Teachers` Use of Artificial Intelligence to Support Critical Thinking Skills in Private Secondary Schools` Learners: A Perceptual Study

Nabeela Kanwal
PhD. Scholar (Educational Leadership and Management),
Department of Education, SZABIST University, Karachi, Pakistan.
phdelm2520101@szabist.pk

Roman Bernard Rodrigues
PhD. Scholar, (Educational Leadership and Management),
Department of Education, SZABIST University, Karachi, Pakistan.
phdelm2520102@szabist.pk

Professor Dr. Najmonnisa Khan
Head of the Education Department, SZABIST University, Karachi, Pakistan.
dr.najmonnisa@szabist.pk

Abstract

This qualitative study examined the perceptions and practices of private secondary school teachers regarding Artificial Intelligence (AI) and its role in supporting the critical thinking of secondary school learners. The study also examined the influence of classroom practices on students' critical thinking. This research adopts a perceptual approach to investigate how teachers use AI in their classroom practice. This research study was conducted in three private secondary schools in Karachi, and data were collected from six teachers via individual semi-structured interviews. The findings indicated that the majority of the participants felt that the use of AI supported students' critical thinking. However, some participants felt that overreliance of AI use may make students dependent, it may hinder enhancing students critical thinking skills. However, it was also revealed that students took much interest when teachers used AI in teaching and learning process. Recommendations on the basis of findings include that the department of education at the provincial level should endeavor to elevate teachers' awareness to use AI in the classroom to support students' critical thinking. It is also recommended that curriculum developers and policy makers should design some ethical rules in using AI in teaching and learning process.

Keywords: *Artificial Intelligence, Critical Thinking, Critical Thinking Skills, Learning, Secondary School*

Introduction

Education is evolving from traditional methods to developing complex decision-making, evidence-based reasoning, and problem-solving in a hi-tech learning environment. Consequently, critical thinking has become a major 21st-Century competency in the context of core skills (OECD, 2018; Partnership for 21st century Learning, 2019), and it also lays significant stress on national policy discussions (Jamil, et al., 2025). In the same way, AI is entering the classroom, creating new opportunities and possibilities, but also demanding that teachers should re-examine pedagogical decision-making and ethics. UNESCO highlighted that AI can bring immense innovation in teaching and learning, which facilitate 2030 Education goal. But the swift development of AI has taken over policy and capacity building, which has made teachers' training and ethical familiarity more important than ever before (Alhazmi & Kaufmann, 2022).

Evidence from recent researches reveal why teachers' perceptions matter: a large systematic review figures out that teachers are fundamental to AI integration, yet the professional development and implementation remain unaddressed (Tan et al., 2025). On the other hand, research synthesis supports the view that AI can generate high-order thinking in students if it is used with proper scaffolding and classroom structure rather than shortcut answers (Wang & Fan, 2025). Thus, investigating private secondary school teachers' experience using AI to support students critical thinking is significant because teachers' observations in the classroom and everyday practice is more firm to discover whether AI strengthen reasoning or undermines it (Danish, Akhtar & Imran, 2025; Mankash, et al., 2025; Hafeez, Yaseen & Imran, 2019). However, teachers' understanding and exposure to the use of AI to develop students' critical thinking skills are insufficient. As Traga Philippakos et al., (2025) stated, teachers' assurance and professional growth in AI will continue to be uncertain; many teachers complain of having less awareness, training, and certainty in using AI tools during classroom teaching and learning practices. A constant study may assist in uncovering teachers' perceptions, interpretations, difficulties, and practices regarding the use of AI (Khoso, et al., 2024; Sultana & Imran, 2024; Ahmad, Bibi & Imran, 2023).

In many education systems, there is an immense concern for schools to upgrade learners' 21st-Century skills, especially critical thinking. Educational practitioners and policy documents consistently express their deepest concern over developing students who can reason and have firm decision-making ability, not just passive learners (Ahmed, & Imran, 2024; Ahmed, 2023). Simultaneously, the use of AI such as Gemini, ChatGPT and many more is becoming increasingly popular among students, which is fostering academic development too. For example, AI is used for producing explanations, developing practice questions, supporting research, and giving immediate feedback. This shows clearly how critical thinking is being taught in contemporary classrooms (Vieriu & Petrea, 2025). On the other hand, some have considered the use of AI as an alarming situation. The overuse of AI may make students dependent on AI dialogue systems, which could weaken independent decision-making, reduce

cognitive engagement, and motivate students to accept AI- generated solutions uncritically (Zhai, 2024). In such a situation, a teacher's role becomes more decisive: teachers must educate the learners to use AI for investigation and reflection, not as a shortcut or substitute for their own critical reasoning (Alwaqdani 2025). Teachers' classroom use of AI may play a critical role in narrowing the gap in students' effective and responsible use of AI.

The primary aim of this qualitative perceptual study was to explore and understand private school teachers' perceptions of using AI and how they implement different activities whether it supports critical thinking skills among learners, particularly in light of Vygotsky and Piaget's constructivist learning theories. The additional objective was to observe the challenges private school teachers faced while using AI in their classroom teaching.

This study is important for understanding the viewpoints of teachers on the use of AI in their classrooms to support learners' critical thinking. Moreover, this study will motivate other teachers to use AI to generate students' critical thinking (Ahmad, et al., 2024; Mohammad, et al., 2024). The current research aims to fill in the small part of this gap. The study may be significant for secondary school teachers, heads, coordinators, and policymakers because awareness will be raised towards using AI to support students' critical thinking (Sultana, Ahmed, & Imran, 2024). Factors of using AI, as well as strategies to overcome the challenges that teachers are facing. It shall also offer valuable insights to educators and teachers to upgrade their practices, and to create holistic learning environments where students will be able to use AI and enhance their critical thinking to make learning meaningful (Kashif et al., 2025)**.**

Research Objectives

1. To explore the teachers` perception of the effectiveness of Artificial Intelligence **(**AI) to support students` critical thinking skills.
2. To investigate the teachers` practices based on the use of AI to enhance students' critical thinking skills.
3. To identify the challenges faced by teachers in using AI to enhance students` critical thinking skills.

Research Questions

1. What are the teachers' perceptions of AI enhancing students' critical thinking?
2. What AI tools are used or practised by teachers to enhance students' critical thinking?
3. What challenges do the teachers face while using AI tools to enhance students' critical thinking?

Literature Review

The term "artificial intelligence" was first introduced in 1965 by John McCarthy. He defines AI as the skill of a system to infer data correctly from external resources, learn from it, and attain goals through adaptation (Kurp, 2023). Whereas Colline (2020) elaborates that the use of AI is

programmed to involve the process of obtaining a goal in such a situation when available information has complex characteristics. Eleje et al. (2025) highlight that students are using AI-driven tools ever more for academic activities like research, essay writing, making presentations, and various exam preparations. Such tools develop creativity and productivity in students; however, their extensive usage poses a threat to preserving academic integrity and critical thinking in students.

Critical Thinking

The notion of critical thinking has been nurtured since ancient times with philosophers from Socrates to Aristotle, who put great emphasis on questioning, reasoning, and the search for reality (Johnson et al., 2023). Critical thinking ability is a major soft skill that has been considered significant for a long time. Critical thinking is also known as a dynamic skill for the 21st century in higher education (Zhao et al., 2024). The education of the 21st century demands higher-order thinking rather than just reproducing learned knowledge. In the new era, critical thinking, as Dwyer (2023) defines it, is a regulative thinking process consisting of many skills and outlooks that, through determined, self-regulatory reflection and decision, increase the chance of making a rational solution to a problem or an effective decision to an argument. In contemporary times, a flood of data and the rapid flow of knowledge via digital platforms have made critical thinking emerge as an important skill for learners (Brown & Davis, 2022). In an educational setting, critical thinking is generally considered an essential learning outcome (Smith & Johnson, 2020). According to Facione (2015), critical thinking is an insight procedure for checking, evaluating, and concluding any piece of knowledge for making rational decisions and improving cognitive skills (Rehan, et al., 2024).

AI is an impactful medium to develop critical thinking in academics that has grown in widespread popularity in recent years and is being executed in various areas, including education (Rahman & Watan, 2023). Heard et al. (2020) discuss thinking critically as interpreting and evaluating data, reasoning, and investigating situations with proper standards to develop sound, deep, and insightful new knowledge, understanding, hypotheses, and beliefs. However, the practical implementation of these aspirations rests heavily on the shoulders of teachers.

Teachers' Perception of Using AI

According to Sunday et al. (2025), using AI in the classroom depends on teachers' approach and preparation to address anticipated classroom problems during lessons. Whereas teachers' perspectives on using AI in the classroom largely depend on various reasons that include training, institutional support, and access to resources (Ukpabio & Uzoigwe, 2023). The use of AI in the classroom improves the quality of teaching and academic performance by nurturing critical thinking in secondary school students, so they are equipped to meet challenging situations in their academic life (Umoh et al., 2024).

Undoubtedly, AI can provide an adaptive learning environment that can foster personal growth and self-recognition, but few studies suggest that dependency on automated systems can harm

students' cognitive learning. This phenomenon validates that using AI without following proper pedagogical principles may develop passive understanding behavior (Sopacua et al., 2026). In spite of the expected role of AI in education, there is growing concern about its effectiveness in developing major aspects of critical thinking. Some scholars view that AI seems to promote surface-level learning rather than shaping critical thinking in students. Furthermore, AI is not pondering cognitive in-depth with students, which also creates a moral concern about keeping academic integrity and data privacy (Yousafzai et al., 2025). Fasahat (2025) shows that the effectiveness of AI-based tools (like adaptive systems and AI chat tools) makes a great contribution to Pakistani undergraduate students' development of critical thinking. The study further explores that AI-supported tasks can be supportive of analysis and evaluation skills.

Similarly, Tahir, Qurat-ul-Ain, and Latif (2025) reveal the significant role of AI in developing critical thinking and problem-solving skills among students in higher education institutions in Pakistan. They describe the positive impact of AI on higher-order thinking, yet again, the focus was on university students. Hasan (2024) also linked AI use in education in Pakistan to cooperation, communication, critical thinking, and creativity. Again, the research mainly focused on tertiary-level students, not secondary-level classrooms. In the same way, international studies suggested that integration of AI can be useful because it facilitates teacher readiness, technicalities, and absolute progression to teach. But it does not have enough on how teachers can use AI to develop critical thinking in students. Limited studies have been found that addressed the use of AI in Pakistani private secondary schools, but few have investigated the role of AI to help teachers in developing critical thinking in students. This highlights the void in the literature, which shows the subjective approach to investigating how teachers use AI for developing critical thinking skills at the secondary school level.

Altogether, the current literature shows that there is an increasing agreement that AI can be used to assist higher-order thinking provided that the same is accompanied by proper pedagogical techniques. Nevertheless, this has seen a direct divergence in the results on its effect on independent thinking of students as other studies outline the risks of cognitive dependency. Also, the majority of research works are focused on academic institutions, and there is little empirical information on the subject in the context of secondary school, especially in developing nations such as Pakistan. This implies that there is a massive disparity between the teacher level comprehension and application of AI to encourage critical thinking, to which this research fill this gap.

Theoretical Framework

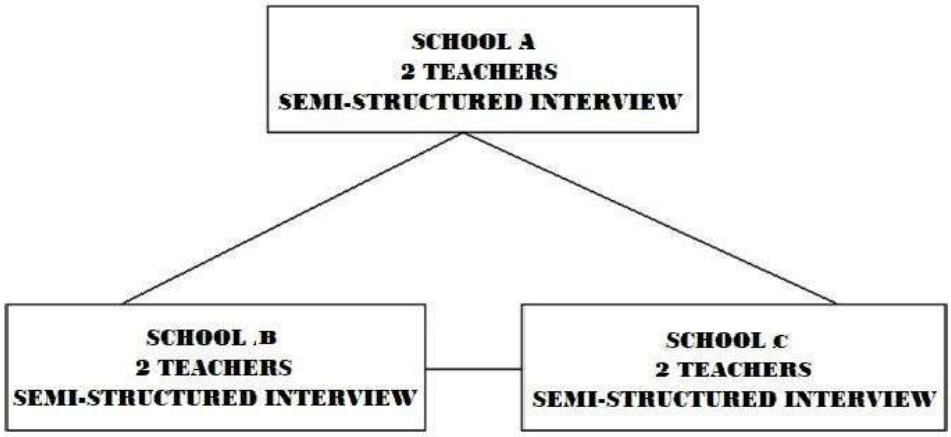
The use of AI in the classroom makes a significant shift in delivering effective education, which also promotes personalized learning and critical thinking. The theoretical framework supporting this study on "Teachers' use of AI to support students' critical thinking in a private secondary school: A Perceptual Study" was based on several dominant educational theories and notions. The idea is rooted in constructivist learning theory, first introduced by Jean Piaget in 1936 and later extended by Lev Vygotsky in 1978. This theory mainly focuses on the active participation

of learners in building knowledge by relating to their environment (Sunday et al., 2025). To introduce the foundational theories of Vygotsky and Piaget, the study designs a research model where AI is not merely a provider of content but a specialized tool that secondary school teachers can use purposefully to develop deep critical thinking skills.

Research Methodology

The research design used in this study was a qualitative phenomenological research design that aimed to examine the lived experiences and perceptions of teachers with regards to the application of the Artificial Intelligence (AI) in assisting students to practice their critical thinking in private secondary schools. A phenomenological methodology was considered suitable because, in such a way, one could gain profound knowledge of the subjective experiences and perceptions of the participants on an occurrence in the modern educational context (Creswell and Poth, 2018). The research was carried out in three Karachi based secondary schools which were privately owned. A purposive sampling method was used to identify six teachers in six secondary schools who actively involve the use of AI tools in their classroom instructions to guarantee the rich and relevant data. The collection of data was made using semi-structured face-to-face interviews that took about 40-45 minutes. Audio tape recording of the interviews was made with the consent of the respondents and transcribed word-to-word. Data analysis involved thematic analysis such as systematic coding, categorization, and development of themes as recommended by Corbin and Strauss (2008) and Saldana (2013). Credibility was strengthened by confirming the interview transcripts by the members to guarantee trustworthiness. To achieve dependability and confirmability, systematic records of the research process and the coding procedures were used. The study followed the ethical considerations such as informed consent, confidentiality and voluntary participation, among others.

Figure 1
Teacher Participants and Strategies for Data Collection



Data Analysis Procedure

The first step in analysis was to translate and transcribe the interviews into English so as to be able to report the findings for this research. After transcription, the interview data were shared with the particular participants if there were any additional comments or any missing words that the participant spoke, which the researcher did not mention. Data analysis was ongoing throughout the study, even as the researcher conducted semi- structured individual interviews. Corbin and Strauss (2008) highlight that in qualitative research, analysis begins simultaneously with data collection because it helps the researcher to understand initial ideas as expressed by the participants and also provides a sense of focus to the researcher. This procedure requires transcribing the data, identifying repeated concepts, and discovering their influences to reveal primary structures and meanings (Saldaña, 2021).

For data analysis, strategies recommended by Corbin and Strauss (2008) and Saldana (2013) were used. For Corbin and Strauss, coding refers to developing insights from data. They highlight that after reading the interview transcripts thoroughly and again and again, labels (according to what is being reflected in the data) are assigned to raw pieces of data. Presenting the scope of the coding process, Saldana (2013) discusses that it is not limited to a single word and could extend to an entire paragraph or even a page. From all six interviews many coding was form then categories and then themes, and from themes to sub-themes.

According to Glesne (2006), ethical considerations are at the heart of any research study. Anonymity and privacy, informed consent, no misrepresentation of data, and confidentiality are considered the basic principles of ethical conduct in qualitative research. Data gathered was kept in password-protected files, and only the researcher had access to the data. Consent of research participants was taken before the research. Participants had the right to withdraw at any stage of research without any penalty or consequences (Mirza, et al., 2023). It is essential for data collectors to keep strong boundaries between what participants are telling them and what they tell the participants. In this way, the information can be managed without hurdles.

Following the prescribed method may not maintain the credibility of qualitative research. It is essentially important to navigate the perplexities of interventions of methodological, ethical and epistemological considerations (McLeod, 2024). To ensure the credibility of the current study, the research participants were given the transcription to check if any comments were missing or added. Limitations are conditions that are not within the control of the researcher; hence, they can restrict the conclusions of the study and applications (Best & Kahn, 1998). This research

only focused on three private secondary schools' teachers' use of AI tools in order to support students' critical thinking; therefore, findings may not be generalized to other private schools.

Findings

The findings of the current phenomenology qualitative research, which explored teachers' use of AI and how it supports students' critical thinking in the private secondary schools. In addition, the study also examined the challenges teachers faced when using AI in their

classrooms, which includes how to handle the misuse of AI by the students and use of AI supports students' critical thinking. Data for the current research were analyzed using the coding and categorizing techniques of Saldana (2013). The main themes were developed (a) teachers' perception about AI, (b) Different AI tools used by teachers, (c) use of AI to enhance critical thinking and (d) challenges faced by teachers. These themes were further broken down into sub- themes while coding actual words from the participants to help the researcher and readers to understand the different layers in each of the themes.

First Research Question

The first research question was, "What are the teachers' perceptions of AI enhancing students' critical thinking?" Regarding participant teachers' responses to perceptions of AI and how it enhances students' critical thinking, various views were expressed and the main themes that were repeatedly exhibited after data analysis pertained mostly to the following:

Artificial Intelligence help human in multiple types of interaction

All the teachers accepted that AI is working as a helping tool not only for teachers or students, but it helps all humans, whether they work in offices, factories, or any type of work; it has been enhancing human interaction among them. From school A participant 1 teaching computer science to grade IX & X students, Karachi board and Aga Khan University Examination Board (AKUEB) said,

"AI is a program basically designed to help humans in multiple types of interactions, such as helping you in video making, it may help you in finding the best solution, finding the best strategies, and it may give you results on data available on world wide web. So, there are multiple uses; we cannot confine it. Also, AI, at a broader aspect, is being used for planning in the conflicts between countries, and how to overcome the economic difficulties and multiple

aspects AI have been covering."

The above participant saw AI in a broader aspect where AI is not limited to just educational use, but also for resolving different countries' issues. Whereas participant 6, who was a veteran teacher with very rich experience from school C appreciate AI working style and feels more comfortable with it, considering it,

"Artificial intelligence is a unique and interactive tool that helps you arrange all the educational material that you are unable to track from many websites in a given time. So it's a handy tool when you have to collect combined data from multiple sources. It also gives you the references as well. And for that particular data. And it can also consolidate it, make it comprehensive, and can also help to make some questions and scenarios if you want to, and arrange all the activities regarding a particular educational session."

The participant viewed AI as a unique and interactive tool that helps with every educational material. However, from school B participant 4, who had less experience, expressed her views in this way:

"And instead of running to the libraries and instead of going through all these books and research papers, through AI, we get our research with perfect references easily in our hands. So I think AI should be taken as your helping tool, your research buddy or someone that can fetch a lot of information in a little time."

Thus as mentioned earlier, all three participants had similar views about AI but their expression were different, for example participant 1, saw AI in a broader view that AI is resolving conflict between two countries and participant 6 saw it to provide all the educational material, whereas, participant 4 comparing past education scenario and the present, when AI made all the things accessible. But all were appreciating the benefits of AI.

These results indicate that instructors view AI not as a technological device only, but as a cognitive aide, which makes the instruction process more effective. This is congruent with the concept of scaffolding introduced by Vygotsky according to which AI serves as a mediating instrument that facilitates the progression of learners in the Zone of Proximal Development. Nevertheless, the issues of excessive dependence are indicative of the tension that was found earlier (Zhai et al., 2024) meaning that the absence of the pedagogical control over AI will lead to its interference with the process of independent cognitive interaction.

AI is more effective than traditional search engines like Google

All the participants seemed to agree and were satisfied with the teaching support of AI, which they are getting. Even though they compare the facility of traditional search engines like Google and Yahoo, School A, participant 2 expresses her feelings in this way:

"*AI is better than all over research engines like Google, Yahoo and others… because these engines take time, and provide you bulk of data, and now you have to decide what to take; however, AI gives you exact, what you want."*

Participant 4 also has the same opinion regarding AI, but he didn't compare AI with the traditional search engine. He gave his idea in this way:

"And many times we don't understand certain things that are new in the educational field or some guidance that are changed. So the AI comes in handy when you need to refresh some concepts or make it more concise or change…, paraphrase it to make it understandable."

From the above opinions, it can be inferred that participant 2 feels comfortable in using AI because it saves time, and AI-tailored information, which could easily suffice the need for an answer. Similarly, Participant 4 from school B believes that AI can be a trustworthy friend because the information provided by AI is intrinsically needed by the user. In addition, participant 6 from school C view AI as guidance to make people view modern society and its changes. All three participants have a consensus that AI has the capacity to save time and energy, enabling humans to utilize their potential usefully.

AI creates some thought-provoking ideas in students

Participant 5 from school C expressed her views in this way:

"AI improves some things here in questioning, reasoning and problem solving too. But, these

things are never achieved by you"

Participant 1 from school A the following is an extract from his interview:

"I think that a student needs some basic knowledge first. After that, for example, first I teach him swim in the pool. (scaffolding) After that, I let him swim in an open area or sea or river where he can find undefined things. Things which are not unforeseen. So, AI is like this."

Participant 6 from school C

"Yes, I understand that if there is very good monitoring, very good counselling, very good things to keep in focus, then AI will be helpful for our children and may enhance their critical

thinking".

Participant 5 from school C acknowledged that AI can support questioning, reasoning and problem solving skill; however, it would be difficult for us to achieve these skills easily.

Whereas, from school A, participant 1 expressed her views by giving the example that students should be given foundational knowledge, then structured practice in a relaxed environment, and then they can move to a complex, challenging situation. AI works as a supportive tool to enhance students' critical thinking. Additionally, school C participant 6 also emphasized that AI provides cognitive support to students, which nurtures their critical thinking skills.

Second Research Question

The second research question was; What AI tools are used or practised by teachers to enhance students' critical thinking? Findings identified various AI tools used by teachers to

enhance their teaching and improve students' reasoning and critical thinking skills. The research discussed various benefits which they are getting from AI, particularly in the context of nurturing students' critical thinking skills.

AI makes teacher work easier

The teachers' participants were using different AI tools to become effective teachers. Participant 6 from school C said:

"Chat GPT is one tool that works for me, but in certain ways, Chat-GPT is one of the most common tools that I'm using. there are some other tools for rechecking and one was Grammarly or something that comes in handy when you are writing a letter or when we are working with the research and we want to check for the errors, then Grammarly comes in handy

Participant 5 from school C also agreed on the importance of AI said the following in this connection:

"As a teacher, I take help of AI making the assessments, making my lectures clear or distribute it into the group to make a better understanding for my students. What I use frequently is META. I often see META. Apart from that, I use things related to computer science. Visli is also a name. It is related to flowcharts and diagrams.

Participant 6 from school C also acknowledged the use of AI in this way:

"So I will upload the profile on that AI and ask it to make subjective and objective or MCQs of that…. I can pick those that are relevant to my topic and that are more accurate and ignore the

rest of the MCQs. So it comes in handy when you are like trying to make a test for the students in a short time."

All the above participants seemed to highlight various aspects of teaching where they use AI, and it makes the learning process easy bring creativity and saves time. It also trains teachers to develop teaching skills and provide valuable insight to plan lessons and activities for the classroom. For example, participant 6 from school C mentioned that even the examination paper had also been prepared by AI, which gives high favor to the teachers.

AI encourage Students for deep thinking

Participant 2 from school A pointed out the role of AI in students' deep thinking and makes them think critically he express his view in this way:

"Basically, if you design questions, I mean, the structure or semi-structured questions with the help of AI. So, I mean, it actually creates some thought-provoking questions to students. So, I think, I mean, my response is affirmative that it encourages a deeper thinking in students."

Yet another research participant 4 from school B expressed her views by making the following statement:

"AI improves the ability of students in questioning, reasoning and problem-solving too skills within a short period of time. But these things are never achieved without AI in a specific time".

Participant 2 from school A

"when students go on using Chat GPT, and other AI tools it has end number of knowledge. So, they're coming up with new questions every day. They're coming up with new technologies every day. We are discussing it. So, obviously, it has emerged students thinking and reasoning power."

All three research participants seemed quite optimistic to use of AI in creating students deep thinking and creates thought-provoking ideas in students. The participant 2 from school B acknowledged that when she designed questions from the help of AI because they were quite thought provoking, that also help students to think critically, whereas, participant 4 from school 2 also accepted that AI enhanced students' critical thinking. Additionally, participant 2 from school B emphasized that due to AI students thinking and reasoning skills improved.

Students get more information that enhances critical thinking

All six participants agreed on the point that AI has immense information and capacity, which can enhance students' critical thinking if they use AI appropriately. Participant 2 from school A highlighted her experience stated:

"So once I teach them the topic, I ask them to for any questions. So some students that may have

used AI, they ask so many questions, the habit of questioning skill will enhance their critical skills".

Participant 5 from school C also had similar opinion regarding AI enhances students critical thinking:

"sometimes there are concepts in the class that I have explained and it might be possible that it wasn't clear to them to the extent that they were able to write the answer. So, they took Chat GPT to understand the concept. And not only my subject, but also other subjects. For example, during the examinations, what students are doing now, they are giving the prompt to Chat GPT, asking it to make MCQ paper for them. I observed that students can attempt difficult question easily which show that AI support their critical thinking"

The above statements reveal that AI become the paramount factor for enhancing students' critical thinking. Participant 2 from school B believed that by using AI, students were able to ask many questions, which enhanced their critical thinking. Similarly, participant 5 from school C also observed that during the examination, due to the AI tool, they were able to attempt situational-based questions in the examination, which indicated that students' critical thinking was enhanced.

Third Research Question

The third research question of the current study was; what challenges do the teachers face while using AI tools to enhance students' critical thinking? When teachers were asked about the challenges they face in using AI to enhance students' critical thinking, the oft-repeated responses of most teachers pertained to the provision of an interruption in internet connection, vigilance and carefulness when students are given to use AI, needs for teachers' training on AI, and misuse enhance copy past culture.

Vigilant and careful when students are given to use AI

Participant 1 from school A was quite vocal, expressing her concern that students try to take extra help from AI and get their work completed by AI. She stated:

"I would like my students to write by themselves. The first step of making the program. That is the algorithm. That they make a flow chart. But they are not doing my work by themselves. They will get it generated by AI. So those basic skills are not coming. AI may divert their minds from a specific objective to multiple other irrelevant or unnecessary information at that time".

The similar experience shared by participant 6 from school C:

"Recently, the secondary students went for educational trip, and our science teacher gave them a task to go to the zoological garden, observe and take interview and make animals care plan about the problems that animals have been facing…. And when the time comes to make the presentation, they use the chat GPT they have used the chat GPT to bypass the work and get it done without putting in any effort. You know students are misusing AI."

In this connection, participant 5 from school C stated:

"They get so dependent on AI that they just give the prompt. They don't read what the answer it has given. They just copy and paste it, and they think the work is done".

It was quite prominent from all the research participants that students were misusing AI, and as participant 6 from school C highlighted the way through which students were not exploiting AI ethically. A similar experience shared by research participant 5 is that students did not explore by themselves the practice of taking AI-generated information without evaluation, which has become a common practice among the students. Such practices were creating uncritical minds. Further research participant complained that AI gives irrelevant information, which is not required.

Needs for teachers' training of AI

most of the research participants were of the view that students are smarter and faster in using AI. Now the use of modern technology is necessary for the teaching and learning process. Participant 4 from school B expressed his views in this way:

"Due to vast use of AI and great interest of students in using AI I mean, nowadays, we can't avoid AI. So, the teacher is not well versed with the AI tool, but the students are. So, the problem is it would create a barrier between the student and the teacher. I think teachers should be

trained how to use AI and what should be the ethical use of it."

Participant 1 from school A who had a similar standpoint regarding teacher training, stated:

"For our teachers. The school should arrange training. It will make our teachers more capable. Absolutely. Using AI. In making comprehensive examinations. In making a lesson plan. and support the improvement of the teacher, this can definitely be accepted. And if the teacher knows the child before, then the teacher will also be able to guide the child on a lot of things."

The views of both participants were interesting yet different; even though both participants highlighted that the rapid change in education and the demand for 21st-century teachers should be met, in this way, they may have a more comfortable and friendly use of AI, and they can guide students and may satisfy them. It is a common norm that teachers should have more knowledge than students, but in using AI, students seem more skillful in using AI.

Discussion and Conclusion

Discussion

The purpose of this phonological qualitative research was to examine teachers' use of AI to support students' critical thinking in three private secondary schools of Karachi. The discussion of key findings in combination with the literature reviewed. Key areas of discussion include teachers' perceptions of using AI and the challenges which teachers face while using AI in their teaching and learning process and also critically examine how AI enhance students critical thinking. Finally, recommendations and directions for future research are based on the

discussion of the findings. Major segments of the findings are discussed in the following sections.

Teachers' Perceptions of Using AI

An important aspect of the findings regarding teachers' perceptions of using AI in their teaching and learning process, all six teacher participants expressed similar views on the huge benefits of AI, yet within the similarities, there were subtle differences. Most of the research participants consider AI as a blessing for their own benefits because teachers were getting all the teaching materials free of cost and getting examination papers, activities and reading materials without putting much effort. As Sadykova et al., (2024) discovered, many teachers observe AI as a supportive and essential tool which could support their teaching by generating the instruction material that reduces workload. This fact amply justifies that teachers value AI for bringing ease and innovation in teaching and learning styles.

It was revealed that teachers didn't want to use the old search engine because they are provided with a huge amount of material, which creates problems for the user to decide what and where to select, not just ask to provide the prompt and according to their need and desire, but also some of the AI tools give more options to tailor their answers. Teachers emphasize that AI generates specific and concise response on the demands of the users. It makes information clear, direct and sufficient compared to the old search engine, which requires users' attention to filter and structure it according to the requirement (Pratiwi et al., 2025).

Challenges faced by teachers in using AI

The findings revealed that though teachers were taking many advantages by using AI in the teaching and learning process, they were facing many issues in terms of internet connectivity. Some of the participants identified that due to a weak internet connection, their teaching and learning were interrupted, and sometimes power failure become a big challenge for the teachers as well as students. Teachers expressed that poor internet connectivity and electricity shutdown sometimes intervenes online teaching and learning. The lesson delivery becomes difficult, and students face issues in engagement (Nettey, 2024).

It was also revealed that in all three schools, a few teachers were getting benefits from AI, but the rest of them had limited knowledge of using AI. It was felt that other teachers should get benefits from AI while having in-service training. As Roshan et al. (2024) note, though many teachers are somehow aware of the use of AI, a very small number of teachers feel confidents about the usage of AI, many teachers have not received the professional training for using AI, which shows the need for immediate training to use AI for its effectiveness.

It was highlighted from all the research participants that AI become a threat to them because often students' overreliance on AI and try to get done most of the tasks from AI, such as getting their presentations, activities and assignment completion, which may hinder their creativity in the long run. As Zhai et al., (2024) discusses that more dependence on AI systems can damage creativity and innovation in educators as well as in learners. In this way, the use of AI may

degrade the quality of education.

AI enhance Students critical thinking

The main focus of the current study was to find out/ identify how AI use can enhance students' critical thinking. It is prominent that 21st century education demands to enhance students' critical thinking. The following two theories also creation of knowledge and social interaction prepare students to think creatively. Piaget's concept of accommodation comprises an evolving procedure; for instance, one's existing cognitive structures meet with new knowledge that questions the previous set of information. In this study, AI can be considered to offer opposite perceptions or complex counter-arguments, prompting students to think deeply and adapt new perspectives or enlarge their knowledge by learning opposite views as well. It improves their abstract thinking and cognitive flexibility**.** This helps to develop a creative and thoughtful learning process through which the students not only memories the facts but also analyses and evaluate information, nurturing deeper critical thinking.

The theory proposed by Vygotsky puts great emphasis on social interaction for cognitive development. AI helps learners by developing knowledge through collective problem-solving and questioning. These social and cognitive skills assist students in exploiting learning material critically. It reflects on their learning process. And grow their skill to question and evaluate information critically.

Conclusion

This paper investigated the perception and practice of teachers concerning the application of Artificial Intelligence (AI) to enhance critical thinking in the students of private secondary schools. In the findings, it can be seen that teachers usually view AI as a useful teaching tool, which helps their teaching process to become more efficient, provides access to various learning materials and promotes problem-solving, questioning, and reasoning skills among students. With proper pedagogical guidance, AI may be applied as a cognitive support tool benefiting more profound levels of engagement and reflective learning. Nonetheless, the paper also presents some serious questions regarding overdependence of students on AI that can restrict their ability to think independently and develop passive learning habits.

There are also other issues like teacher training, absence of institutional policies and infrastructural issues like internet access (among others) that limit the successful application of AI in classroom activities. The research is an addition to the currently developing discussion of AI in education by offering context-specific data of privately conducted secondary schools in Pakistan, where the empirical literature is very scarce. It emphasizes that there should be a systematic professional growth, professional ethics, and policy help in ensuring that AI is used responsibly and pedagogically sound. Finally, successful incorporation of AI requires the skills of teachers to harmonize technological possibilities with critical pedagogical practices with the aim to support meaningful learning processes.

Recommendations

On the basis of the research findings, recommendations are made for the following stakeholders, such as education policy makers, professional development personnel, curriculum developers, school principals and teachers for further action.

A finding from the study indicated that there was no clear guideline from the curriculum on how much AI can be applied to which grade, and also what the ethical use of AI is, and teachers also faced challenges while using AI because overreliance on AI may impact teachers' credibility. The school principals should recommend to arrange need based teacher professional development training so that all the teachers feel comfortable while using AI. It is therefore imperative for teachers to focus on students' use of AI and make some strict rules for using AI in the classroom, so that they may be careful and vigilant while using it in their classes.

It is recommended that higher management of schools needs to understand the 21st century educational needs vast use of AI, and make some rules so they can guide students to the advantages of AI and how misuse of AI can bring disaster in their academic performance.

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