

Artificial Intelligence: Perspective of Teacher Training Program in Pakistan

Sadia Naz¹ Sheraz Khan² Naila Gul³

Abstract: The main aim of the present research is to explore the perceptions of the teachers in Pakistan about the use of Artificial Intelligence (AI) in teacher training programs. As the use of AI is increasingly becoming a reality in the field of education, it is vital to explore the perceptions of the teachers about the use of AI for the betterment of teacher training programs. For this reason, the present research is focused on exploring the benefits offered by AI and the problems faced by the teachers while using AI. Additionally, the present research also explores the preparedness level of the teachers about the use of AI and the level of acceptance by the teachers. Surveys and interviews with the teachers from different schools and colleges across the country will be conducted for the purpose of the present research. The present research is also focused on exploring the level of preparedness and acceptance level of the teachers about the use of AI. It is believed that the findings of the present research will be beneficial for the policymakers and curriculum developers for the betterment of teacher training programs.

Key Words: Artificial Intelligence, Teaching Training Program, Education in Pakistan

Introduction

The incorporation of Artificial Intelligence (AI) in our day-to-day activities has been enhanced, for instance, we can ask anything from our phones, for example, how to lose weight. The AI technology is available in our smart phones, websites, and personal devices. It has evolved from performing intricate tasks in the past to managing even the most straightforward activities, indicating that AI is a permanent fixture in our lives. A notable illustration of AI's progress since its inception at the 1956 Dartmouth conference is the "Alpha Go" program, which triumphed over one of the world's leading Go players (Celik, [2023](#)). AI has become widespread across various sectors, including education, engineering, one of the sectors with significant potential for growth is the application of artificial intelligence in education, which may serve as a solution to several pressing challenges within the educational landscape (Boudreau, [2023](#)).

In the current era sustainability in education and technology is essential for each other (Cebrián et al., [2020](#)). AI helping to the new students in the gaining process in the form of Khan Academy coach in the form chatbots as well as virtual helper so students easily understand very difficult subject. I security issue Students information is going wrong is a major problem. The market for AI in education is projected to reach approximately 3.68 billion US dollars by the year 2023 (Alfadda, & Mahdi, [2021](#)). This anticipated growth may be attributed to the increasing adoption of AI-driven educational tools in learning institutions over recent years). Nevertheless, it is important to recognize that the integration of AI in education remains in its nascent stages, despite three decades of research on the subject, which has yet to be fully realized in school settings (Huang et al., [2021](#)). Furthermore, it remains unclear how educators can effectively utilize AI to enhance their pedagogical practices and create a meaningful impact on teaching and learning outcomes (Cope et al., [2021](#)). Artificial intelligence providing completely security for monitoring exams to stop cheating and ensure academic integrity. These systems inspect student's mode during exams, giving authentic times aware for doubtful

¹ Lecturer, Education, Department, Women University, Mardan, Khyber Pakhtunkhwa, Pakistan.

Email: sadia108@yaoo.com

² Elementary and Secondary Education, Khyber Pakhtunkhwa, Pakistan. Email: sherazk0003@gmail.com

³ Higher Education Department, Khyber Pakhtunkhwa, Pakistan. Email: nailagul456@gmail.com

activities as well as sustaining a defended testing atmosphere. Artificial intelligence powered tools like Remind assist seamless communication between parents and teachers' permission for actual time announcements on students' progress and classroom tasks, thereby providing father and mother connecting with the support in their educational process. Computer science and artificial intelligence (AI) are closely related fields, with AI being a subfield of computer science. Here is an overview of their relationship; AI is a subfield of computer science that focuses on creating systems or machines that can perform tasks that typically require human intelligence. These tasks include problem solving, learning, perception, language understanding, and decisions making. Key Areas AI is divided into various sub domains, including Machine learning systems that can learn from data natural language processing system that can understand and generate human language computer vision system that can interpret visual information robotics systems that can interact with the physical world expert system; systems that mimic human expertise in a specific domain Goals.

AI involve creating intelligent agents that can adapt to their environment learn from experience and exhibit behaviours associated with human intelligence. Artificial intelligence (AI) refers to the capability and progression of computer systems or other machines based on data technology to perform tasks that typically require human cognition and reasoning (Ofosu-Ampong et al., [2023](#)). Significantly, AI is making impressive progress in various sectors, and higher education is one of the sectors where AI is becoming more common. According to a report by Zhang and Lu ([2021](#)), the implementation of AI in various sectors, such as an organization, has observed improvements in efficiency in the education sector, which is imperative for increasing productivity. As we are entering a new era of the fourth industrial revolution, which is based on AI, as mentioned by (Darics, & Poppel, [2023](#)). AI is entering this era. AI is imperative in the education sector. A systematic review of 56 articles related to the impact of AI in higher education from 1900 to 2021 revealed that AI is significantly contributing to the improvement of the quality of education, such as the improvement of communication skills among students and their engagement with the global community. AI is also contributing to the improvement of higher education, personalization of learning, development of e-learning, and management of structured and unstructured data, which is alleviating the administrative burden and speeding up the decision-making process in the educational sector (Benbya, [2020](#)). Moreover, AI is instrumental in improving methods of evaluation to ensure that students in higher education institutions are adequately prepared for the job market in the future, implying that higher education institutions should employ more AI to ensure that their graduates meet the requirements of the job market . The advent of digitalization has prompted universities to remain vigilant regarding technological advancements within their institutions. A survey conducted by Microsoft and Times Higher Education (2019) reveals that university leaders acknowledge the significant impact AI will have on the educational landscape.

Objectives of the Study

1. To find out the current usage of AI in teacher training programs.
2. To explore the future perspectives of the use of AI in teachers training programs

Research Questions

1. What are the possibilities of technology in teacher training programs?
2. How is AI used in teacher training programs?

Methodology

The purpose of this research is to investigate the perceptions and teachers' literacy on artificial intelligence problems faced by the use of AI in education. This research is qualitative in nature. The data was collected through interview from teacher training institution. Interview form was sent to different teachers training institute while 10 interview form from seven institute were received. Responses were analyzed from 10 teachers of seven teachers training institutes in Pakistan. The interview questions were based on the use of Artificial intelligence in teacher programs. The responses were analyzed to understand the opinions, experience, and challenges faced by conclusions and giving suggestions for better use of AI in education. Qualitative responses were transmitted to quantitative numbers and percentage was used to see the value of each type of response.



Data Analysis

Interview responses were transcribed and themes were analyzed quantitatively. Percentage was used analyzed the responses.

Item 1. Do you incorporate digital tools in your teaching methods, (such as tablets, smart boards, computers, etc.)

Table 1

Item 1						Responses				
1	2	3	4	5	6	7	8	9	10	
Yes	Yes	No, Idiot have these facilities	I am using only multimedia and have no faculty of digital tools.	No	Yes	Yes	Yes	Yes	No	

The results suggest that a majority (70%) of teacher are integrating technology into their classroom, which reflects a shift towards modern teaching techniques. However, the 30% who are not using digital tools may require support, training, or improved access to such resources. One teacher response she told I am using only multimedia and have no faculty of digital tools.

Item 2. In your view's it possible to widely implements AI technologies in the Education sectors in the nearby future.

Table 2

Item 2.					Responses					
1	2	3	4	5	6	7	8	9	10	
Yes	Yes	Yes	Yes, it is possible	No	Yes	Yes	Yes	Yes	No	

The responses are equally divided, showing that while AI tools have started to enter some educational institutions, many are still in early stages or have to adopt such technologies

Table 3

Have You Encountered AI Tools or System being used at Your Educational Institutions?

Item 3.					Responses					
1	2	3	4	5	6	7	8	9	10	
No, not all are necessary	No net in my opinion	Not Yet	Yes	Yes	Yes	Yes	No	No	No	

The responses are equally divided, showing that while AI tools have started to enter some educational institutions, many are still in the early stages or have yet to adopt such technologies. This indicates a transitional phase where AI implementation is presented but not yet widespread.

Table 4

Do You Believe that Integrating AI into Teacher Training Programs is a Practical and Achievable Goal?

Item 4. Response									
1	2	3	4	5	6	7	8	9	10
Yes, but up to some extent	Yes	No	Yes	Yes	Yes	Yes. Integrating AI into teacher training programs is both practical and achievable.	Yes	Yes	Yes

This figure of 90% represents an overwhelming majority of people who have shown confidence in the feasibility of integrating AI into teacher training programs. This indicates a strong willingness among educators to accept and embrace change and improve the quality of teacher training through the use of AI. The single opposing figure may represent issues of resource, training, and change.



Table 5

Do You Believe that Teacher Could Rely Entirely on AI –Driven Systems?

Item 5. Response										
1	2	3	4	5	6	7	8	9	10	
No, it will affect the qualities of a teacher	No because AI has its own biases	No	No	No	No while AI can suppose teachers		No	No	No	No

The unanimous rejection of total dependence on AI indicates that there is a strong belief in education that human involvement in teaching cannot be replaced. There were also concerns about the limitations of AI, such as the lack of emotional understanding and ethical reasoning. These concerns show that although AI could be used as a tool in teaching, total dependence on it for teaching is not feasible or desirable in the present educational system.

Table 6

In What Ways Could AI Make your Everyday Efficient or Enjoyable?

Item 6.						Responses				
1	2	3	4	5	6	7	8	9	10	
It is portable and accessible	By automating repetitive tasks	Its output based own objectivity	AI improve daily life managing schedules, automating tasks, suggesting meals, helping with fitness	AI makes my daily life Easier and more convenient. For example, it helps me create lesson plans quickly, which saves time	AI can help simplify any tasks in my daily routine	Controlling lights, fans, or appliances with voice comm ands	Translating variation in real time	It is portable and accessible	Facilitating content creation and ensuring educational material meet student	

The response suggests that the teachers see AI as a useful tool that makes their professional and personal lives easier. In this way, AI helps to simplify and organize tasks, making life more efficient and stress-free. Furthermore, the response demonstrates an understanding of the value of AI in terms of increasing productivity, communication, and personalization in professional and everyday life.

Table 7

Which Sector or Field do You Think will Benefit the Most from AI Technology?

Item 7.						Response				
1	2	3	4	5	6	7	8	9	10	
All education	Education	Education	Education sector	Science field	Education, Economy, Health department	Education	Education	Education	Education	

From the data, it is clear that the majority of the participants agree that the impact of AI will be greatest in the education sector. This indicates an awareness among educators of the impact of AI on teaching and learning. The fact that science economy and health were also mentioned by some of the participants under Also indicates an awareness of the impact of AI in these areas. However, the awareness of the impact of AI in the education sector was clear among the participants.



Table 8

In What Ways Have You Encountered AI Tools or System in Your Professional

Item 8.							Response			
1	2	3	4	5	6	7	8	9	10	
Chat GPT, Creativity	Thras Automated grading system, AI paired plagiarism checker, adaptive learning plat from etc.	I encountered that students mostly use it for purpose of all copy paste	Chat GPT chat bots and virtual assistant	Smart phone use AI, as do services like digital assistant, chat bots, social media.	Web site and much more	Social Media, Google search.	Smart home Devices Amazon Recommendations.	Many home electronics also use AI such as robot vacuum cleaners or security system	Chat bots handling routine customer queries.	

The findings clearly show that AI tools are highly integrated into professional and personal life. These AI tools are not just making tasks easier and more efficient, but they are also making tasks more productive in different fields. In and content creation, I supports creativity, while in routine office work and communication, it helps in automating processes. Nevertheless, the misuse of AI by students for copying, work shows the ethical issues that AI is bringing. AI is no longer just a technology but a part of life, whether in education, business, communication, or household management.

Table 9

To What Extent Do You Feel Prepared to Incorporate AI Tools into Your Teaching?

Item 9.					Response					
1	2	3	4	5	6	7	8	9	10	
Approximately 30%	Almost fully prepared but these are obstacle in using AI tools.	60 %	50 %	50 %	50 %	60 %	40 %	50 %	30 %	

These responses show that most teacher are somewhat ready to use AI tools in their teaching ,but they still need proper training teaching, support, and a clear understanding of how to apply these tools effectively .Even face some barriers lack of technical knowledge, limited resources, or fear of using new technology. Those who feel 50% or more prepared may have already used basic AI tools, while those at 30% might still need awareness and guidance. This shows that to fully integrate AI into teaching, it's not just about having the tools teachers also need guidance, confidence and support from their institutions.

Table 10

Should Educational Offer Dedicated AI Training Programs for Faculty Members?

Response									
1	2	3	4	5	6	7	8	9	10
Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No

These answers clearly show that the majority of people support the idea of providing dedicated training programs for teachers in the field of AI. This is because they think that with the increase of AI in the field of education, teachers should also be trained in using it properly. This can help them to keep themselves updated with the new technology, improve their ways of teaching, and make learning effective for students. However, some people who said "No" might have the opinion that AI may not be required in teaching at this time, or they may not want to change according to the new technology. In this way, the results show a strong demand and positive attitude towards providing training programs in the field of AI in the field of education.



Findings

1. A total of 10 teachers were interviewed. Among them, 7 teachers responded with Yes, indicating they include digital tools in their teaching practices. The remaining 3 teachers answered No, which shows that either they prefer traditional methods or do not have access to digital resources.
2. All 10 participants responded with yes showing unanimous agreement those AI technologies can be effectively and widely implemented in the education sector in the near future.
3. Out of 10 participants, 5 responded with Yes, indicating they have encountered AI tools being used in their educational institutions. The remaining 5 responded with No, suggesting that they have not yet observed the use AI technologies in their setting.
4. Out of 10 participants, 9 responded with 'Yes', indicating they believe that integrating AI into teacher training is both possible and realistic. One participant responded with; No; showing minimal doubt or hesitation
5. All 10 Participants responded with; No; indicating that they do not believe teachers should rely entirely on AI-driven systems. One participant specifically mentioned (No) because AI has its Own biases, highlighting concerns about fairness and objectivity in AI –based decision- making.
6. Participants shared a range of ideas about how AI can enhance their daily routines. Based on the responses, several common themes emerged.
 - **Automation of Repetitive Tasks**
Many participants (e.g., responses 2, 5, 6, 7) highlighted that AI helps by automating routine tasks like scheduling, lesson planning, and time management, making their work more efficient.
 - **Content Creation and Educational Support?**
Responses (4, 6) indicated AI, usefulness in creating lesson plans and educational materials tailored to students, needs.
 - **Accessibility and portability.**
Response 1 emphasized that AI tools are portable and accessible, which adds convenience to daily use.
 - **Home and lifestyle Assistance.**
Responses (5, 8) mentioned AI' role in managing daily life, controlling appliance personal via voice commands, and supporting personal health and fitness.
 - **Language and communication support.**
Response (9) highlighted AI' ability to translate conversations in real- time, which is particularly useful in multilingual or divers environments.
 - **Objective and output- Based support.**
Response 3 reflected on AI's objectivity and focus on efficient outcomes.
7. Out of 10 participants, 8 identified the education sector as primary beneficiary of AI technology. One participant chose the science field, while another highlighted multiple sectors, namely education, economy, and the health department, suggesting a broader view of AI's impact.
8. In my professional environment, I have encountered AI tools like chat GPT have also observed that many students tend to misuse AI for copy-paste purposes, which negatively affects their learning and originality. Virtual assistants and chatbots are also employed for easier handling of tasks such as scheduling reminders and answering questions. In the field of education, AI is employed for grading student work, detecting plagiarisms, and catering to the needs of each student individually. Smartphones also employ AI through digital assistants and social media applications. Websites also employ AI for a better user experience. In the field of business, chatbots are employed for the effective handling of customer queries. Websites such as Google and social media applications employ AI for delivering a better user experience through the provision of customized content. Smart home devices such as Amazon Echo and Amazon also employ AI for a better user experience. Home electronics such as robotic vacuum cleaners also employ AI for ease of use. When asked about their preparedness to use AI tools in teaching, most respondents in said they feel around 50% ready. Some said 60%, while a few mentioned only 30%. One person responded that they are almost fully prepared but still face some obstacles in using AI tools. Overall, the majority of the responses fall between 40% to 60% , which show that while many teachers are aware of AI and

have some interests are aware of AI and have some interest in using it, they still do not feel fully confident or completely prepared.

9. Out of the 10 responses collected, 7 participants said; yes; they believe education should provide proper AI training programs for teacher. Only 3 people said, No; meaning they either don't feel it's necessary or have some doubts about it. The majority agrees that training is important for faculty members so they can understand and use AI tools effectively in teaching and learning.

Conclusion

The purpose of this research was to understand how teacher in Pakistan view the use of Artificial intelligence in teacher training programs. After analyzing the responses, it was found that most teachers see AI as a helpful and useful technology that can improve their teaching skills and lesson planning. Some student's assessment and giving feedback easier and more effective.

However, some challenges were also identified, such as lack of technology limited training, and not knowing how to use digital training, and not knowing how to use digital tools properly.

From this study, it is concluded that if teacher is given the right training, tools, and support, then AI can become a strong part of teacher training programs. This can not only improve the quality of teaching but also enhance the learning experience the learning experience of students.

Recommendations

1. **Training Workshops:** Teacher should be provided with regular training workshops to help them understand how to use AI tools effectively in education and teaching practices
2. **Technology Access:** Schools and teacher training institutions should ensure the availability of basic technological tools such as internet, computers, and AI software for both teacher trainees.
3. **Policy Development:** The government and educational authorities should develop clear and practical policies to formally include AI- based tools in teacher training programs.
4. **Teacher Support and Motivation:** Teacher should be encouraged and motivated to use AI by providing them with incentives, professional guidance, and digital resources.
5. **Monitoring and Evaluation:** A proper system should be developed to monitor the implementation of AI tools in training programs and to evaluate their impact teaching quality.

References

- Alfadda, H. A., & Mahdi, H. S. (2021). Measuring students' use of Zoom application in language course based on the technology acceptance model (TAM). *Journal of Psycholinguistic Research*, 50(4), 883–900. <https://doi.org/10.1007/s10936-020-09752-1>
- Benbya, H., Davenport, T. H., & Pachidi, S. (2020). Artificial intelligence in organizations: Current state and future opportunities. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3741983>
- Boudreau, C. (2023, February 14). *I asked ChatGPT about its carbon footprint. For now, it's a mystery*. Business Insider. <https://www.businessinsider.com/chatgpt-openai-carbon-footprint-ai-climate-crisis-2023-2>
- Cebrián, G., Junyent, M., & Mulà, I. (2020). Competencies in education for Sustainable Development: Emerging teaching and research developments. *Sustainability*, 12(2), 579. <https://doi.org/10.3390/su12020579>
- Celik, I. (2023). Towards Intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Computers in Human Behavior*, 138, 107468. <https://doi.org/10.1016/j.chb.2022.107468>
- Cope, B., Kalantzis, M., & Sears-Smith, D. (2021). Artificial intelligence for education: Knowledge and its assessment in AI-enabled learning ecologies. *Educational Philosophy and Theory*, 53(12), 1229–1245. <https://doi.org/10.1080/00131857.2020.1728732>
- Darics, E., & Poppel, L. van. (2023, February 20). *Debate: ChatGPT offers unseen opportunities to sharpen students' critical skills*. The Conversation. <https://theconversation.com/debate-chatgpt-offers-unseen-opportunities-to-sharpen-students-critical-skills-199264>
- Huang, J., Saleh, S., & Liu, Y. (2021). A review on artificial intelligence in education. *Academic Journal of Interdisciplinary Studies*, 10(3), 206. <https://doi.org/10.36941/ajis-2021-0077>
- Oforu-Ampong, K. (2023). Gender differences in perception of artificial intelligence-based tools. *Journal of Digital Art & Humanities*, 4(2), 52–56. https://doi.org/10.33847/2712-8149.4.2_6
- Oforu-Ampong, K., Acheampong, B., Kevor, MO, & Amankwah-Sarfo, F. (2023). Acceptance of Artificial Intelligence (ChatGPT) in Education: Trust, Innovativeness and Psychological Need of Students. *Information and Knowledge Management*, 13(4), 37-47. <https://doi.org/10.7176/IKM/13-4-03>
- Zhang, C., Lu, Y. (2021). Study on artificial intelligence: The state of the art and future prospects, *Journal of Industrial Information Integration*. 1(23), 100224, ISSN 2452-414X, <https://doi.org/10.1016/j.jii.2021.100224>.