AI's Impact on Educational Leadership and Learning

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Abstract

This study investigates the impact of artificial intelligence (AI) on educational leadership and learning at a public college in the Philippines. Through semi-structured interviews with seven educators, the research explores how AI influences decision-making, teaching practices, and student outcomes. The findings reveal that AI is increasingly influencing educational leaders' decision-making, offering data-driven insights and streamlining processes. However, concerns about ethical implications, such as data privacy and bias, highlight the need for careful consideration and responsible implementation. AI's impact on teaching practices is mixed. While AI tools can enhance student engagement and critical thinking, there are concerns about over-reliance and the need to balance AI with traditional teaching methods. The study concludes that AI holds significant potential to transform education, but careful planning, ethical considerations, and ongoing professional development are crucial for maximizing its benefits and mitigating potential risks. Further research is needed to understand the long-term impact of AI on student learning and the broader educational landscape.

Keywords: Artificial intelligence, educational leadership, learning and curriculum development

Introduction

Artificial intelligence (AI) is transforming higher education and leadership, offering potential to enhance learning, research, and administrative processes (Tarisayi, 2023). AI is changing the way colleges and universities work, from how students learn to how leaders make decisions. It is like having a powerful new tool that can help everyone do their jobs better. While AI presents opportunities for personalized teaching and improved decision-making, it also poses challenges in implementation and ethical considerations (Tarisayi, 2023; Wang, 2021). AI is like a double-edged sword in education. It has the potential to create amazing personalized learning experiences and help leaders make better choices, but we need to be careful about how we use it. There are challenges in getting it to work well and making sure it's used ethically.

Furthermore, educational leaders must adapt to this digital transformation, developing both technical and soft skills to effectively manage AI integration (Milton & Al-Busaidi, 2023). It's not just about knowing how to use AI, but also about understanding how to lead in a world where AI is changing everything. School leaders need to be tech-savvy, but they also need to be good communicators, problem-solvers, and ethical thinkers to guide everyone through this new era.

The symbiotic relationship between human and AI decision-making in educational leadership is emphasized, with AI providing analytical efficiency while human judgment addresses moral and value-based decisions (Wang, 2021). And according to Abduljaber's (2024), educational leaders perceived AI to have various implications on educational leadership, including decision making, teaching, and learning outcomes. It is like a team effort, where AI can do the heavy lifting with data and analysis, while humans bring the heart and soul, making sure decisions are ethical and aligned with our values. It is about finding that sweet spot where humans and AI work together to make education better for everyone. As AI continues to evolve, there is a need to align it with various aspects of life and leadership, necessitating the development of new skills and training models for staff in AI-based leadership (Moldenhauer & Londt, 2019).

AI is changing so fast, and we need to keep up. It is not just about using AI, but also about understanding how it impacts our lives and leadership. That means training teachers and school leaders to work with AI effectively, so they can lead in this new world. Successful AI adoption in education requires empowering management and promoting responsible governance (Tarisayi, 2023). It's not just about having the technology, but also about having the right people in charge. School leaders need to be strong and responsible, making sure AI is used in a way that benefits everyone and does not create problems.

Given this transformative potential and the challenges that come with AI integration, this research aims to study the impact of AI in leadership and learning among local college instructors and administrators at a public local college in Cebu. Understanding these impacts is crucial for guiding future strategies for effective AI integration in educational leadership and learning. This study seeks to address several key questions. Educational leaders perceive that AI significantly impacts their decision-making processes related to curriculum development and instructional strategies. The integration of AI has impacted teaching practices and curriculum implementation at the local college. Moreover, there are perceived effects of AI on student learning outcomes and engagement within the local college's educational programs. Through exploring these areas, this research will provide valuable insights into how AI can be effectively utilized in educational settings to enhance both leadership and learning.

Research Questions

1. How do educational leaders perceive the impact of artificial intelligence on their decision-making processes related to curriculum development and instructional strategies?

2. How has the integration of artificial intelligence impacted teaching practices and curriculum implementation at the local college?

3. What are the perceived effects of artificial intelligence on student learning outcomes and engagement within the local college's educational programs?

Related Literatures

Recent research highlights the growing importance of artificial intelligence (AI) in education, particularly in curriculum development and decision-making processes. According to Abduljaber's (2024), educational leaders perceived AI to have various implications on educational leadership, including decision making, teaching, and learning outcomes. AI-assisted models can enhance curriculum restructuring, performance monitoring, and expedite decision-making in educational systems (Kujur & Tiwari, 2022). For sustainable AI curriculum planning, teachers should be empowered as orchestrators of learning experiences, incorporating content, product, process, and praxis approaches (Chiu & Chai, 2020). In early childhood education, AI literacy can be achieved through developing AI knowledge, skills, and attitudes, with social robots serving as effective learning companions (Su & Zhong, 2022). For personalized informal learning environments, a hybrid human-AI approach to curriculum development has shown promise, with AI-based recommendations supporting contributors in defining learning goals, skills, and topics (Tavakoli et al., 2021).

Critical thinking skills are increasingly recognized as essential in the age of artificial intelligence (AI) for both educators and students. These skills serve as a means to integrate AI into teaching practices and as an antidote to potential AI threats in the profession (Komolafe Blessing Funmi & Xu-sheng Qian, 2020). AI literacy and prompt engineering proficiency are also crucial for educators to effectively utilize AI in classrooms and promote personalized learning (Yoshija Walter, 2024). Innovative approaches to teaching critical thinking about AI include using food traditions as a conversational prop to stimulate reflections on cultural diversity and social norms (Schaper et al., 2020). Infusing critical thinking skills such as parts-whole analysis, compare-and-contrast, and decision-making into AI course content has been shown to improve students' learning abilities (Krishna Rao, 2005).

AI is helping students learn better and be more interested in their studies in college. AI-enabled personalized recommendations in flipped classrooms significantly improve learning performance and engagement, particularly for moderately motivated students (Huang et al., 2023). AI-driven interface designs for Intelligent Tutoring Systems can enhance student engagement by up to 25.13% (Kim et al., 2020). Research indicates that students perceive AI tools as useful and effortless, promoting classroom engagement and attention (Moussa et al., 2024). AI applications, including machine learning, virtual reality, and augmented reality, contribute to improved academic performance, motivation, and learning progression (Xu, 2024). While a strong positive association exists between students' perceptions of AI and their engagement, the relationship between learning outcomes and engagement or AI perceptions is less pronounced (Moussa et al., 2024). This means that using AI in schools could make learning more fun and help students learn more.

Methodology

This study employs a case study approach to explore the lived experiences and perceptions of AI's impact on educational leadership and learning at Lapu-Lapu City College (LLCC). Case studies are a versatile research method for in-depth exploration of bounded educational phenomena, such as programs, schools, or organizations (Dawidowicz, 2011). The case study approach allows for a deep understanding of the participants' experiences with AI, focusing on how these experiences shape their roles and practices. To collect rich qualitative data, semi-structured interviews were used, providing the flexibility to explore the nuances of these experiences while maintaining a structured framework.

An interview guide was employed, adapted from Abduljaber's (2024) study on the perceived influence of AI on educational leadership's decision-making, teaching, and learning outcomes. The questionnaire was tailored to fit the specific context of LLCC, focusing on capturing the nuanced effects of AI on educational practices and leadership within this institution. The modifications ensured that the questions were relevant and aligned with the study's objectives, providing a robust framework for exploring the participants' experiences.

The research was conducted at a public local college in Cebu, Philippines, an institution dedicated to providing accessible education. The study specifically focused on teaching staff from the College of Education, Technology, and Hospitality and Tourism Management, given these colleges' diverse engagement with AI tools and technologies.

The study utilized purposive sampling, selecting 7 teachers with administrative units from the three colleges who actively use AI in their professional roles. This sampling method was chosen to ensure the inclusion of participants with direct and relevant experience with AI, providing valuable insights into its impact on their work.

During the analysis phase, the transcripts were reviewed and coded to identify common themes and patterns. The data was analyzed using a thematic analysis approach, which involves identifying and categorizing themes that emerge from the data (Braun & Clarke, 2006). The themes were then to construct a rich description of the experiences of the educational leaders with regard to AI's impact on educational leadership and learning.

Results

The interview questions were carefully categorized to correspond with the specific research areas: decision-making and curriculum development (RQ1), teaching practices and critical thinking (RQ2), and student learning outcomes and engagement (RQ3). After conducting the interviews, the researchers analyzed the interview transcripts, identifying themes and patterns that directly addressed each research question.

The following is an excerpt from the interview of one of the participants, reflecting their perception of AI's impact on educational leadership and learning:

RQ1. How do educational leaders perceive the impact of artificial intelligence on their decision-making processes related to curriculum development and instructional strategies?

SQ 2: How has AI influenced your decision-making as an educational leader?

P3:"AI has significantly enhanced my decision-making as an educational leader by providing data-driven insights, automating administrative tasks, and offering personalized learning experiences for students. It allows me to make informed decisions quickly, focus on strategic goals, and improve student outcomes by identifying trends, predicting needs, and optimizing resource allocation. AI serves as a tool to enhance my leadership effectiveness and the overall educational experience."
P4. "AI has influenced my decision-making as an educational leader to be more cautious in terms of value-based judgment and ethical considerations."
P5. "It has widened my capacity to adapt and use instructional techniques and methods to better facilitate learning and understanding."
P6. "Through AI, I am able to do research to enhance my knowledge, verify if my engineering knowledge is still relevant or has been enhanced, helped strengthen my discussion and my pitch when convincing shareholders and other leaders, improve my activity designs, Project Proposals, improve my thinking skills, troubleshooting skills, make decision-making faster and improve my class lessons. It has also helped me modify my lessons, one of which is to have oral exams and group discussions instead of essay-type assessments. It has helped me in my dissertation too."

SQ 4: Describe how the current AI educational leadership and teaching models differ from the traditional educational leadership decision-making and teaching models.

P1. "Traditional educational leaders aren't that varied enough in their teaching-learning activities, but I guess they bank more on Socratic methods which, for me, is effective. While AI educational leaders are active and varied, I don't know if they also take full accountability for the ethics in using AI."
P2. "AI doesn't help a lot..."
P3. "AI-driven educational models emphasize data-driven decisions and personalized learning, unlike traditional models that rely on experience and standardized approaches."
P4. "The current AI educational leadership and teaching models focus on skill-based approaches, real-world relevant scenarios, and continuous feedback and assessment, while the traditional educational leadership decision-making and teaching models focus more on lectures, high-stakes exams, and lagging content."
P6. "The old one is based on typecasting like persons are lazy when left alone, but with AI, it is based on data or past experiences and based on research."

SQ 5: How does AI influence your professional development?

P1. "Checking grammar Enhancing sentence structures Generating frameworks to gather ideas Making learning slides Question construction Gamification"
P3. "AI influences my professional development by providing access to up-to-date research, offering personalized learning recommendations, and automating routine tasks. This enables me to stay current with best practices, focus on strategic growth, and enhance my skills more efficiently."
P4. "AI influences my professional development in different ways through personalized learning experiences, especially in resource access, skill enhancement, and enhanced teaching practices through pedagogical support."
P6. "Before I had to read more books and listen or read news, now a dose of learning on a regular basis builds a foundation of knowledge faster and stronger, plus staying relevant and recent."

SQ 10: How do ethical concerns related to AI in education affect how you use AI?

P1. "Sometimes in using AI, it also generates incorrect and misleading information and questions... even in referencing."
P3. "Ethical concerns related to AI in education, such as data privacy and bias, affect how I use AI by ensuring that I prioritize transparency, safeguard student data, and use tools that are designed to minimize bias and promote fairness."

P4. "The ethical concerns related to AI in education affect how I use AI in a way that I need to be more argus-eyed in terms of student outputs generated by AI. I need to clarify and strike a balance that AI should enhance and not replace students' autonomy and creativity."

P5. "Well, we will never know if the students' arguments or ideas to a given problem are really their own. What if it's only coming from the internet, then it would really be unethical."

P6. "Do not allow students to encourage cheating through AI, do not use AI to belittle or bully, do not use AI to trample the privacy of others."

SQ 12: What else should I know about your experiences with AI in education?

P2. "I really admire students how they create their projects with the use of a program in AI."

P3. "AI helps in personalizing learning, automating administrative tasks, and offering data-driven insights to improve educational outcomes. It's important to balance AI tools with traditional teaching methods to maximize their benefits while addressing ethical concerns."

P6. "AI is not only useful in education it can help you learn more about your and your family's ailments, the medicines they or you take, their hobbies or area of interests and even about places you are yet to visit like what's the crime rate there and which part of the world are better places to explore? The use of AI is limited only by your imagination."

P7. "Some information given by the AI are not accurate."

RQ2: How has the integration of artificial intelligence impacted teaching practices and curriculum implementation at the local college?

SQ 6: How does using AI technologies such as ChatGPT in completing assignments and solving tasks influence of the student's ability to think critically?

P1. "I use prompts in specifying Higher Order Thinking Skills (HOTS) and Revised Bloom's Taxonomy in question constructions."

P2. "No it made them lazy"

P3. "AI tools like ChatGPT can enhance critical thinking by offering diverse perspectives and feedback, but over-reliance may reduce independent problem-solving. Balancing AI use with critical analysis is essential."

P4. "Using AI technologies such as Chat GPT in completing assignments and solving tasks influences students' ability to think critically by promoting responsible use, understanding limitations, and providing analytical opportunities."

P6. "Actually it depends upon how the teacher structures the lesson and assessment. It can go 2 ways. Worst scenario, students rely on AI to pass the course with less effort or Students will dig deeper and seek out more info to support before giving decisions. If the teacher will ask for options to solve a problem and ask why a certain option is more viable than the others then students begin to delve deeper and work harder and smartly. Also always ask for the source or RRL so that as a teacher you can verify"

SQ 7: How does AI allow you to enhance the development of students' critical thinking skills?

P2. "It doesn't help with the students. They rely on the answers. It made them lazy."

P3. "AI enhances students' critical thinking by providing personalized feedback, generating diverse viewpoints, and offering interactive problem-solving scenarios. This helps students evaluate information critically and apply their knowledge in various contexts."

P4. "AI allows me to enhance the development of students' critical thinking skills by empowering my students to be more responsible in using AI and to think critically and rely on their cognitive ability by recognizing AI's limitations."

P5. "By presenting them with the different opinion about the subject matter, and by asking them to compare and contrast and come up with their own opinion as a result and be able to justify it."

SQ 8: Describe any instances where AI tools or technologies have facilitated critical thinking in students.

P1. "I use prompts in specifying Higher Order Thinking Skills (HOTS) and Revised Bloom's Taxonomy in question constructions"

P4. "AI-driven tools, such as Chat GPT, can serve as brainstorming partners. Students use them to explore diverse perspectives, generate ideas, and solve complex problems. Students learn to verify the accuracy and reliability of the facts gathered from AI."

P5. "Presenting different opinions from different authors or sources of technological information will help students develop their critical thinking skills by asking them to compare and contrast and come up with their own opinion as a result."

P6. "During Thesis Development of my advisees they work from looking for projects to work on, seeking the gap, choosing which project among the top 3, the RRL, the SOP, experimental processes and Data gathering and presentation of results, and most especially the proposal."

RQ3: What are the perceived effects of artificial intelligence on student learning outcomes and engagement within the local college's educational programs?

SQ3: Describe specific instances where AI has improved student learning outcomes in your school.

P3. "AI has improved student learning outcomes by personalizing lessons, enabling early interventions, enhancing engagement, and optimizing resource allocation."
P4. "AI has improved student learning outcomes through AI-enhanced lessons that capture student interest, leading to improved attendance and active participation."
P5. "During the conduct of students' individual researches"
P6. "As mentioned, instead of asking for essays, it pushed me to go for oral exams and group discussions. Also, as a research adviser for electronics technology students, we are able to do the manuscript swiftly and dwell more on the experimental activities, which is more important in the research process."

SQ 9. How do you leverage AI to enhance students' critical thinking skills?
P1. "Through socratic method, flipped classroom setup, worksheets and independent learning"
P3. "I leverage AI to enhance students' critical thinking by using adaptive learning tools for personalized challenges, interactive simulations for hands-on problem-solving, and AI-driven feedback to stimulate deeper analysis and diverse perspectives."
P4. "I can leverage AI to enhance students' critical thinking skills by teaching my students to be more responsible in AI usage; and guide students in using AI to improve their work like research and grammar."
P5. "Let them search possible answers on the subject matter given, then allow them to share it in the class and ask them to justify it, then let the other students debate it."
P6. "As mentioned, do not use AI as a reference only to get answers. Use it to understand processes such as problem-solving techniques, decision-making techniques, human behavioral patterns, thought patterns, and dealing with conflicts. Use AI to understand situations."

SQ 11. How do you see the future of AI in education, especially the potential influence it might have on students' critical thinking abilities?

P1. "If there's proper training and workshops for teachers coming from experts in AI in Education, I guess it will help AI educational leaders to be enlightened on the potential influence and drawbacks in using AI."
P2. "Poor education system."
P3. "AI's future in education could enhance critical thinking by offering personalized learning, interactive simulations, and real-time feedback, while ensuring it complements rather than replaces independent problem-solving."
P4. "The future of AI in education, especially the potential influence it might have on students' critical thinking abilities is promising. By incorporating AI, educators can empower students to adapt to technological changes and pursue learning."
P5. "Well if used wisely then it will really help but if it will only just be the source of cheating and copying of answers from the internet then that's not going to be good for the students."
P6. "AI has the potential to predict outcomes virtually when you give enough information as inputs before it happens. With that, the probability to commit expensive, hazardous, or harmful decisions can be prevented. Also, AI having collected enough past information should not discourage or deter us to make further studies and renovations. It is okay to question the status quo to question an established theory. Use AI to help you and your students add to the body of knowledge."
P7. "It can help others, but it can also make students always rely on AI, which will make their critical thinking skills be on slumps."

Findings

RQ 1: How do educational leaders perceive the impact of artificial intelligence on their decision-making processes related to curriculum development and instructional strategies?

Enhanced Decision-Making through Data-Driven Insights
Several participants highlighted how AI significantly improved their decision-making processes by providing data-driven insights. One participant explained, "AI has significantly enhanced my decision-making as an educational leader by providing data-driven insights, automating administrative tasks, and offering personalized learning experiences for students." This suggests that AI empowers leaders to make informed decisions quickly and efficiently, leading to better student outcomes through trend identification and needs prediction. Through leveraging AI, leaders were able to streamline processes and focus on strategic goals, ultimately optimizing resource allocation and improving overall educational experiences. The ability to access and analyze data quickly allows leaders to make more informed choices about curriculum development, instructional strategies, and resource allocation, ultimately leading to more effective and personalized learning experiences for students.

Cautious Approach Due to Ethical Concerns
Participants expressed concerns about ethical considerations related to AI, including data privacy and bias, which influenced their decision-making processes. One participant mentioned, "AI has influenced my decision-making by prompting a more cautious approach in value-based judgment and ethical considerations." This awareness underscores the necessity of carefully balancing the advantages of AI with the potential risks it poses. Educators must navigate these ethical challenges to ensure that AI integration aligns with ethical standards and safeguards student interests. Concerns about data privacy, potential biases in algorithms, and the potential for AI to exacerbate existing inequalities in education require careful consideration.

Comparison with Traditional Models

Participants also observed differences between AI-driven and traditional educational leadership models. AI-driven models are seen as more focused on data-driven decisions and personalized learning, whereas traditional models rely more on experience and standardized approaches. As one participant articulated, "AI-driven educational models emphasize data-driven decisions and personalized learning, unlike traditional models that rely on experience and standardized approaches."

RQ 2: How has the integration of artificial intelligence impacted teaching practices and curriculum implementation at the local college?

Improvement in Student Learning Outcomes

It was really interesting to hear how the participants saw AI as a tool to help students learn better. They talked about how AI can personalize lessons, spot potential problems early on, and keep students engaged. One teacher even said, "AI has improved student learning outcomes by personalizing lessons, enabling early interventions, enhancing engagement, and optimizing resource allocation." It sounds like AI can really help tailor learning to each student's needs, which is super important. It is like having a personal tutor for everyone. But, of course, it is not always fine. These teachers also stressed that AI is not a magic solution. They know that AI works best when it is used alongside traditional teaching methods and when teachers are careful about how they use it. They do not want learners to become too dependent on AI and forget how to think for themselves.

Influence on Professional Development

It was clear that these teachers see AI as a game-changer for their own professional growth. They talked about how AI can help them stay up-to-date on the latest research, get personalized advice about how to improve their teaching, and even handle some of the more tedious tasks. One teacher said, "AI influences my professional development by providing access to up-to-date research, offering personalized learning recommendations, and automating routine tasks." It is like having a super helpful assistant that can keep them on the cutting edge of education. At the same time, it is important to recognize that AI is not a replacement for traditional professional development opportunities. While AI can provide access to information and resources, it cannot replace the value of mentorship, collaboration, and hands-on experience. Educators need to be mindful of the potential for AI to worsen existing inequalities in access to professional development opportunities and to ensure that AI is used in a way that promotes equity and inclusion.

Impact on Critical Thinking

The use of AI technologies like ChatGPT in assignments and tasks has had a mixed impact on students' ability to think critically. Some participants believe that AI can enhance critical thinking by offering diverse perspectives and feedback, while others express concern that it may lead to over-reliance and reduce independent problem-solving. As one participant noted, "AI tools like ChatGPT can enhance critical thinking by offering diverse perspectives and feedback, but over-reliance may reduce independent problem-solving." This suggests that AI can be a valuable tool for stimulating critical thinking, but it's essential to use it in a way that encourages students to develop their own critical thinking skills and to avoid simply relying on AI for answers.

The use of AI in education raises important questions about the role of critical thinking in the digital age. While AI can provide students with access to information and help them generate ideas, it is crucial to ensure that students are developing the skills they need to evaluate information critically, to think independently, and to solve problems creatively. This requires educators to be mindful of how they integrate AI into their teaching practices and to ensure that students are developing the skills they need to navigate the complexities of the digital world.

RQ 3: What are the perceived effects of artificial intelligence on student learning outcomes and engagement within the local college's educational programs?

Enhancement of Critical Thinking Skills

Participants identified several ways AI can enhance students' critical thinking skills. AI-driven tools like simulations and adaptive learning platforms provide real-world scenarios that challenge students to think critically and apply their knowledge. One participant noted that AI can "enhance students' critical thinking by providing personalized feedback, generating diverse viewpoints, and offering interactive problem-solving scenarios." This suggests that AI can help students develop their ability to analyze information, consider different perspectives, and solve problems in a more engaging and personalized way.

Notwithstanding, it's important to note that the effectiveness of AI in promoting critical thinking depends on how it's used. Participants emphasized the need for educators to guide students in using AI responsibly and to ensure that AI complements, rather than replaces, traditional teaching methods that foster critical thinking. They stressed the importance of teaching students to evaluate AI-generated information critically and to develop their own independent thinking skills.

Future Potential of AI in Education

The participants expressed optimism about the future of AI in education, particularly its potential to enhance critical thinking skills. One participant stated that AI "can empower students to adapt to technological changes and pursue learning." This suggests that AI can play a significant role in preparing students for a future where technology is increasingly integrated into all aspects of life. AI tools can provide personalized learning

experiences, offer real-time feedback, and create opportunities for students to explore complex concepts in interactive ways. However, the participants also recognized the need for careful planning and implementation to ensure that AI is used effectively and ethically. They emphasized the importance of providing educators with the necessary training and resources to integrate AI into their teaching practices in a way that promotes critical thinking and responsible use of technology. This includes addressing ethical concerns related to data privacy, bias, and the potential for over-reliance on AI.

Balancing AI with Traditional Methods

Participants consistently highlighted the importance of balancing AI tools with traditional teaching methods. While AI can offer valuable benefits, it should not replace traditional approaches that foster critical thinking, creativity, and collaboration. One participant stated that "it's important to balance AI tools with traditional teaching methods to maximize their benefits while addressing ethical concerns." This suggests that a blended approach, incorporating both AI and traditional methods, is essential for creating a well-rounded and effective learning environment.

This balanced approach requires educators to carefully consider how to integrate AI into their teaching practices in a way that complements existing strengths and addresses potential weaknesses. It also requires ongoing reflection and evaluation to ensure that AI is being used effectively and ethically to support student learning.

Conclusion

The study demonstrated that AI is increasingly influencing educational leaders' decision-making processes. Participants reported using AI to gain data-driven insights, improve efficiency, and personalize learning experiences. However, they also expressed concerns about the ethical implications of AI, particularly regarding data privacy and bias. This underscores the need for careful consideration of ethical frameworks and guidelines as AI becomes more integrated into educational practices.

Furthermore, the study revealed a mixed impact of AI on teaching practices and student learning outcomes. While AI tools were seen as valuable for enhancing student engagement, providing personalized feedback, and fostering critical thinking, participants also acknowledged the potential for over-reliance on AI and the need to balance its use with traditional teaching methods. The future of AI in education appears promising, with potential to personalize learning, improve accessibility, and enhance critical thinking skills. However, educators must be equipped with the necessary training and resources to effectively integrate AI into their classrooms while addressing ethical concerns.

In conclusion, this study provides valuable insights into the evolving role of AI in education. While AI offers significant potential for enhancing teaching and learning, it is essential to approach its implementation with careful consideration of ethical implications, the need for balanced integration, and the importance of ongoing professional development for educators. Further research is needed to explore the long-term impact of AI on student learning outcomes, critical thinking skills, and the overall educational landscape.

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Appendix A
Individual Interview Questions
Open-Ended Interview Questions

SQ1. Please describe your educational background and career through your current position as an educational leader.

SQ2. How has AI influenced your decision-making as an educational leader?

SQ3. Describe specific instances where AI has improved student learning outcomes in your school.

SQ4. Describe how the current AI educational leadership and teaching models differ from the traditional educational leadership decision-making and teaching models.

SQ5. How does AI influence your professional development?

SQ6. How does using AI technologies such as Chat GPT in completing assignments and solving tasks influence on student's ability to think critically?

SQ7. How does AI allow you to enhance the development of students' critical thinking skills?

SQ8. Describe any instances where AI tools or technologies have facilitated critical thinking in students.

SQ9. How do you leverage AI to enhance students' critical thinking skills?

SQ10. How do ethical concerns related to AI in education affect how you use AI?

SQ11. How do you see the future of AI in education, especially the potential influence it might have on students' critical thinking abilities?

SQ12. What else should I know about your experiences with AI in education?