligence by 2060 [5].

AI is a general-purpose technology (GPT), signifying that it encompasses fundamental abilities that can be utilized to carry out a diverse range of tasks across various fields and applications [8]. As Afghanistan strives to harness the potential of AI in research, it is essential to develop strategies that overcome these challenges while enhancing the benefits of AI technologies for scientific advancement and socio-economic growth [1, 9].

The majority of respectable high schools are aware that artificial intelligence (AI) and machine learning (ML) a subset of AI that enables systems to learn from data and improve performance without being explicitly programmed are the way of the future for both education and global advancement. Students benefit from an engaging and cutting-edge educational experience thanks to these tools. The outcomes are striking: 65% of American institutions favor learning aided by AI and ML [8, 10]. Additionally, these systems help instructors and lecturers in the top schools in many ways, promoting and enhancing learning. For instance, projections show that between 2017 and 2021, AI in education in the US rose by 47.5% [11].

Two notable instances of AI adoption are Deakin University in Australia, which uses IBM Watson to answer student questions, and the University of Derby, which implemented a system that tracks data to forecast when students are likely to drop out in order to signal opportune interventions [12].

In 2022, a total of 5943 lecturers were employed within all public universities, holding different academic ranks (teaching assistant, senior

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teaching assistant, assistant professor, associate professor, and professor) and educational degrees, including PhDs, Masters, and Bachelor, in all fields such as Medical Sciences, Engineering and Technology, Social Sciences, Natural Sciences, and Islamic and Political Studies [13, 14]. According to the Ministry of Higher Education (MoHE) regulations, lecturers must conduct research on a topic provided by the relevant department or translate books and publish journal articles in reliable national and international journals to achieve higher academic rankings. The specific requirements for promotion vary between ranks, which is why university lecturers mainly focus their research within their specialized fields [13, 15, 16].

Higher education in Afghanistan was strongest in the late 1960s. The 1960s and 70s in Afghanistan saw the formation of an educated class interested in politics, this period also saw an educated population and more open debate [17]. The integration of AI offers a suitable solution to improve the quality and efficiency of research [18, 19]. However, its adoption remains limited, due to a lack of awareness of existing AI tools, concerns about technical limitations, and ethical issues [20, 21]. This study seeks to examine the benefits of using AI tools in Afghan research, identify specific AI tools that mostly using for research, analyze the benefits of using AI in research, recommend the challenges facing researchers, and suggest effective strategies for implementing AI tools in the research sector.

To overcome these challenges, with AI, research skills in this country need to be greatly improved. By addressing current issues and determining benefits, and challenges of implementing AI tools for research, as well as by suggesting strategies for their successful implementation in key sectors, mainly education, this study seeks to investigate how AI can be used to improve the quality and efficiency of research in Afghanistan.

At the end of this study, we will find suitable answers to the following research questions to achieve the above-mentioned goals: (1) How much AI tools are useful for conducting good research? (2) For which parts of research do the AI tools are important in Afghanistan? (3) What are the main benefits and challenges of using AI tools in research in Afghanistan? (4) Which strategies are useful for effectively implementing AI tools in research in Afghanistan?

In order to improve the research industry and contribute to the overall growth of the country, this study aims to encourage and motivate Afghan researchers to use AI tools through education on the role of AI in research.

## 2. Literature Review

As technology becomes more integral to higher education, it is essential to closely evaluate how AI is used in academic research. The analysis revealed insights including ChatGPT's utility across various academic disciplines, challenges like recognizing the limitations of AI tools, and advantages such as enhancing the efficiency of diverse processes [22]. Thirty three (33) articles were reviewed from the PubMed, IEEE Xplore, and Science Direct databases, and the results show that AI has the promise of improving health care and faces obstacles when implemented [23].

A systematic literature review was conducted to explore the implications of ChatGPT in educational contexts, drawing insights from 112 peer-reviewed articles. This analysis aimed to identify the potential benefits—such as enhanced personalized learning, increased student engagement, and support for academic writing as well as the challenges, including concerns about academic integrity, overreliance on AI, and the need for digital literacy among educators and learners [24]. A review article provides a systematic examination of the current scholarly landscape concerning the use of ChatGPT within higher education. The review highlights ChatGPT's positive impact on student learning and time management, widespread use of quantitative methods, global contributions led by Asia, a lack of Latin American research, and calls for more rigorous experimental studies and ethical integration into higher education [25]. Integrating AI into research has the promise of improving efficiency, reducing human error, and empowering researchers to manage larger data sets more effectively [22]. Additionally, AI technologies such as ML and natural language processing (NLP) have been found to be valuable in areas such as healthcare, where they help diagnose diseases and personalize treatments [26].

A study explores the role of ChatGPT and other NLP technologies in academic writing, focusing on their potential benefits, ethical concerns, and impact on research authenticity. The findings reveal that while these tools can enhance efficiency, they also challenge the credibility of academic work, underscoring the need for ethical use and human-centered scholarship [27]. Another paper systematically reviews AI's transformative role in healthcare, from diagnostics to operational efficiency, while identifying key challenges like ethics, data privacy, and accessibility. It concludes that overcoming these barriers through collaboration, education, and policy is essential for AI to fully enhance patient care and healthcare delivery [26]. This study systematically reviews and maps the evolving scholarly landscape at the intersection of AI and innovation, analyzing 1448 articles through bibliometric techniques. It reveals key drivers—economic, technological, and social—and outcomes such as competitive advantage and organizational transformation, offering a framework and future research agenda [28].

In Figure 1, the complete process of conducting literature review is drawn which shows the process from planning to the writing literature review.

In conclusion, while AI has significant potential to enhance research capabilities in Afghanistan, its successful implementation requires a balanced approach that addresses both opportunities and challenges. By focusing on education, ethical considerations, interdisciplinary collaborations, and infrastructure development, Afghanistan can harness AI to advance its research capabilities and contribute to global scientific knowledge.

Table 1 presents a summary of the literature review, highlighting the key findings of similar studies and their relevance to the present research. Despite the fact that interest in AI-based research is increasing day by day in the world, Afghanistan is still in its early stages and limited progress has been recorded. This study explored Afghan university lecturers' attitudes toward English Medium Instruction (EMI), finding strong support for its adoption despite concerns about its impact on official languages. Key factors influencing their preferences included English proficiency, educational background, and country of study, with most favoring EMI and bilingual education to enhance students' global competitiveness [14]. Although some Afghan universities have started opening AI in DICT departments, these fragmented efforts are not coordinated nationally. Recent internal reports from the MoHE show that currently less than 5% of university research projects involve AI tools, largely due to low digital literacy of faculty and lack of adequate institutional support [16]. Furthermore, most uses of AI in the Afghan academic environment are limited to translation software and statistical analysis tools, without taking advantage of advanced capabilities such as ML or NLP [17, 20]. This shows that this country needs a specific education policy for AI, local tool development, and capacity building programs. This will not only improve the quality of scientific output, but also address the country's specific problems, such as agriculture, public health, and post-conflict reconstruction.

**Figure 1**
**Process diagram of conducting literature review**

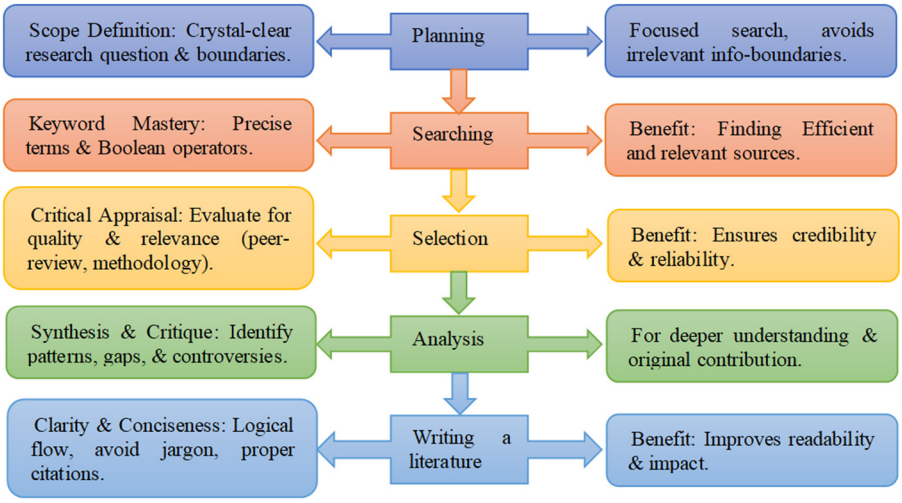



**Table 1**
**Summary of the literature review**

| Source | Main finding | Relevance to this study |
|---|---|---|
| Castillo-Martínez et al. [22] | AI enhances research efficiency and accelerates scientific discoveries. | In developing countries, it supports the potential benefits of AI in research. |
| Wubineh et al. [23] | AI can benefit research in many ways, but challenges exist in developing countries. | It provides a clear picture of the challenges in the process of adopting AI. |
| Ali et al. [24] | AI tools can simplify research processes, but they also raise ethical concerns. | Emphasizes the importance of addressing ethical implications in AI research. |
| Udegbe et al. [26] | AI can help improve health, but it needs to address access and training challenges. | Relevant to potential AI applications in healthcare research in Afghanistan. |
| Dergaa et al. [27] | Ethical guidelines and legal frameworks are crucial for responsible use of AI. | Emphasizes the need for developing a strong ethical framework for AI research. |
| Mariani et al. [28] | Collaboration and interdisciplinary approaches are essential for successful AI implementation. | Supporting the need for collaborations and partnerships to advance AI research in Afghanistan |

## 3. Research Methodology

### 3.1. Research design

This study uses a combination of qualitative and quantitative methods to assess the benefits, challenges, pitfalls, and strategies for widespread implementation of AI tools for research in Afghanistan. The study collects and analyzes data using advanced AI methods in 2024. In Figure 2, we can find the complete process for conducting the research.

### 3.2. Data collection

Three main methods were used in this study to analyze the data:

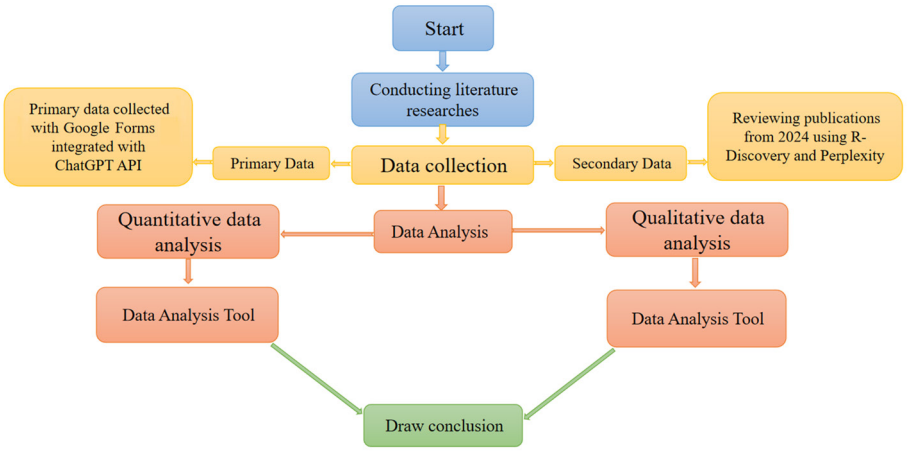
1) AI-powered survey tools: The survey questionnaire was developed using AI-based platforms such as Google Forms, which was integrated with the ChatGPT API. This method dynamically changes the questions based on the participants' responses, which increases the participation rate and the quality of the data.
   a. Target population: 190 Afghan researchers, professors, and experts from Kabul and 33 other provinces in the social sciences, engineering, and medical sciences participated. The participants are university professors and government and non-government officials.
   b. Sampling: Stratified random samples were taken to ensure equal representation of different sectors and social groups.
2) AI-assisted interviews: Semi-structured interviews were conducted using AI transcription and analysis tools (such as Google Bard for short), which allowed for in-depth qualitative data and identified problems and strategies that were not covered in the survey.
3) Secondary data analysis: Recent 2024 research and AI application cases were analyzed using AI-based literature analysis tools (such as R Discovery and Perplexity) to identify global trends and their applicability to Afghanistan.

#### *3.2.1. Survey participants*

In Afghanistan, more research is conducted by university lecturers. In this study, university lecturers made up the largest group 74% of the total responders, and 19% of the participants were government employees, 7% of the respondents were private sector employees and other researchers, who shared their personal experiences and the difficulties they encountered while using AI tools in their work.

Research Interest field of the survey participants: The first large group of survey participants are social sciences which accounted for 36% of participants, followed by engineering and technology (34%),

**Figure 2**
**Research methodology process diagram**




then 23% from natural sciences and the medical and Islamic sciences accounting for the remaining smaller amounts (7%).

## 3.3. Data analysis

1) Quantitative analysis: The raw data obtained from the survey were analyzed using various statistical techniques in SPSS (Statistical Package for the Social Sciences) software. A cluster analysis was conducted to examine the use of AI among researchers from three different categories and across various age groups.
2) Qualitative analysis: Thematic analysis of interview transcripts and comparative analysis were also conducted to compare and evaluate the perspectives of Afghan researchers with trends in the international literature.

### *3.3.1. SPSS simulation*

SPSS is a widely used software package for statistical analysis in social science and other research fields. Developed by IBM, the software has a simple and user-friendly interface that allows researchers to analyze and manage complex data without extensive programming. It provides researchers with the ability to analyze and manage complex data without deep programming. SPSS supports a wide range of statistical analyses, such as descriptive statistics, inferential statistics, regression analysis, and multivariate analysis, making it a valuable tool for drawing meaningful conclusions from data [29].

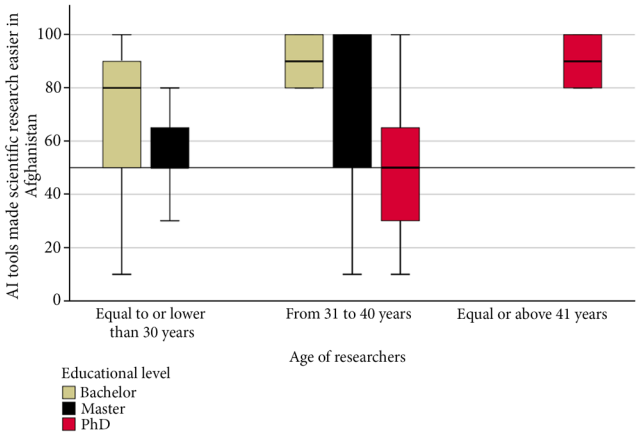
SPSS and MS Excel software were used to analyze the data in this study, which provided a clear and concise picture of the results in data analysis and graphical presentation.

## 4. Results and Discussion

The survey shows that from 190 survey participants, 119 (62.6%) researchers use AI tools while conducting research but the remaining 71 (37.4%) participants do not; privacy concerns, limited familiarity with AI tools, and the cost of using AI tools are the main reasons for not using AI in their research.

Figure 3 shows a cluster box plot indicating the impact of AI tools on enhancing scientific research in Afghanistan. The data is divided by the educational level and age of researchers or survey respondents. The survey includes three educational categories: bachelor's, master's, and PhD holders. Boxplot shows that researchers aged 30 or younger see AI tools as the impacted, especially among those with PhDs, suggesting that younger and more educated researchers may be more interested in the effective use of these tools.

**Figure 3**
**Clustered boxplot illustrating the impact of AI tools on simplifying scientific research in Afghanistan, categorized by the age and education level of researches**




The results show that the researchers aged 31–40, especially those with a master's degree, have mixed views on the benefits of AI, and participants older than 41 years, especially with a bachelor's degree, have lower assessments. This highlights a gap in the use of AI tools among older and less educated people, which requires significant training and resources.

Researchers with PhDs sees the impact of AI higher because they have more knowledge, experience, and confidence, while those with bachelor's degrees have less understanding especially in AI tools.

Table 2 indicates that the most used AI tool is ChatGPT, with Google Bard and Copilot come in second and third ranks respectively, so this shows less familiarity of Afghan researchers with available AI tools which are more important for researches.

The data in Table 3 suggests that AI tools are primarily leveraged for tasks that require analysis, organization, and refinement of research, with conducting literature reviews, spelling and grammar check, and finding a research gap being the most critical areas. The cumulative percentage of cases (219.3%) reinforces that respondents rely on AI tools for multiple purposes simultaneously, underlining their multifaceted utility in research. The "Percent of cases" column is calculated by dividing the number of responses for each item by the total number of respondents (not total responses), then multiplying it by 100. Since respondents could select multiple options, each individual

**Table 2**
**Usage ranking of some AI tools by Afghan researchers**

| Rank | AI tool | Number of respondents using AI | Percentage |
|---|---|---|---|
| 1 | ChatGPT | 43 | 36% |
| 2 | Google bard | 20 | 17% |
| 3 | Copilot | 17 | 14% |
| 4 | Perplexity | 15 | 13% |
| 5 | Chat PDF | 10 | 8% |
| 6 | R-Discovery | 6 | 5% |
| 7 | Quillbot | 5 | 4% |
| 8 | Plag.AI | 3 | 3% |
| Total | | 119 | 100% |

**Table 3**
**Important fields of research that needs AI tools**

| | | Responses | | Percent of cases |
|---|---|---|---|---|
| | | *N* | Percent | |
| 1 | Find a research gap | 65 | 24.90% | 54.60% |
| 2 | Conducting a literature review | 83 | 31.80% | 69.70% |
| 3 | Spelling & grammar | 68 | 26.10% | 57.10% |
| 4 | Data analysis | 45 | 17.20% | 37.80% |
| Total | | 261 | 100.00% | 219.30% |

could be counted in more than one category. As a result, the total of the "Percent of cases" exceeds 100%, which is typical for multiple-response questions. This reflects the proportion of participants who selected each item, not mutually exclusive categories.

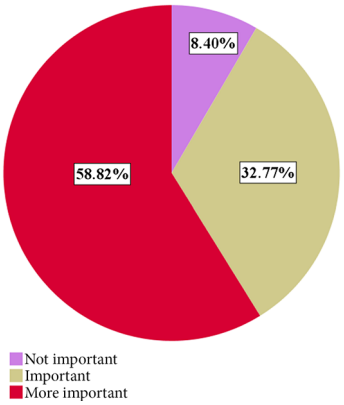
Table 4 shows how participants rated the impact of AI on making research easier in Afghanistan. It includes the percentages they selected, how many people chose each percentage (Frequency), the percentage of participants for each choice, and the weighted contribution of each choice to the total average. The overall weighted average is 68.2%, meaning participants believe AI has made research approximately 68% easier in Afghanistan.

Figure 4 illustrates how Afghan researchers view the importance of using AI tools in future research. The majority of respondents (58.82%) rated AI as "most important," while 32.77% considered it "important," and only 8.4% viewed it as "not important." This low

**Table 4**
**Average percentage of AI that made scientific research easier in Afghanistan**

| No. | Given percentages | Frequency | Participants' percentages | Weighted average |
|---|---|---|---|---|
| 1 | 100% | 32 | 26.9% | 26.9% |
| 2 | 80% | 42 | 35.3% | 28.2% |
| 3 | 50% | 20 | 16.8% | 8.4% |
| 4 | 30% | 15 | 12.6% | 3.8% |
| 5 | 10% | 10 | 8.4% | 0.8% |
| | Total | 119 | 100.0 | 68.2% |

**Figure 4**
**The importance of AI for the future of research in Afghanistan**




percentage may be due to limited familiarity with AI tools among some participants. When assigning values to each response (100% for most important, 80% for important, and 0% for not important), the overall average importance score is 65.5%. This indicates that most researchers recognize AI as a valuable tool for advancing research in Afghanistan.

Table 5 and the accompanying chart provide a detailed analysis of the benefits and challenges associated with the use of AI tools in research.

1) Benefits

The result indicates six key benefits identified by more than 50% of survey respondents:

a. The use of AI tools in research reduces the time it takes to conduct research and enables researchers to conduct their research more quickly and effectively.
b. High-speed data analysis: AI algorithms analyze data faster than traditional methods, helping to achieve faster results.
c. Easy access to multiple information sources: AI tools collect and integrate information from different sources in a short time and easily.
d. Automating repetitive tasks: AI tools automate mundane, repetitive tasks that humans used to do over and over again. This frees up researchers to focus their time on more important, complex areas.
e. Making data visualization easier: Advanced AI methods help researchers understand complex data in a simple and clear way and better interpret results.
f. Facilitating collaboration between researchers: AI strengthens communication and collaboration through shared data access and project management, creating teamwork between different disciplines.

2) Challenges

Conversely, four challenges were noted by over 50% of respondents:

a. High learning curve: Using AI tools requires researchers' skills and familiarity with these tools, which can be difficult to learn at first.
b. Data accuracy concerns: Researchers are concerned that results obtained through AI may not always be accurate, which creates a lack of trust.
c. Problems with existing systems: AI tools sometimes do not integrate properly with existing research systems, which creates difficulties in the workflow.
d. Overreliance on technology: Overreliance on AI tools leads to a decline in traditional research skills and critical thinking, which negatively affects the quality of research.

**Table 5**
**Frequencies and percentages of benefits and challenges of using AI tools in research**

| No. | Benefits of using AI tools in research | Responses | | Percent of cases | Challenges of using AI tools in research | Responses | | Percent of cases |
|---|---|---|---|---|---|---|---|---|
| | | *N* | Percent | | | *N* | Percent | |
| 1 | Efficiency in data processing | 45 | 7.4% | 37.8% | Loss of human judgment | 74 | 12.6% | 62.2% |
| 2 | More accurate results | 38 | 6.3% | 31.9% | Risk of overfitting | 82 | 14.0% | 68.1% |
| 3 | Facilitating data analysis and processing | 82 | 13.5% | 68.9% | Complexity in data interpretation | 37 | 6.3% | 31.1% |
| 4 | Prevention of time wastage | 76 | 12.5% | 63.9% | Overreliance on AI can reduce critical thinking and human oversight and increase the risk of errors. | 43 | 7.4% | 36.1% |
| 5 | Can learn different languages | 37 | 6.1% | 31.1% | Might not understand context | 82 | 14.0% | 68.9% |
| 6 | Having more accuracy | 78 | 12.9% | 65.5% | Misalignment with real-world complexity | 43 | 7.4% | 36.1% |
| 7 | Prevention of plagiarism | 36 | 5.9% | 30.3% | Plagiarism producer | 83 | 14.2% | 69.7% |
| 8 | Improving the effectiveness and quality of the research | 74 | 12.2% | 62.2% | Validation and verification | 45 | 7.7% | 37.8% |
| 9 | Helps make new discoveries | 72 | 11.9% | 60.5% | Complexity in understanding AI | 47 | 8.0% | 39.5% |
| 10 | Access to multiple information sources | 69 | 11.4% | 58.0% | Integration and compatibility | 49 | 8.4% | 41.2% |
| Total | | 607 | 100.0% | 510.0% | | 585 | 100.0% | 491.6% |

As seen from Figure 5, the clustered bar chart and the analysis show that the benefits of AI are many and the problems are few. AI improves the quality and efficiency of research, simplifies processes, and increases collaboration. Learning difficulties and data accuracy issues need to be addressed. Overall, AI promotes research progress and innovation.

At the end, some strategies are examined by the survey participants and the result in Table 6 indicates the frequency table and also from Figure 6 bar chart, both indicates that the first five strategies are useful for better implementing AI tools in research to be carried out because more than fifty researchers check them as effective strategies.

1) Organizing seminars for researchers on AI: This study found that 37.4% of researchers conduct their researches without using AI; one important reason is lack of awareness with using AI tools so this is needed to organize seminars from the related educational centers, mainly public and private universities because most of the researchers are university lecturers in Afghanistan.

**Figure 5**
**The importance of benefits and corresponding challenges**

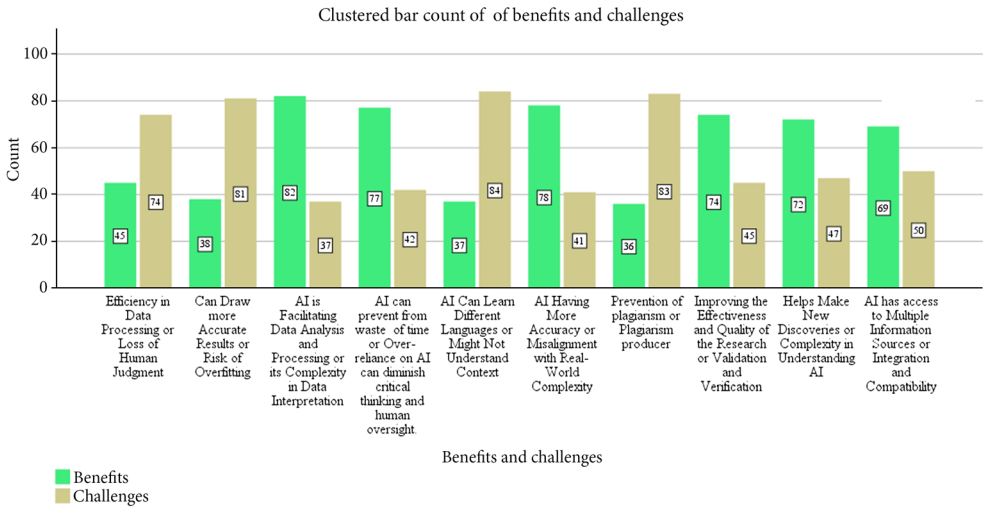
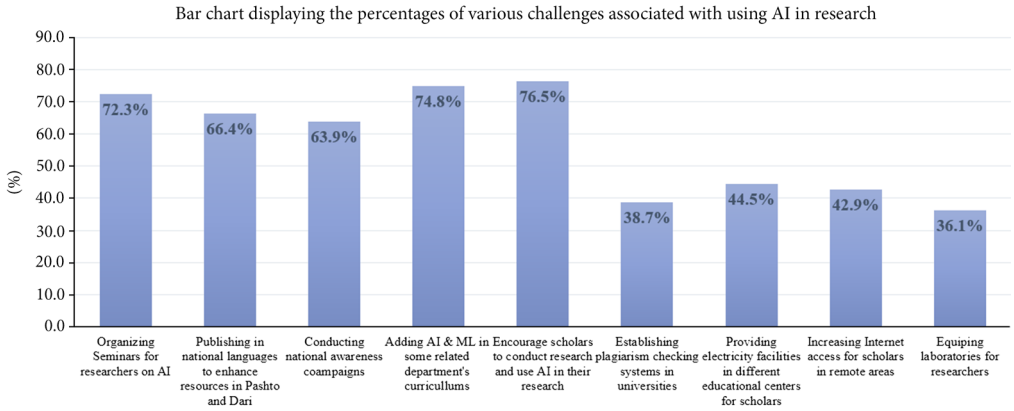


**Table 6**
**Analysis of frequencies and percentages of strategies for implementing AI in research**

| No. | Strategies for better implementation of AI tools in research | Responses Percent | Cumulative percentage |
|---|---|---|---|
| 1 | Organizing seminars for researchers on AI | 72.3% | 14.0% |
| 2 | Publishing in national languages to enhance resources in Pashto and Dari | 66.4% | 12.9% |
| 3 | Conducting national awareness campaigns | 63.9% | 12.4% |
| 4 | Adding AI & ML in some related department's curriculums | 74.8% | 14.5% |
| 5 | Encourage scholars to conduct research and use AI in their research | 76.5% | 14.8% |
| 6 | Establishing plagiarism-checking systems in universities | 38.7% | 7.5% |
| 7 | Providing electricity facilities in different educational centers for scholars | 44.5% | 8.6% |
| 8 | Increasing internet access for scholars in remote areas | 42.9% | 8.3% |
| 9 | Equipping laboratories for researchers | 36.1% | 7.0% |
| Total | | | 100.00% |

**Figure 6**
**Bar chart displaying the percentages of various strategies associated with using AI in research**




2) Publishing in national languages to enhance resources in Pashto and Dari languages: As this study has found that AI knows multi-languages but there is some weakness in Afghan national languages. There are no abundant resources online on the internet and also these languages are not completely added to the AI tools, so the AI cannot effectively translate text from other languages. To solving this problem, Afghan researchers must publish their research in national languages instead of other languages.
3) Conduct public awareness campaigns: Informing researchers, students, and the general public about the effective and ethical use of AI to increase the acceptance and use of this technology.
4) Adding AI and ML in some related fields' curriculums: For good implementation of AI tools in research, one way is to add the AI and ML courses in some fields' teaching curriculums such as Medicine, Engineering, and Economics and also for some other fields which need AI and ML. In this way, the newly graduate bachelors and masters will be encouraged to use AI in research.
5) Encourage scholars to conduct research and use AI in their research: In this way, the overall research rate will increase in the country, with researchers using AI and ML tools also increasing. Therefore, this encouragement must be specifically coming from the Ministry of Higher Education.

## 5. Conclusion

The purpose of this study is to assess and identify the extent of using AI tools in research in Afghanistan, their benefits, challenges, and key strategies for the effective use of these tools. The study findings show that 62.6% of researchers in Afghanistan use AI tools in their research, of which 36% use ChatGPT the most, which is generally the most popular tool for obtaining public information. These results indicate that the level of using AI in research is low, especially the tools designed specifically for research, are used very little. The main reasons for this low level are the lack of sufficient awareness among researchers and the high costs of these tools.

The results of the study show that, from the perspective of Afghan researchers, the benefits of using AI in research are significant. The main benefits include: high speed of data analysis, time savings, easy access to various information sources, and ease of collaboration between researchers. However, the use of AI also has some challenges and disadvantages. The challenges and problems include: a high learning curve, concerns about data accuracy, poor integration with existing research systems, and overreliance on these tools, the latter of which can undermine researchers' existing skills and reduce critical thinking.

## Recommendations

1) The Ministry of Higher Education are recommended to prepare educational courses for university lecturers, students, and other researchers to improve their skill of using AI tools and its methods.
2) It is advised that the Ministry of Higher Education pay the fees for the AI tools so that researchers can use them for free, and for the publication and other research expenses for Afghan researchers to publish papers in international journals.

## Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

## Data Availability Statement

The data that support the findings of this study are openly available in Figshare at https://doi.org/10.6084/m9.figshare.28892885.

## Author Contribution Statement

**Wahidullah Zgham:** Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration. **Massoud Danishmal:** Software, Validation, Resources. **Mohammad Hamed Haidary:** Software, Validation, Resources.

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