A STUDY ON AWARENESS AND ATTITUDES OF TEACHERS TOWARDS ARTIFICIAL INTELLIGENCE (AI) IN TEACHER EDUCATION

DISSERTATION

Submitted to Barkatullah University for the partial fulfillment of the requirement for the award of the degree of Integrated B.Ed.-M.Ed. (2022-2025)

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DECLARATION

I hereby declare that this dissertation entitled **A STUDY ON AWARENESS AND ATTITUDES OF TEACHERS TOWARDS ARTIFICIAL INTELLIGENCE (AI) IN TEACHER EDUCATION** has been carried out by me during the academic year 2022-2025 in partial fulfillment of the requirement for the Degree of Three Year Integrated B.Ed. - M.Ed. from Barkatullah University, Bhopal.

The study has been conducted under the guidance and supervision of Dr. Rajesh Kumar, Assistant Professor, Department of Education, Regional Institute of Education (NCERT), Bhopal. It is also to declare that the research work done by me is original. This dissertation has not been submitted by me for the award of any degree or diploma in any other university.

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Date:

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CERTIFICATE

This is to certify that the dissertation entitled **A STUDY ON AWARENESS AND ATTITUDES OF TEACHERS TOWARDS ARTIFICIAL INTELLIGENCE (AI) IN TEACHER EDUCATION** being submitted by CHRISTY P JOSEPH, student of Integrated B.Ed.-M.Ed. bearing Roll no.-2306600312 and enrollment no.-R230660590011, Regional Institute of Education, NCERT, Bhopal for the partial fulfillment of the degree of Degree of Integrated B.Ed. - M.Ed. , is a bonafied research carried out by her in the Department of Education, Regional Institute of Education, Bhopal, Madhya Pradesh under my supervision and guidance.

The work is original and it has not been submitted earlier in any form of degree at any university. This is further certified that the dissertation in its present form is fit for the submission to Barkatullah University for the award of the degree of Master of Education.

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CHAPTER 1
INTRODUCTION

1.1 Introduction

The term artificial intelligence was coined in 1956, but artificial intelligence has become popular nowadays, it is all due to increased data volumes, improvements in computing power and storage and advanced algorithms. Artificial Intelligence (AI) is the branch of computer science which is concerned with building smart machines with capability to perform tasks which typically require human intelligence.

Efforts have constantly been made to incorporate Al into teaching and learning; however, the successful implementation of new instructional technologies is closely related to the attitudes of the teachers who lead the lesson. Teachers' perceptions of Al utilization have only been investigated by only few scholars due an overall lack of experience of teachers regarding how Al can be utilized in the classroom as well as no specific idea of what Al-adopted tools would be like.

Artificial Intelligence (AI) has been significantly changing the structure of every industry and exponentially increasing the availability of cutting-edge tools utilized in people's everyday lives. This state-of-the-art technology has also considerably influenced educational practices, and efforts are constantly being made to incorporate Al into teaching and learning.

Moreover, scholars have claimed that the successful implementation of new instructional technologies is closely related to the attitudes of the teachers who lead the lesson **(Fernández-Batanero et al., 2021)**. Despite decades of professional development about educational technology integration, a great number of teachers still view the implementation of technology in the classroom negatively and are not inclined to use it **(Prensky, 2008: Kaban and Ergul, 2020; Istenic et al., 2021).**

Instead, they continue using the same materials and teaching methodologies, rejecting the application of anything that might bring negative outcomes **(Tallvid, 2016).** Moreover, anxiety brought about by using new technologies can act as a burden **(Zimmerman, 2006)** and hinder teachers' efforts to introduce technology on-site **(Hébert et al., 2021).**

According to the most recent research in the field of AI-based learning, the more space is available for learning using modern applications, the more opportunities there are to improve the education system and keep up with development. Because AI plays a variety of important roles in the teaching–learning process and its components, it has the potential to play a significant and tangible role in the learner's present and future **(Mahmoud, 2020).**

It is necessary to emphasize the great potential offered by AI for use in education through the Internet and the accompanying vast developments that have created ease of access for students and teachers to the information they need and want to obtain. As a result, it is necessary to take advantage of the applications of AI and employ them in the design of curricula, teaching methods, and assessment to obtain effective learning **(Eltabakh, 2019).**

Although AI has the potential to transform education **(Holmes et al., 2019)**, good educational outcomes typically do not occur by the virtue of merely using advanced AI computing technologies **(Castañeda & Selwyn, 2018; Du Boulay, 2000; Selwyn, 2016)**. More importantly, the use of distinct classes of educational technologies generally imply different philosophical and pedagogical perspectives, which in turn pose critical influences on the quality of learning and instruction **(Hwang et al., 2020).**

Having identified teachers' lack of AI knowledge as a barrier to AI implementation, studies have begun to explore the preparation of teachers to teach AI through professional development (PD) programs **(Lee & Perret, 2022)** and co-design of learning resources **(Lin & Van Brummelen, 2021)**. While PD is important, exploring teachers' intention and readiness to teach AI in classrooms is imperative since teachers' acceptance and disposition could be a pointer to their interest

in teaching technology and impact their teaching practices **(Nikolopoulou, Gialamas, Lavidas, & Komis, 2021).**

As a result, gathering teachers' perceptions of their intention and readiness to teach AI would contribute to understanding the factors that support the successful implementation of AI in schools. There is a lack of research in the emerging field that specifically considers teachers. Earlier studies have identified students' intention to learn AI; we, however, believe that teacher's perspective should not be secondary since teachers are expected to promote AI-related concepts in class. It is then necessary to understand their perspectives that will encourage effective implementation of the subject in schools as well as colleges.

1.2 Statement of problem

Despite the growing significance of Artificial Intelligence (AI) in education, teachers' limited awareness and varying attitudes toward AI integration hinder its effective adoption in teacher education programs. The problem of the present study is stated as **A STUDY ON AWARENESS AND ATTITUDES OF TEACHERS TOWARDS ARTIFICIAL INTELLIGENCE (AI) IN TEACHER EDUCATION.**

1.3 Rationale of the Study

The study provides a novel contribution by its thorough investigation of the diverse effects of AI on teacher education. It offers beneficial perspectives on the possible benefits and challenges, illuminating the far-reaching changes that AI could bring to the terrain of learning and instruction and teaching methods in the time yet to come. The research sought to assess the effect of AI adoption in teacher education across five main dimensions: (i) its influence on teaching support and classroom management, (ii) its role in creating inclusive and accessible learning environments, (iii) its contribution to improving teachers' digital literacy and computer skills, and enhancing access to digital teaching resources, (iv) its positive influence on identifying students' learning styles and facilitating the adoption of diverse teaching methods, and (v) its role in strengthening teacher-student relationships through improved interactions.

1.4 Operational Definition of Key Terms:

1. Artificial Intelligence (AI) in Education - Artificial intelligence can tailor educational content and experiences to meet specific learning needs. One of the most notable applications of AI in this field is personalized learning.

2. Awareness Of Teachers - Teachers' knowledge, understanding, and familiarity with AI concepts, applications, and implications in education.

3. Attitudes Of Teachers - Teachers' positive or negative behaviour, beliefs, and intentions toward AI integration in their teaching practices. Teacher attitudes toward Artificial Intelligence (AI) in education play a crucial role in how effectively these technologies are implemented in the classroom.

4. Teacher Education - Programs, courses, or training that prepare teachers effectively in teaching. Teacher education is critical for preparing educators to effectively navigate the evolving landscape of modern classrooms, especially with the integration of technologies and various teaching methods.

1.5 Objectives

1. To investigate teachers' awareness and understanding of Artificial Intelligence (AI) in education.
2. To examine teachers' attitudes towards integrating AI into their teaching practices.
3. To assess teachers' knowledge of AI concepts and applications in education.
4. To determine teachers' familiarity with AI tools and platforms.

1.6 Delimitation of the Study

1. One of the significant delimitation involves the geographic focus of the study. Here the study is basically focused on the B.Ed colleges of Kannur district in Kerala.

2. The research may focus specifically on teachers engaged in formal teachers who are in-service teachers in B.Ed colleges.

3. The methodological approach is another aspect that may be delimited. This decision allows for a focused examination of current attitudes and awareness rather than tracking changes over time. Consequently, the findings will be more immediate and reflective of the current state of teachers' perspectives on AI.

CHAPTER-II
REVIEW OF RELATED LITERATURE

2.1 Introduction:

This chapter deals with the review of literature that is directly or indirectly related to the study proposed by the investigator. Resourceful information on the problem to be investigated is one of the most important steps in the planning of any research. Every piece of ongoing research needs to be connected with the work already done to attain overall relevance and purpose. The review of literature acts as a link between the studies already conducted in the field/area and the research proposed. There are mostly three stages in most of the reviews which are- finding relevant information, appraisal of relevant and contextual information and synthesizing and summarizing findings into a set of collective conclusions.

2.2 Review of Related Literature

According to **Chintalapati, S., & Pandey (2022)**, AI refers to the simulation of human intelligence in machines that are programmed to think and learn like humans. It encompasses various subfields, including machine learning, natural language processing, computer vision, and robotics. AI systems can perform tasks that typically require human intelligence, such as understanding natural language, recognizing patterns, and solving complex problems.

Singh, V., & Ram, S. (2024), pointed out that AI has made remarkable progress in recent years, with applications spanning various domains. In healthcare, AI aids in diagnosing diseases, analyzing medical images, and even drug discovery. In autonomous vehicles, it enables self-driving cars to navigate and make real-time decisions. Natural language processing powers virtual assistants like Siri and Alexa, making them capable of understanding and responding to spoken language. In finance, AI-driven algorithms analyze vast amounts of data for trading and risk assessment.

Aghaziarati et al., (2023) wrote a research article 'Artificial Intelligence in Education: Investigating Teacher Attitudes'. It describes as educational institutions strive to adapt to the 21st century digital landscape, the integration of AI technologies into teaching and learning processes has emerged as a pivotal area of exploration.

Tapalova & Zhiyenbayeva (2022) delved deeper into the role of AI in facilitating personalized learning pathways. Their research underscores the adaptability of AI systems to cater to the diverse needs of individual learners, a testament to the technology's potential to democratize and customize education. By focusing on personalization, they highlight a core advantage of AI: its ability to mould educational content and delivery according to the unique preferences, strengths, and weaknesses of each student. This personalized approach not only fosters an inclusive learning environment but also ensures that education is more relevant, engaging, and effective.

Rios-Campos et al., (2023) specifically position ChatGPT within the broader context of AI in education. Their investigation into the applications of AI-powered tools like ChatGPT for students, teachers, and educational systems at large offers profound insights into the versatile utility of AI. From automating routine tasks to facilitating personalized learning and enhancing administrative efficiency, the study elucidates the myriad ways AI can serve as a catalyst for educational innovation and improvement.

Singh V. & Ram S. (2024) observed the transformative potential of AI in teacher education. The transformative potential of AI in teacher education is significant and has the capacity to reshape the way educators are prepared, supported, and continuously developed. AI has the transformative potential to enhance the quality and accessibility of teacher education, making it more responsive to the evolving needs of students and society. By providing personalized learning experiences, continuous support, and data-driven insights, AI empowers educators to excel in their roles and ultimately contributes to improved educational outcomes for students.

Ferikoğlu & Akgün (2022) contribute significantly to this aspect by developing a scale aimed at measuring teachers' awareness and perceptions of AI technologies. Their study opens avenues for understanding how educators, the primary facilitators

of learning, perceive, and interact with AI in their professional settings. By shedding light on teachers' awareness, the research underscores the importance of equipping educators with the necessary knowledge and skills to navigate the AI-enhanced educational landscape effectively.

The work of **Yu (2021)** enriches the discourse from an administrative perspective, examining the development and implementation of AI in university education management. Their qualitative analysis reveals the dual nature of AI in educational administration, pointing out the benefits such as efficiency and data-driven decision-making, alongside challenges including ethical considerations and the need for comprehensive training. This nuanced exploration emphasizes that the impact of AI extends beyond the classroom, affecting the broader operational frameworks of educational institutions.

Kim and Kim,(2022) noticed that overall, Teachers' perceptions of AI-based educational tools vary according to their pedagogical belief, teaching experience, prior exposure to educational technology, and the effectiveness and necessity of a particular technology, all of which can influence their readiness to embrace AI in education.

Ng et al. (2023) emphasize the need for more comprehensive studies on AI literacy in the context of teacher education. Teacher awareness of AI is critically important for ensuring the effective use of AI technologies in education. This highlights the importance of examining teachers' levels of awareness regarding AI technologies.

Shi (2024) aimed to investigate the AI literacy levels of teacher trainees and strategies to improve these levels. The research involved surveying and interviewing 430 teacher trainees. The results indicate that teacher trainees need more AI knowledge and capabilities but possess relatively high AI awareness. This recommends improving AI literacy at the school, teacher, and student levels.

Zhao et al. (2022) also investigated the AI literacy of primary and middle school teachers in China. The study found that teachers generally have a medium to high literacy level in using AI resources in the classroom. AI literacy and awareness of AI

may appear similar, yet they represent distinct concepts. AI literacy includes the ability to use AI technologies consciously and responsibly. While awareness suggests general knowledge and comprehension, it does not necessarily entail technical expertise or profound understanding.

Simhadri and Swamy (2023) collectively underline the need for more targeted research in this area and state that there is a notable gap in the existing literature on teachers' awareness of AI. By understanding where teachers stand regarding AI awareness, educational institutions can make more informed decisions about resource allocation, training needs, and curriculum adjustments to better prepare students for the future.

In conclusion, understanding teachers' perspectives on AI in teacher education is vital for shaping effective and meaningful integration of technology in classrooms. The existing research highlights both the opportunities and challenges teachers associate with AI, emphasizing the importance of targeted training, ethical awareness, and practical application. By prioritizing teacher voices in research and program development, educational institutions can bridge the gap between technological innovation and pedagogical practice. This approach not only enhances teachers' confidence and competence in using AI but also ensures that AI is implemented in ways that truly support teaching and learning.

CHAPTER - III
RESEARCH METHODOLOGY

3.1 Introduction:

The present chapter is devoted to the description of the methodology given in the present study. In this chapter, the discussion will be in detail about the variables, population, sample, tool used for collecting the data, steps for tool construction, the procedure of the data collection, and statistical techniques used for the given study.

3.2 Research Design:

The research design is done for the purpose of the following conditions:

- Collection and analyzing the data in a manner that aims to merge it in a proper manner.
- It is a decision-making process as the plan of action is prepared by the investigator before taking over any study.
- It is an arrangement of the conditions for collecting and analyzing data in a well-organized manner.
- It is a conceptual framework within which the research is conducted and it constitutes the blueprint for the collection, measurement and analyzing data in a meaningful and structured way.
- It enables the investigator to save a great deal of time, resources and labour.

Qualitative Research Design had been used in the present study to understand the awareness and attitudes of teachers towards artificial intelligence (AI) in teacher education.

3.3 Research Method:

The research method is a format through which the investigator is aware of how to proceed with the research problem and arrive at the result. It includes the entire

process that is involved in the research part from the initial process of planning, execution, drawing interpretations and promulgating the results.

In this study, we aimed to question if a relationship exists between teachers' readiness and belief in the relevance of teaching AI and various variables and test whether these variables predict their intention to introduce AI in schools, and then produce a idea that explains and predicts the relations between teachers' readiness and various variables.

The present study had been conducted using survey method. To achieve the obiectives of this research, qualitative data was collected. The data was collected through offline mode wherein a structured questionnaire was created through MS Word.

3.4 Population:

Data collection is essentially an important part of the research process as only on the basis of data the analysis and interpretation is done which ultimately makes a researcher able to reach out to the result and conclusion of the study. For the data collection process, the investigator needs to take the sample from the population. The process of obtaining information about the entire population by examining only a part of it is referred to as sampling. In the present study, the population comprises teachers of various B.Ed colleges such as Crescent B.Ed. College, Malabar B.Ed. Training College, PKM B.Ed. College from Kannur district of Kerala.

3.5 Sample:

The sample size of the study is of 100 teachers from various B.Ed colleges of Kannur district.

3.6 Sampling

Purposive random sampling was used for conducting this study.

3.7 Tool Used:

The advantages and importance of research are totally dependent on the relevance of the tool which extracts information from the sample population. The tool should be relevant, reliable and valid. The tool for the present research was the Questionnaire developed in the MS Word by the researcher to identify the attitude and awareness of teachers towards AI in teacher education.

1.8 Data Collection Procedure:

For data collection, the investigator went to selected colleges and met the Principals for permission. First the investigator explained the purpose. The Principal gave the permission to conduct the study. After getting the permission, the investigator met the teachers and established a connection with them.Data was collected from teachers working at various B.Ed. Colleges of the Kannur district using the Questionnaire developed in the MS Word and print outs were taken. Samples were requested to answer each statement freely without hesitation and ensured confidentiality of their responses.

Before data collection, information was shared to all the samples about the study and its purpose. The respondents were requested to give honest responses. The respondents were also assured that the data provided by them will be kept entirely confidential and will be used for research purposes only. The investigator tried her level best to make the process of data collection easy, convenient, and stress-free for teachers.

The collected data were sorted and grouped according to the objectives.They were counted and distributed according to the item. The percentage of strongly agree, agree, neutral, disagree and strongly disagree were calculated. Based on the numerical percentage, it is represented in graphical form (pie chart). Finally, each objective were interpreted and came to the conclusion.

CHAPTER-IV
DATA ANALYSIS AND INTERPRETATION

4.1 Introduction:

The present chapter focuses mainly on the analysis and interpretation of the data that was collected for the study. Data analysis is the process of inspecting, cleansing, transforming and modeling data with the goal of discovering useful information, informing conclusions, and supporting decision-making

4.2 Analysis of the Data:

Data is a collected form of facts for extracting factual information from the set of raw data. Analysis of data is a structured and systematic procedure of categorizing, arranging, ordering, and summarizing the data to discover facts and for getting answers related to the research purpose. The basic purpose of data analysis is to reduce data into a simple and interpretative form so that inferences may be drawn from it **(Kothari, 2004).** Analysis and interpretation of data are helpful in knowing the relationship between the variables and drawing appropriate conclusions. Data analysis is the process of breaking the data into smaller parts to extract useful information for forecasting the outcomes. Careful analysis with the help of appropriate statistical techniques leads to better prediction and accurate assessment. Therefore, data analysis is an important step that involves a whole composite procedure for assessing data utilizing appropriate descriptive and inferential statistics.

4.3 Objective-wise Analysis, Interpretation and Discussion of Result:

To facilitate and bring clarity, the entire analysis is presented and the results based on it are discussed under the following sections-

4.3.1 OBJECTIVE -1: To investigate teachers' awareness and understanding of Artificial Intelligence (AI) in education.

Item No. (i) I am aware of how AI is currently used in educational settings.

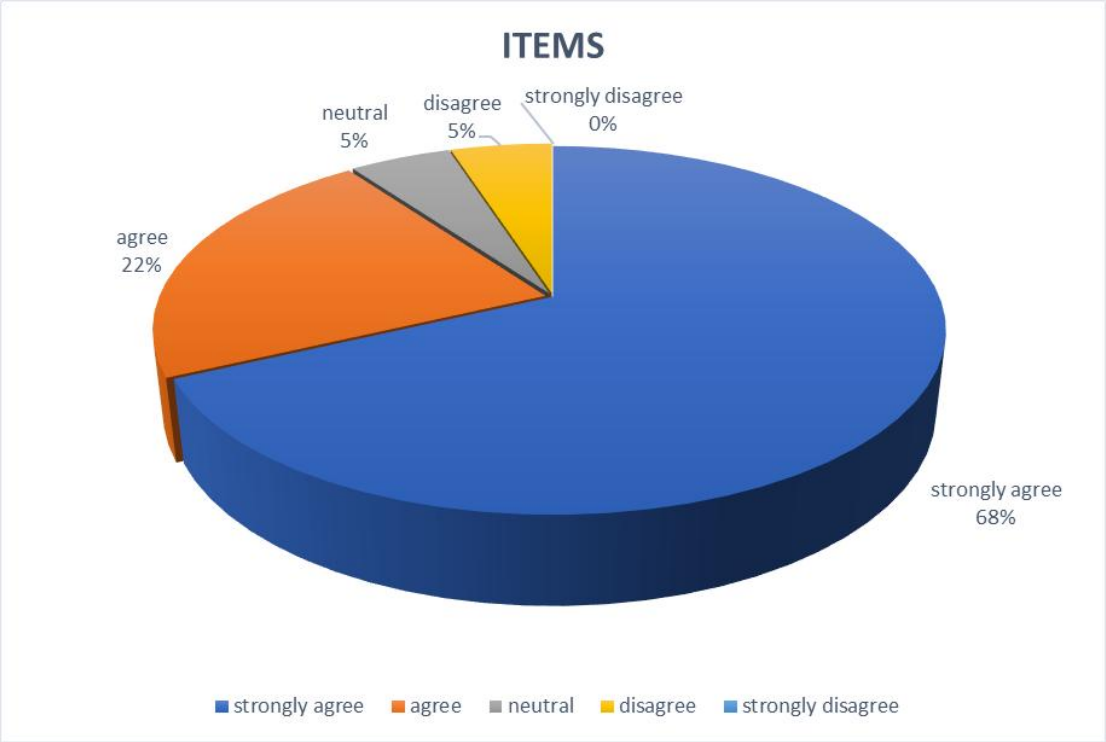

Figure No. 4.3.1(i) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.1(i)	I am aware of how AI is currently used in educational settings.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		68%	22%	5%	5%	0%

Item No. (ii) I believe AI is a rapidly growing field that will impact education.

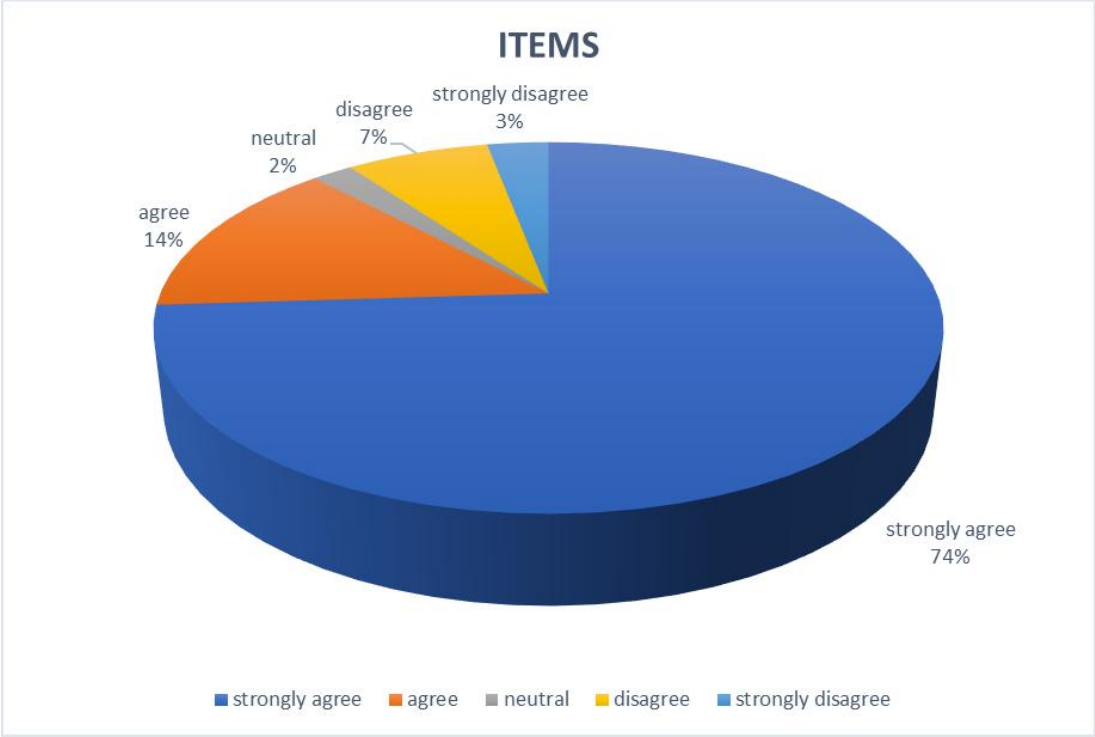

Figure No. 4.3.1(ii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.1(ii)	I believe AI is a rapidly growing field that will impact education.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		74%	14%	2%	7%	3%

Item No. (iii) I regularly read or hear about AI in the media or professional platforms.

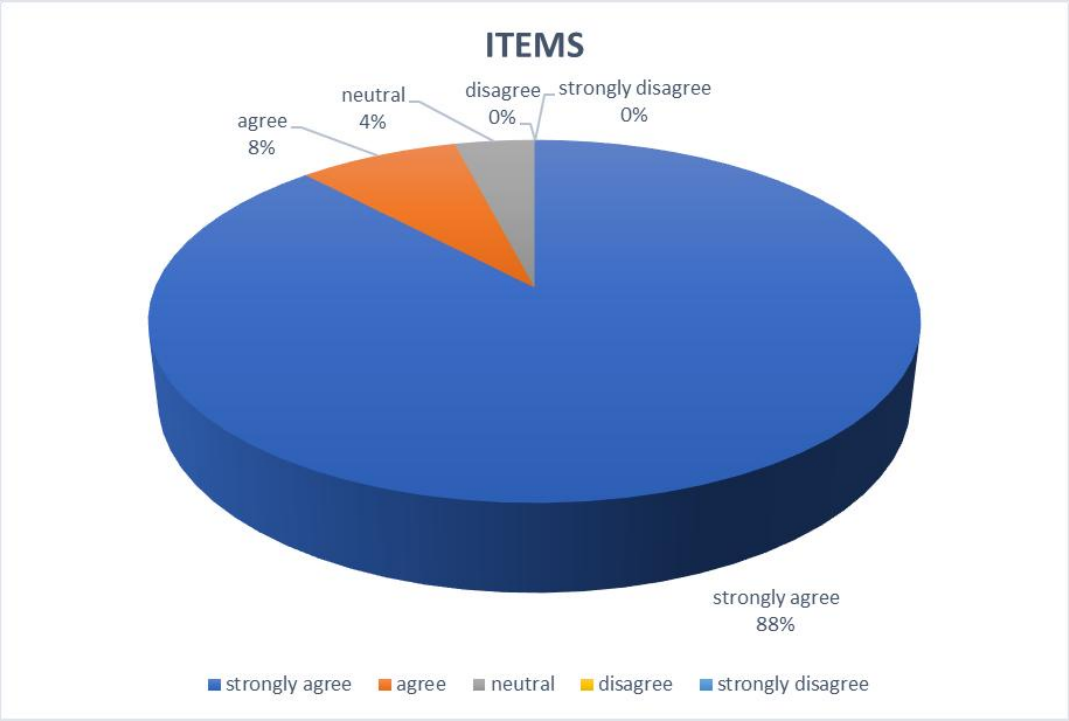

Figure No. 4.3.1(iii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.1(iii)	I regularly read or hear about AI in the media or professional platforms.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		88%	8%	4%	0%	0%

Item No. (iv) AI-based platforms can improve student engagement and performance.

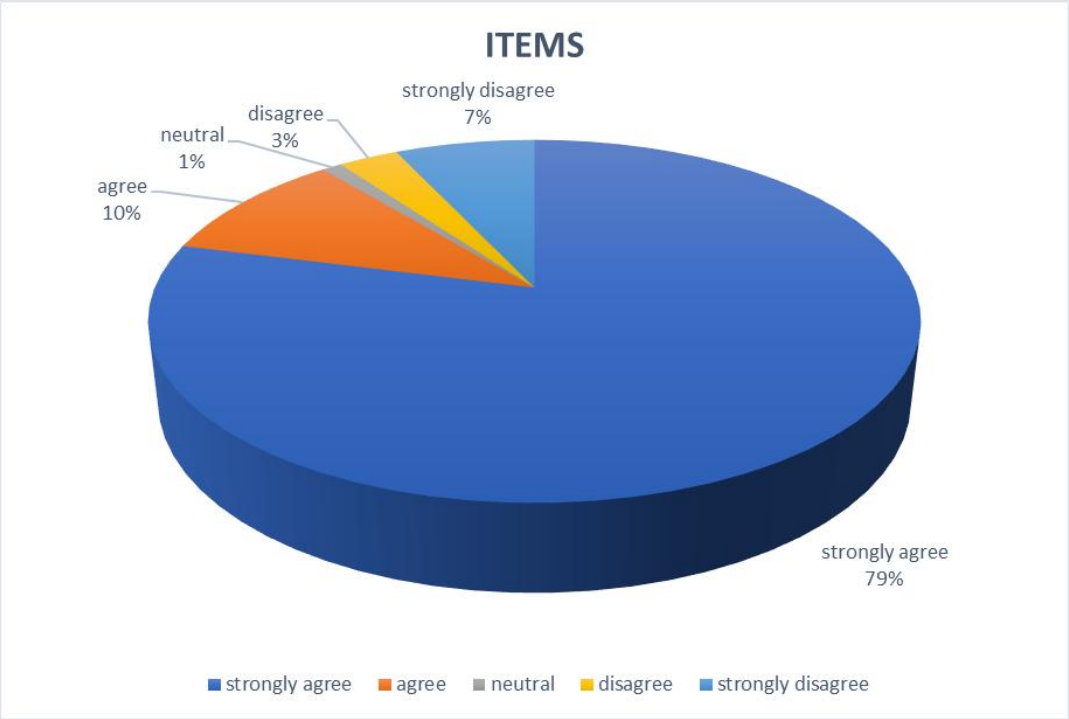

Figure No. 4.3.1(iv) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.1(iv)	AI-based platforms can improve student engagement and performance.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		79%	10%	1%	3%	7%

Item No. (v) AI will become a necessary tool in the future of education.

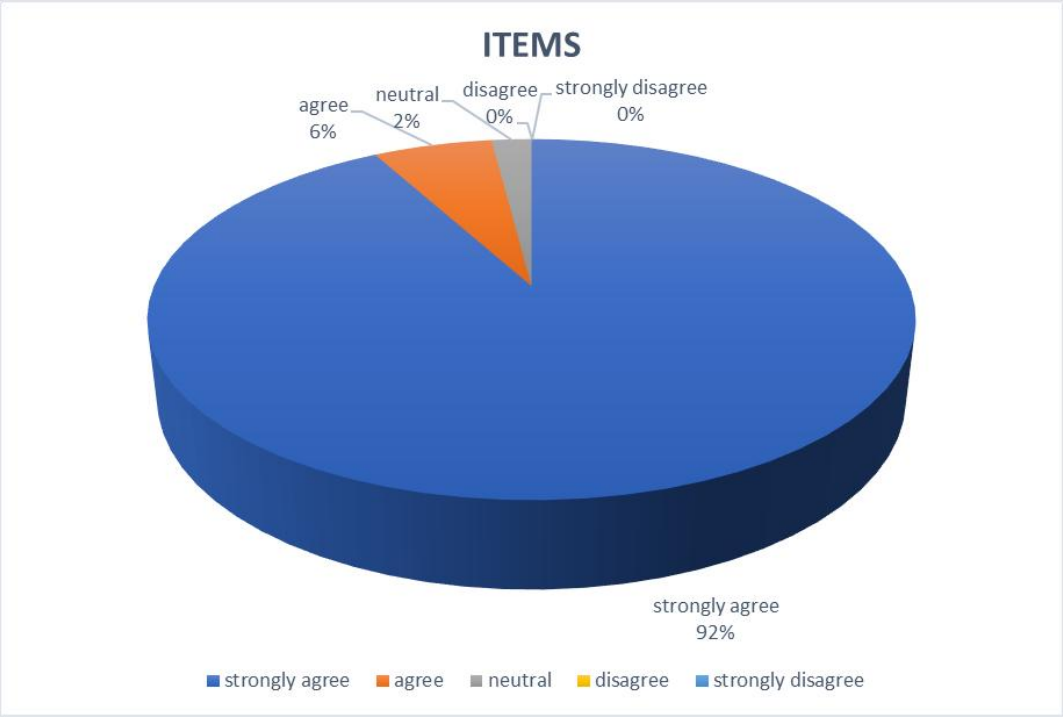

Figure No. 4.3.1(v) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.1(v)	AI will become a necessary tool in the future of education.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		92%	6%	2%	0%	0%

Interpretation of Objective No.1:

"Investigating teachers' awareness and understanding of Artificial Intelligence (AI) in education" reflects a proactive and future-oriented approach to educational innovation.

4.3.2 OBJECTIVE -2: To examine teachers' attitudes towards integrating AI into their teaching practices.

Item No. (i) AI tools can enhance student learning outcomes

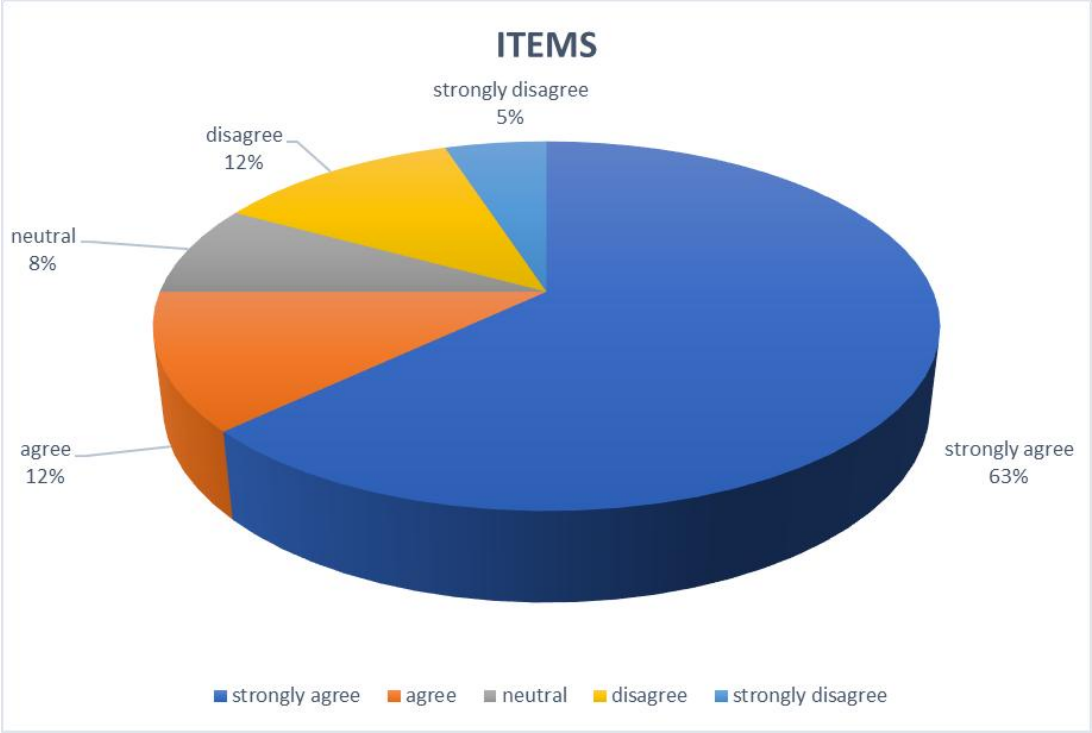

Figure No. 4.3.2(i) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.2(i)	AI tools can enhance student learning outcomes	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		63%	12%	8%	12%	5%

Item No. (ii) Integrating AI can help personalize instruction for students.

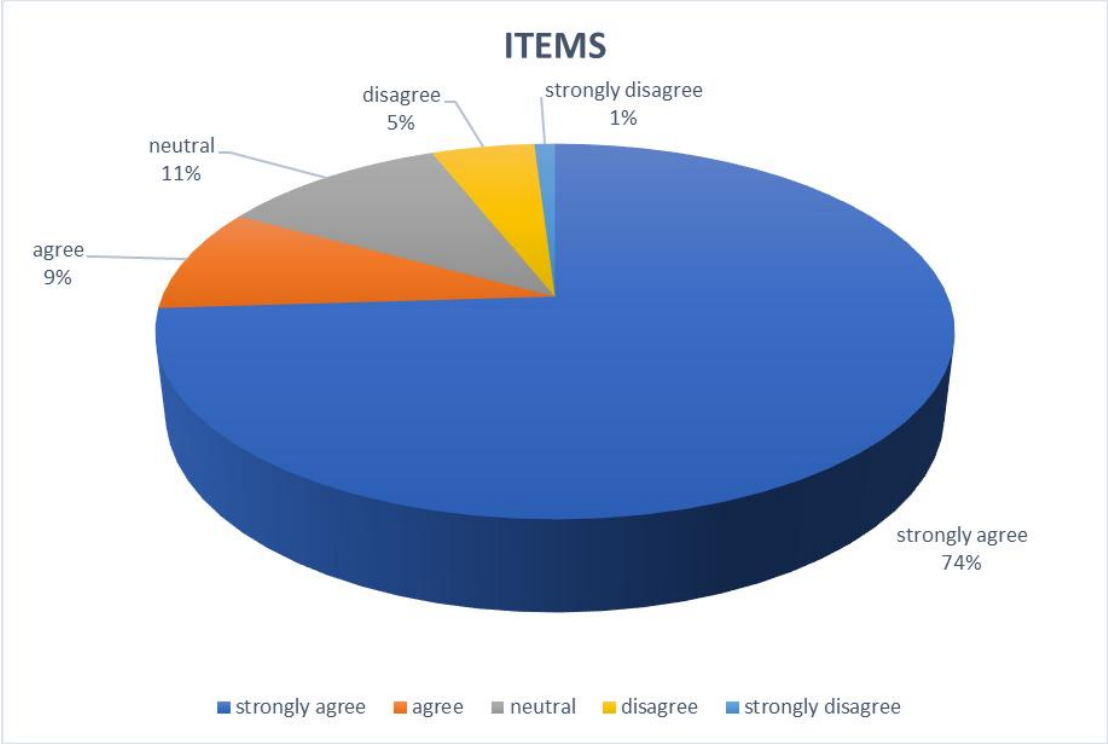

Figure No. 4.3.2(ii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.2(ii)	Integrating AI can help personalize instruction for students	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		74%	9%	11%	5%	1%

Item No. (iii) AI can support differentiated learning based on individual student needs.

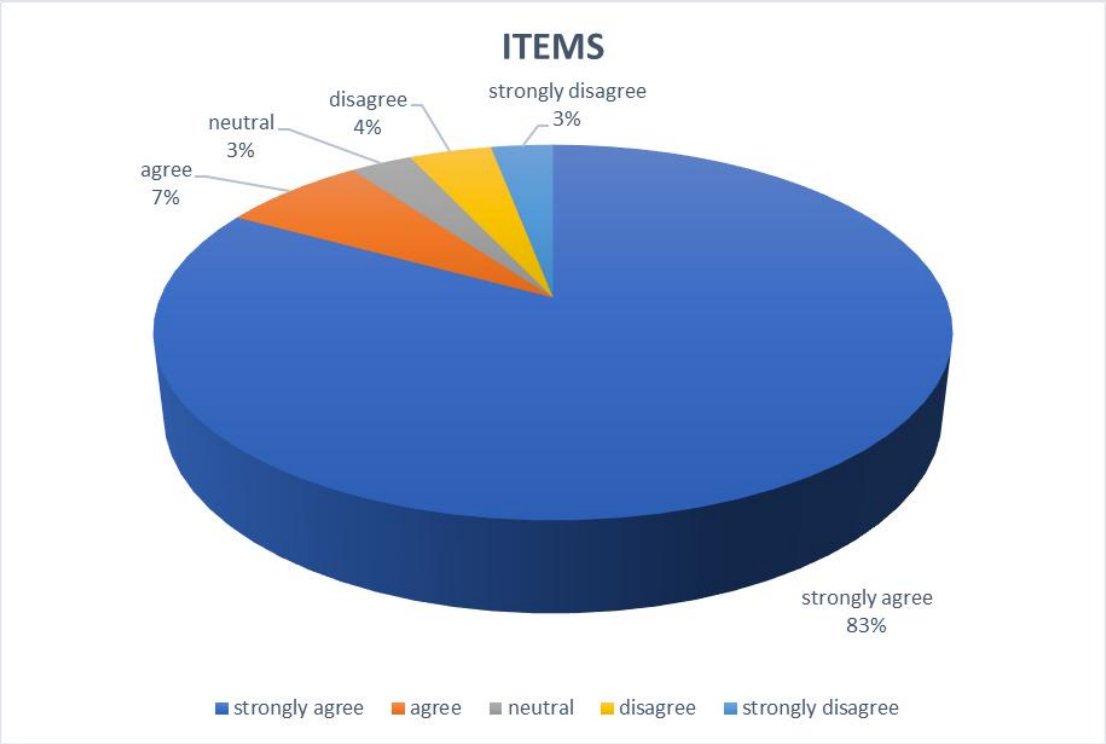

Figure No. 4.3.2(iii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.2(iii)	AI can support differentiated learning based on individual student needs.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		83%	7%	3%	4%	3%

Item No. (iv) AI can reduce my workload by automating tasks like grading or feedback.

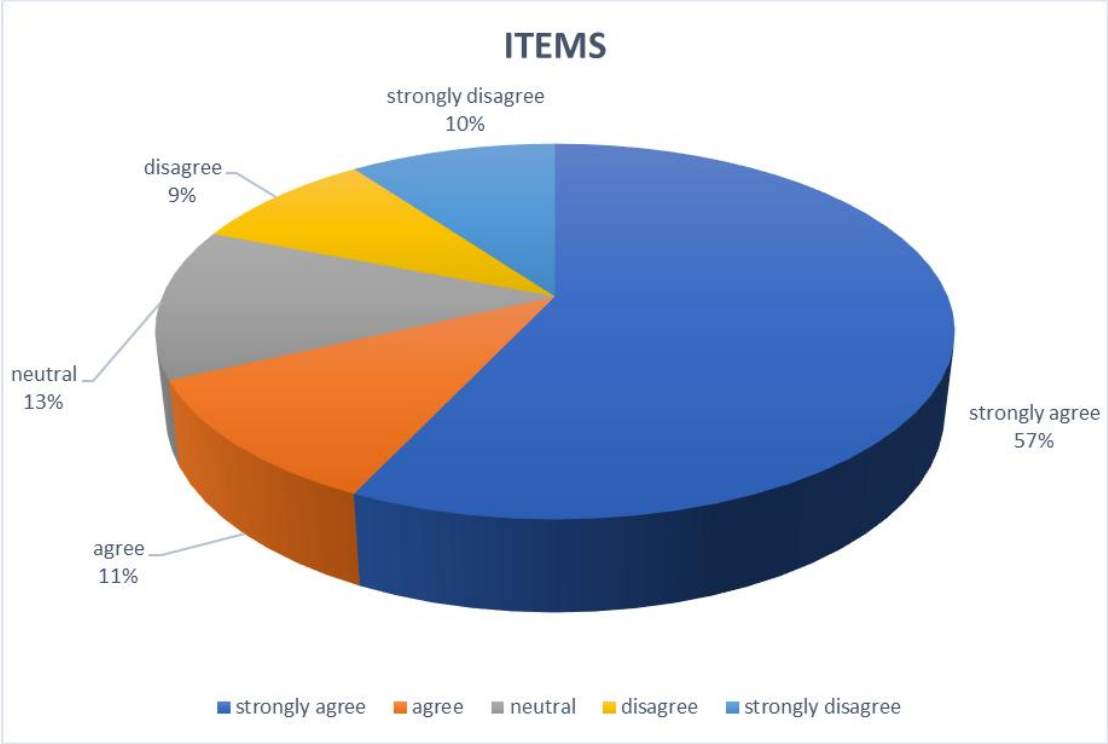

Figure No. 4.3.2(i) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.2(i)	AI can reduce my workload by automating tasks like grading or feedback.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		57%	11%	13%	9%	10%

Item No. (v) Using AI can make the classroom more interactive and engaging.

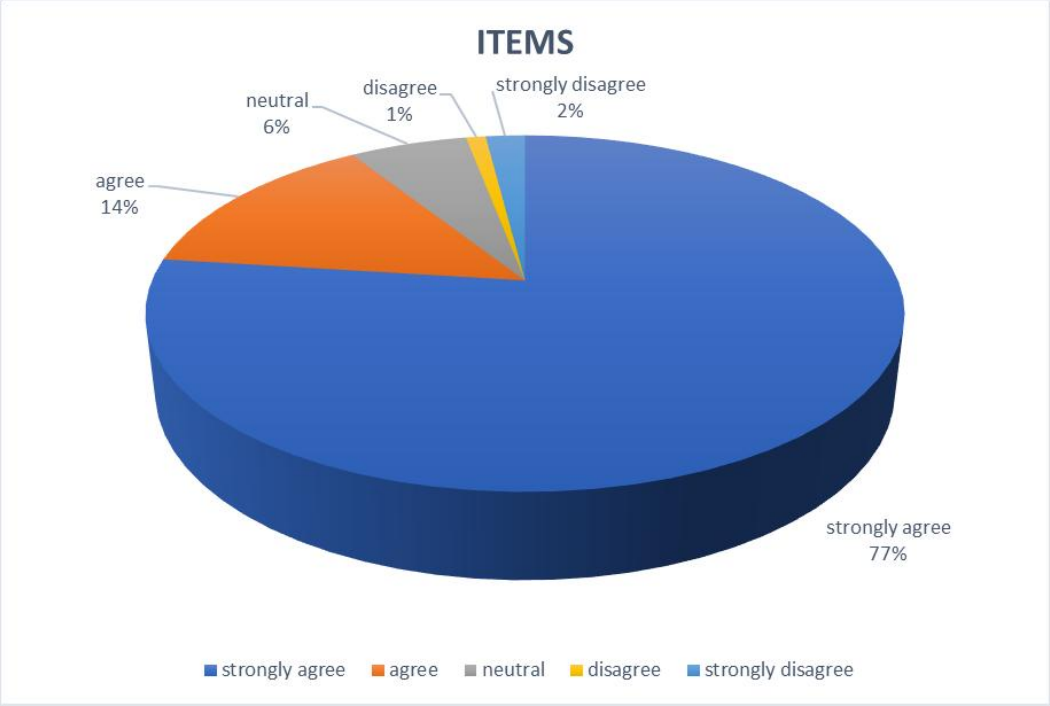

Figure No. 4.3.2(v) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.2(v)	Using AI can make the classroom more interactive and engaging.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		77%	14%	6%	1%	2%

Interpretation of Objective No.2:

"Examining teachers' attitudes towards integrating Artificial Intelligence (AI) into their teaching practices" highlights a forward-thinking and impactful area of educational inquiry.

4.3.3 OBJECTIVE -3: To assess teachers' knowledge of AI concepts and applications in education.

Item No. (i) I feel confident exploring new AI-based technologies related to education.

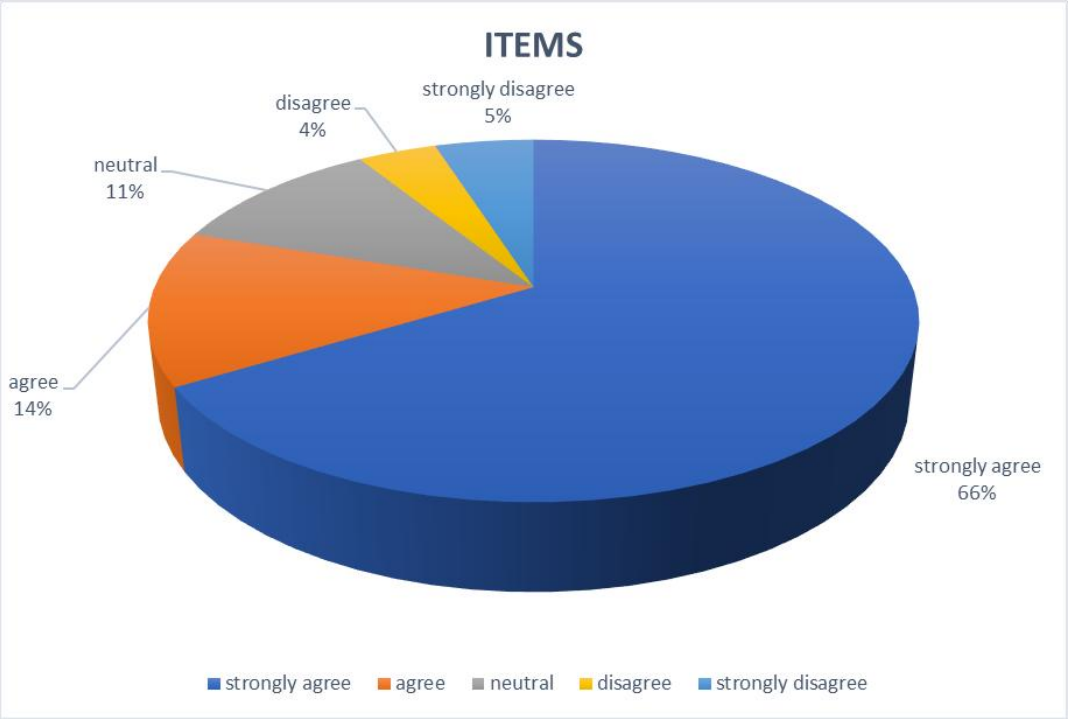

Figure No. 4.3.3(i) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.3(i)	I feel confident exploring new AI-based technologies related to education.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		67%	14%	11%	4%	5%

Item No. (ii) I can identify reliable sources for learning more about AI in education.

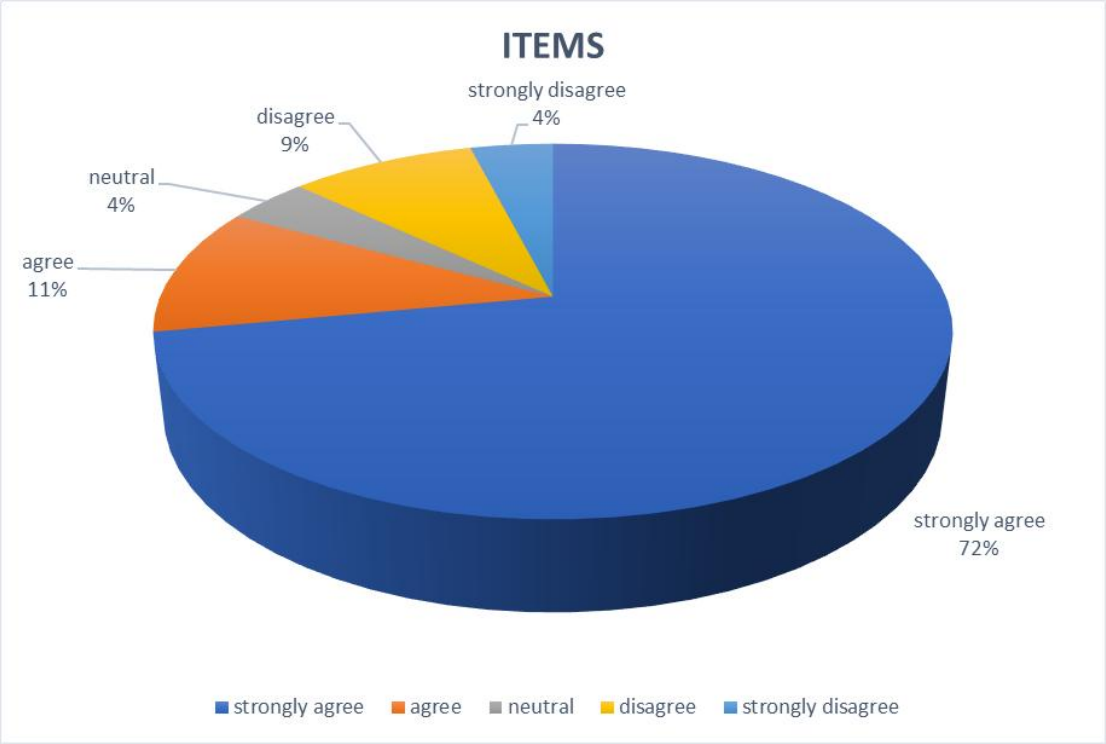

Figure No. 4.3.3(ii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.3(ii)	I can identify reliable sources for learning more about AI in education.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		72%	11%	4%	9%	4%

Item No. (iii) I can evaluate the advantages and limitations of AI in the classroom.

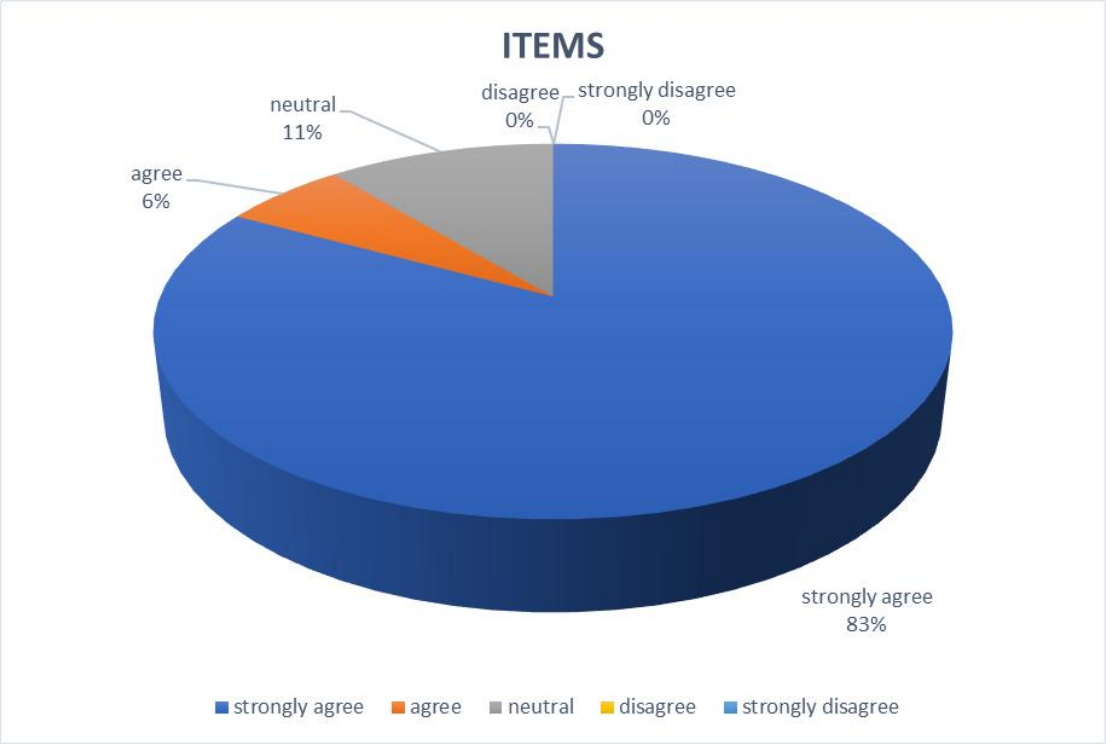

Figure No. 4.3.3(iii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.3(iii)	I can evaluate the advantages and limitations of AI in the classroom.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		83%	6%	11%	0%	0%

Item No. (iv) I am aware of AI's role in assessing student progress and analytics.

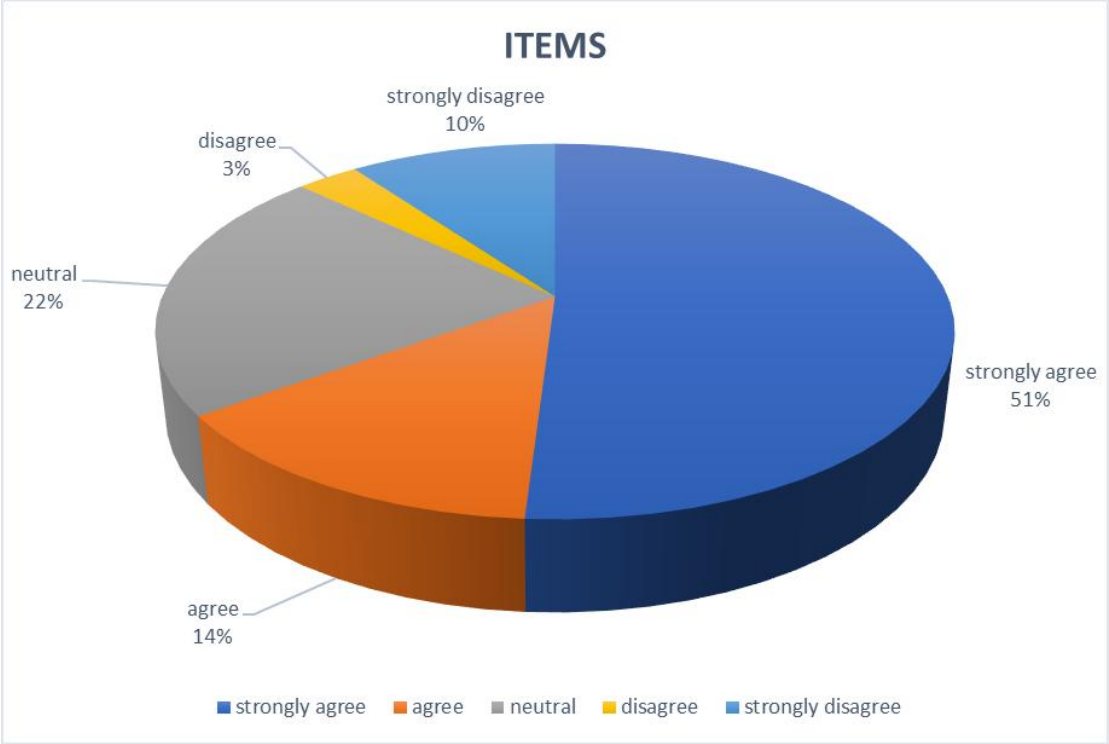

Figure No. 4.3.3(iv) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.3(iv)	I am aware of AI's role in assessing student progress and analytics.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		51%	14%	22%	3%	10%

Item No. (v) I know how to integrate at least one AI tool into my teaching practice.

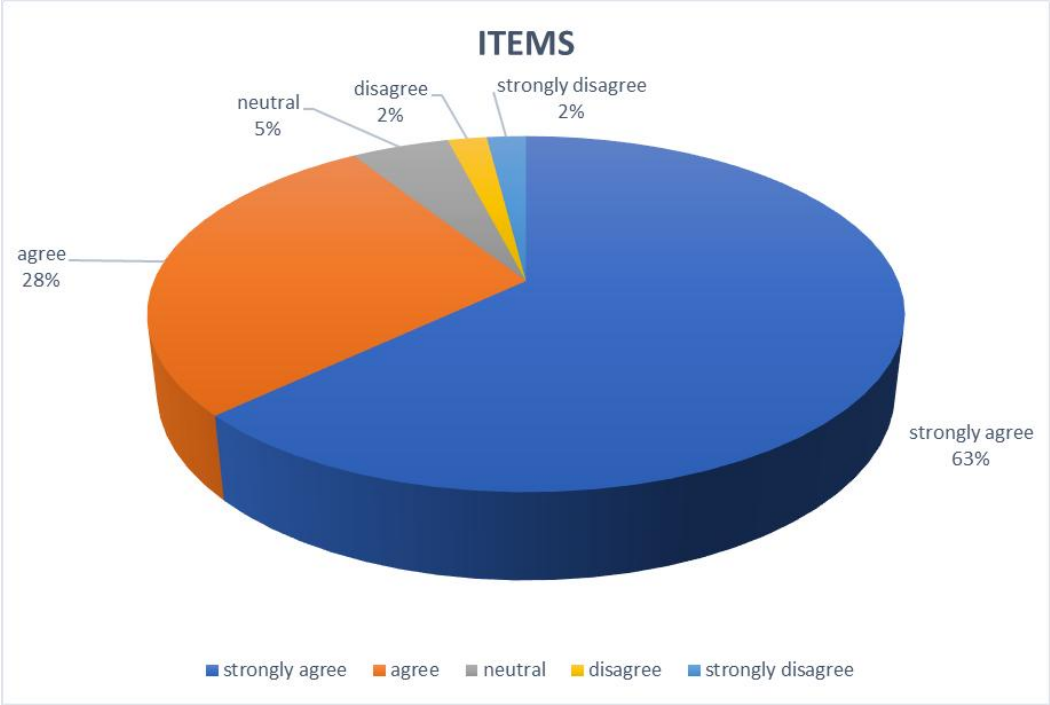

Figure No. 4.3.3(v) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.3(v)	I know how to integrate at least one AI tool into my teaching practice.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		63%	28%	5%	2%	2%

Interpretation of Objective No.3:

Assessing teachers' knowledge of AI concepts and applications in education is a crucial step that acknowledges the evolving role of educators in a technology-driven world.

4.3.4 OBJECTIVE -4: To determine teachers' familiarity with AI tools and platforms.

Item No. (i) I am aware of the availability of AI tools used in education.

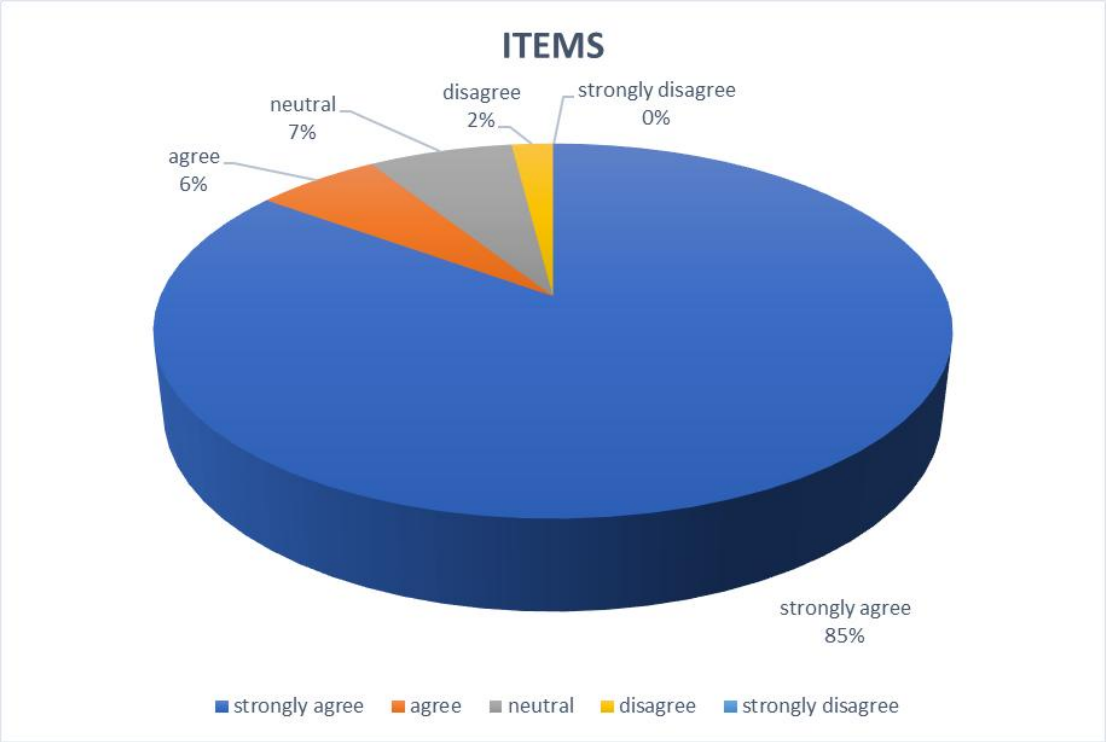

Figure No. 4.3.4(i) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.4(i)	I know how to integrate at least one AI tool into my teaching practice.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		85%	6%	7%	2%	0%

Item No. (ii) I can name at least one AI-based educational tool or platform.

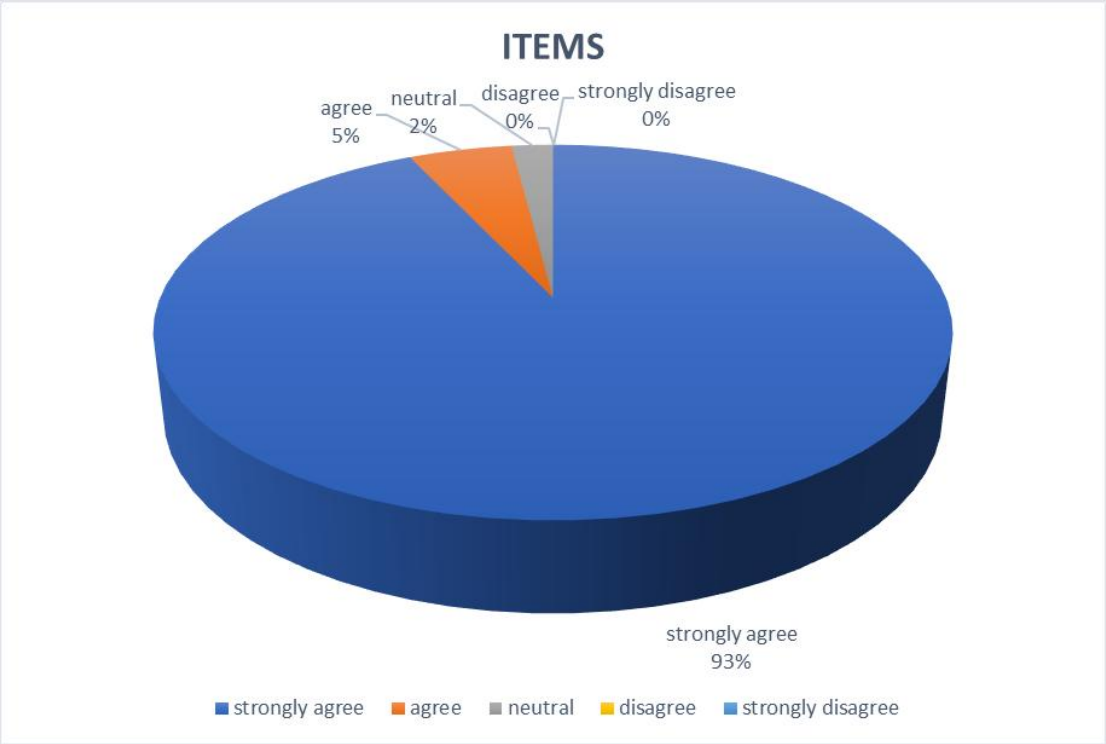

Figure No. 4.3.4(ii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.4(ii)	I know how to integrate at least one AI tool into my teaching practice.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		93%	5%	2%	0%	0%

Item No. (iii) I have seen or experienced AI tools being used in classrooms.

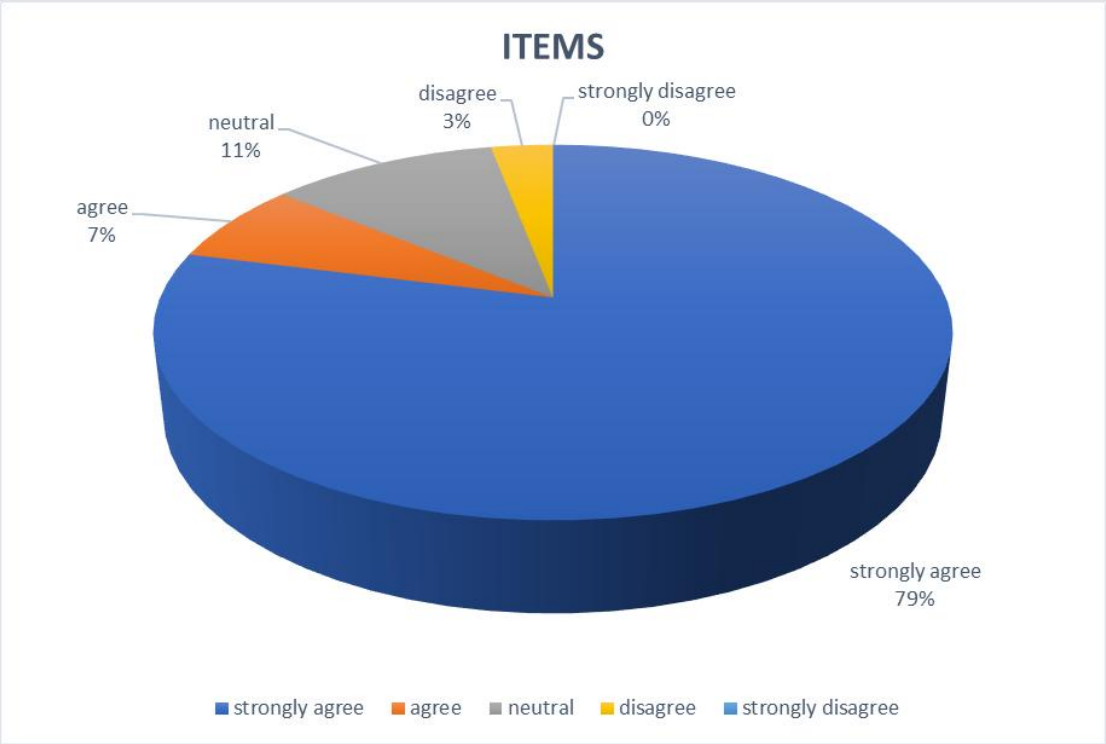

Figure No. 4.3.4(iii) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.4(iii)	I have seen or experienced AI tools being used in classrooms.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		79%	7%	11%	3%	0%

Item No. (iv) I feel confident exploring and experimenting with new AI tools.

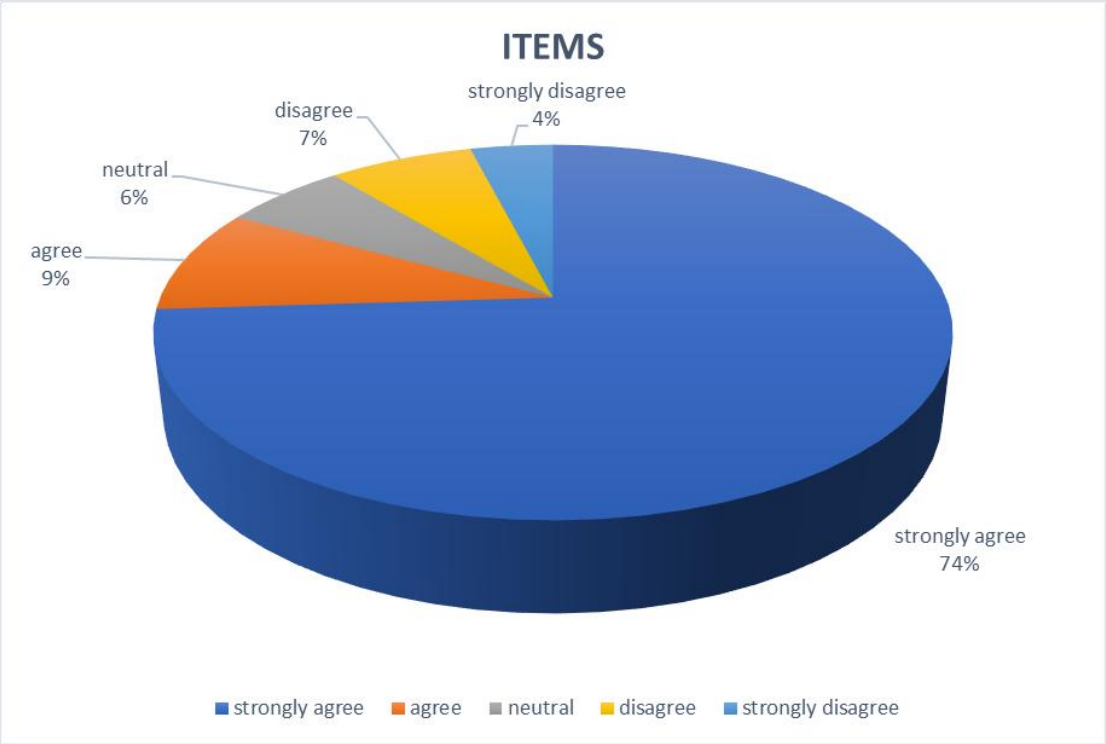

Figure No. 4.3.4(iv) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.4(iv)	I feel confident exploring and experimenting with new AI tools.	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		74%	9%	6%	7%	4%

Item No. (v) I believe being familiar with AI tools is important for modern teaching

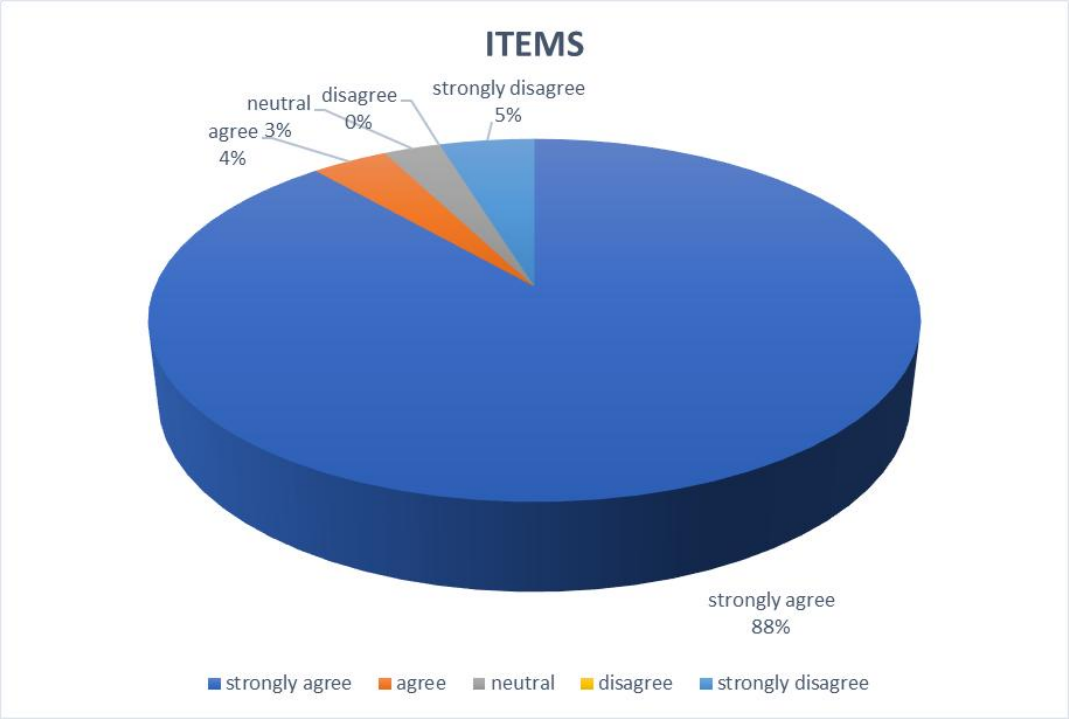

Figure No. 4.3.4(v) (% of responses by teachers)

Figure No.	Item	Response %				
4.3.4(v)	I believe being familiar with AI tools is important for modern teaching	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
		93%	4%	3%	0%	0%

Interpretation of Objective No.4:

Determining teachers' familiarity with AI tools and platforms plays a vital role in understanding how prepared educators is to navigate and implement emerging technologies in education.

CHAPTER-V
SUMMARY, FINDINGS AND CONCLUSION

5.1 Introduction:

The investigator arrives at this stage after a rigorous exercise of analyzing the data and providing insight to make objectives more high-yielding and significant. The writing of research findings is usually the concluding task of a research endeavor. Research is directed towards the goal of discovering new knowledge which can contribute to the expansion of the ocean of knowledge.

5.2 Summary of the Study:

This research aimed to explore and assess teachers' awareness, attitudes, knowledge, and familiarity regarding Artificial Intelligence (AI) in education, reflecting a progressive and timely investigation in the context of modern teaching practices.

The impact of Artificial Intelligence (AI) on teacher education is undeniable and transformative. AI has ushered in an era of personalized and adaptive learning, empowering educators with tools and technologies that cater to individual student needs and enhance pedagogical practices. This transformation encompasses various dimensions, including AI-driven content creation, virtual teaching assistants, and data analytics, all of which contribute to a more efficient, effective, and inclusive educational landscape. Teachers are no longer confined to traditional roles but are evolving into mentors, guides, and facilitators, while AI handles administrative tasks and provides valuable insights into student performance.

The research revealed high familiarity with AI tools, with over 90% of teachers able to name and describe at least one AI-based educational platform. Many had either seen or experienced these tools in use and expressed confidence in experimenting with new technologies. Additionally, nearly all respondents agreed that AI familiarity is essential for modern teaching, showing a strong alignment between perception and practice. Teachers actively engage with AI-related content in the media and

acknowledge the transformative role of AI in student engagement and performance. This suggests a high level of cognitive readiness to embrace AI tools in educational environments.

5.3 Suggestions:

1. Provide teachers with training and support to develop their skills in using AI-based tools and integrating AI in their teaching practices.
2. Encourage teachers to experiment with AI-based tools and share their experiences with colleagues.
3. Develop curricula that incorporate AI-related topics and skills, preparing students for an AI-driven future.
4. Stay up-to-date with the latest developments in AI and education, exploring ways to integrate AI in your teaching practices.
5. Investigate the impact of AI on student learning outcomes, exploring the effectiveness of AI-based interventions.
6. Consider the potential benefits and challenges of AI integration, and advocate for support and resources to ensure successful implementation.
7. Examine the ethical implications of AI integration in education, addressing issues like bias, fairness, and accountability.

5.4 Findings of the Present Study:

The main findings that come out of the study according to objectives are listed below:

Objective -1: To investigate teachers' awareness and understanding of Artificial Intelligence (AI) in education.

Teachers demonstrated high levels of awareness and understanding of AI's relevance and potential impact in educational settings. The data indicates a strong foundational awareness, making them receptive to further learning and integration of AI technologies. By exploring how educators perceive and comprehend AI, the study has the potential to:

a) Empower teachers by identifying knowledge gaps and promoting targeted professional development.

b) Enhance teaching and learning through the integration of AI tools that can personalize education, improve assessment, and reduce administrative burdens.
c) Foster innovation in pedagogy, helping institutions evolve with technological advancements for a more engaging and effective learning experience.

Objective -2: To examine teachers' attitudes towards integrating AI into their teaching practices.

Teachers have shown a positive and optimistic attitude toward AI integration in teaching. They believe in its ability to enhance learning, personalize instruction, and make classrooms more dynamic. While some concerns about workload or implementation exist, the overall attitude is supportive and forward-thinking.

This study holds the potential to:

a) Uncover valuable insights into how educators perceive the role of AI in enhancing classroom instruction and student engagement.

b) Encourage a growth mindset among teachers by recognizing openness to innovation and identifying factors that foster positive attitudes toward technology integration.

c) Support professional development by highlighting areas where teachers feel confident or need further training, guiding the design of effective AI-focused programs.

Objective -3: To assess teachers' knowledge of AI concepts and applications in education

Teachers possess moderate to strong knowledge of AI concepts and their application in classrooms. They show confidence in identifying sources, evaluating tools, and applying AI to some extent. This knowledge base supports further development in practical implementation and deeper understanding of AI in education.
This focus is highly significant because:

a) It ensures that educators can act as informed guides for students, fostering responsible and ethical use of AI in classrooms.
b) It empowers educators to engage meaningfully with AI tools and resources that can enhance teaching and learning experiences.
c) It lays the foundation for effective AI integration by identifying strengths and areas for development in teacher readiness.

Objective- 4: To determine teachers' familiarity with AI tools and platforms.

Teachers are highly familiar with AI tools and platforms, both conceptually and in practice. Their responses show a strong willingness to experiment and adapt to AI-driven innovations. This highlights their readiness to embrace technology for modern, student-centered instruction.
Understanding teachers' familiarity with AI is very significant as:

a) It helps to identify the extent to which teachers are aware of and use AI-based tools (such as chatbots, learning analytics, adaptive learning systems, etc.) in their professional practice.
b) It promotes technology adoption with purpose, ensuring that AI tools are used not just for novelty but to improve student outcomes and classroom efficiency.
c) By recognizing current familiarity levels, it encourages a proactive approach to professional development and digital literacy.
d) It lays the groundwork for equity in technology use, ensuring all educators have the opportunity to explore, understand, and implement AI tools effectively.

5.5 Conclusion

Looking ahead, the future of teacher education is inter twined with AI, promising continued innovation, improved accessibility, and a more adaptive approach to preparing educators for the complexities of the digital age. As educators, institutions, and policymakers embrace AI responsibly and collaboratively, the educational landscape will continue to evolve, ultimately benefiting learners and society as a whole.

The study presents a highly encouraging outlook on the integration of AI in teacher education. The findings affirm that teachers are increasingly aware, knowledgeable, and positive about AI's role in shaping 21st-century education. With the right support, continuous professional development, and institutional encouragement, this momentum can lead to a more innovative, efficient, and inclusive learning environment.

The present research aimed to explore teachers' awareness, attitudes, knowledge, and familiarity regarding the integration of Artificial Intelligence (AI) in education. Through a detailed analysis of data collected from educators, it is evident that there is a growing and positive outlook toward AI in the teaching profession.

The findings indicate that teachers are highly aware of the emerging role of AI in education and recognize its potential to transform traditional teaching practices. A significant majority demonstrated positive attitudes towards integrating AI into their classrooms, highlighting its usefulness in personalizing instruction, enhancing student engagement, and streamlining administrative tasks.

In terms of knowledge, teachers showed a strong understanding of AI concepts, including the ability to evaluate AI's benefits and limitations and to identify reliable sources for further learning. Moreover, the high familiarity with AI tools and platforms suggests that educators are not only informed but also ready to adopt and experiment with technology in meaningful ways.

Overall, the research underscores a promising landscape for the integration of AI in teacher education. With ongoing professional development and institutional support, teachers can become confident and competent users of AI, capable of leveraging its power to create more dynamic, inclusive, and effective learning environments.

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APPENDIX

Instructions:

This questionnaire is only used for the fulfillment of Integrated B.Ed.-M.Ed.VI semester dissertation work. The data collected from the B.Ed. colleges will be used for the research purpose only and all the information will be kept confidential.

SECTION A: GENERAL INFORMATION

Name (Optional): _____

Gender:
☐ Male ☐ Female ☐ Other ☐ Prefer not to say

Age Group:
☐ Below 25 ☐ 25–35 ☐ 36–45 ☐ 46–55 ☐ Above 55

Level of teaching:
☐ Primary ☐ Secondary ☐ Higher Secondary ☐ College/University

Subject(s) taught: _____

Years of teaching experience:
☐ Less than 1 year ☐ 1–5 years ☐ 6–10 years ☐ 11–20 years ☐ More than 20 years

SECTION B: TEACHERS' AWARENESS AND UNDERSTANDING OF ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION.

(i) I am aware of how AI is currently used in educational settings.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(ii) I believe AI is a rapidly growing field that will impact education.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iii) I regularly read or hear about AI in the media or professional platforms.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iv) AI-based platforms can improve student engagement and performance.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(v) AI will become a necessary tool in the future of education.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

SECTION C - TEACHERS' ATTITUDES TOWARDS INTEGRATING AI INTO THEIR TEACHING PRACTICES.

(i) AI tools can enhance student learning outcomes.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(ii) Integrating AI can help personalize instruction for students.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iii) AI can support differentiated learning based on individual student needs.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iv) AI can reduce my workload by automating tasks like grading or feedback.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(v) Using AI can make the classroom more interactive and engaging.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

SECTION D - TEACHERS' KNOWLEDGE OF AI CONCEPTS AND APPLICATIONS IN EDUCATION.

(i) I feel confident exploring new AI-based technologies related to education.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(ii) I can identify reliable sources for learning more about AI in education.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iii) I can evaluate the advantages and limitations of AI in the classroom.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iv) I am aware of AI's role in assessing student progress and analytics.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(v) I know how to integrate at least one AI tool into my teaching practice.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

SECTION E -TEACHERS' FAMILIARITY WITH AI TOOLS AND PLATFORMS.

(i) I am aware of the availability of AI tools used in education.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(ii) I can name at least one AI-based educational tool or platform.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iii) I have seen or experienced AI tools being used in classrooms.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(iv) I feel confident exploring and experimenting with new AI tools.

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree

(v) I believe being familiar with AI tools is important for modern teaching

a) Strongly disagree

b) Disagree

c) Neutral

d) Agree

e) Strongly agree