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SAUDI FACULTY STAFF'S CRITICAL THINKING ABILITIES AND EDUCATION GAPS: A STUDY OF PERCEPTIONS TOWARDS AI IN EDUCATION

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Abstract
AI has drastically changed the interplay of education, international cooperation and the global development of societies. This is a descriptive-analytical study of the relationship between AI and education in four educational settings across Saudi Arabia to analyze how AI interventions affect critical thinking in faculty staff. AI, as we know it in its current avatar,has become an enormously influential force in the knowledge sector, as it enhances the learning experiences, helps design learner-centred curricula, and develops critical thinking and creativity in learners. The study findings are relevant to realisingthe Vision 2030 goals in education. The results indicate that engagement with AI applications in education is regarded to have no effect on faculty staff's critical thinking in the Saudi context. However, many challenges can be overcome too, such as the digital divide, algorithmic bias, and data privacy issues. Despite these cons, the study concludes that AI can be a powerful tool to enhance education, which is reflected in the participants' strong optimism about AI's role in shaping the future of education. However, with the surety that there is adequate transparency, equity in access, and ethical frameworks in using these technologies fairly and effectively.

Keywords: Education, Artificial intelligence, Vision 2030, Critical thinking abilities, Ethical challenges.

Introduction

Incorporating artificial intelligence (AI) is revolutionizing teaching and learning approaches, creating fresh possibilities for cross-border educational collaborationsin the globalized world (Abbasi, Wu &Luo, 2024). AI-driven technologies, such as intelligent tutoring systems, automated feedback tools, and adaptive learning platforms, are being integrated into classrooms worldwide to enhance teaching and learning efficiency (Luckin et al., 2016). However, while AI presents plentiful advantages, its impact on cognitive development, international cooperation, and educational equity remainareas of ongoing research and debate (Thayyib et al., 2023).

Along this plane, one critical area of concern is the effect of AI-integrated education on faculty staff's critical thinking abilities. Following this line of thought, studies suggest that while AI can support personalized learning and immediate feedback, excessive reliance on automated systems may reduce opportunities for problem-solving and higher-order thinking (Zawacki-Richter et al., 2019). Research by Holmes, Bialik and Fadel (2022) indicate that AI-powered learning environments can enhance knowledge acquisition. However, they may encourage passive learning behaviours if not specifically designed to promote inquiry-based and analytical skills. To fulfill this need, therefore, understanding how AI influences critical thinking is essential for developing effective educational strategies.

In the context of international educational cooperation, AI has the potential to bridge learning gaps by providing access to quality education in underserved regions (Nguyen,Hargittai& Marler,2021). However, significant challenges hinder the success of global educational partnerships. One of the primary barriers is the digital divide, where disparities in availability of technological infrastructure and internet access prevent equitable AI implementation in education (Van Dijk, 2012). Additionally, variations in educational policies and ethical concerns related to

AI's role in decision-making create inconsistencies in how AI is adopted across different regions (Selwyn, 2019). Some of the challengesin AI adoption arepoor high-tech infrastructure, inadequate government sponsorship for education, inequalities in educational outcomes among different economic groups, reluctance to adopt AI in education due to fears such as job displacement, and a lack of teacher readiness for AI integration (Khawrin&Nderego, 2023; Sytnyk&Podlinyayeva, 2024). These challenges highlight the need for a more inclusive and standardized approach to AI-driven education on an international scale.

Despite many challenges, AI presents an opportunity to address key educational gaps, particularly in terms of personalized learning and scalability. AI-powered platforms can adapt to individual learning needs, enabling students from diverse backgrounds to access tailored educational content (Hwang,Xie & Wah., 2020). Moreover, AI can support language learning, automate assessments, and enhance teacher training, making education more inclusive and effective (Chiu, Hew & Wong, 2021). By analyzing the role of AI in addressing these gaps, researchers and policymakers can develop strategies to maximize the benefits of AI while mitigating its potential drawbacks. Furthermore, in light of the tremendous development in almost all sectors witnessed by Saudi Arabia, especially with the guidance provided by the roadmap, Vision 2030, AI platforms have become new add-ons to these advancements. This has necessitated continuous research development in direct and indirect interactions of technology and education, which also motivated the current study.

Literature Review

Artificial intelligence has gained significant attention in education due to its potential to personalize learning, automate assessments, and provide intelligent tutoring systems. AI-powered tools, such as adaptive learning platforms and automated grading systems, have been shown to improve learning efficiency (Luckin et al., 2016). However, concerns remain regarding the impact of AI on students' critical thinking skills.While many studies opine that students' critical thinking skills are enhanced with AI interventional aids, there is concern highlighted by others that relying too heavily on AI could hinder their ability to think independently and make responsible decisions. Yet some other studies indicate the selective efficacy of AI tools: Szmyd and Mitera (2024) found that students perceive AI-based tools ashelpful in improving information analysis and building arguments.

Studies indicate that while AI enhances content delivery and provides instant feedback, it may also encourage passive learning habits if lessons and activities are poorly designed. Zawacki-Richter et al. (2019) systematically reviewed AI applications in education. They found that AI can improve procedural knowledge acquisition but may hinder deep learning and problem-solving skills when students rely too heavily on automated feedback. Similarly, Holmes et al. (2022) argue that AI-driven learning environments must incorporate active learning strategies, such as inquiry-based tasks and critical discussions, to ensure students develop higher-order thinking skills.

Furthermore, empirical research by Chen,Wang and Zhang (2021) highlights the mixed effects of AI on cognitive development. Their study on AI-supported learning platforms found that students engaged in AI-driven collaborative problem-solving activities significantly improved analytical reasoning. However, in cases where AI replaced traditional teacher-student interaction, students exhibited reduced engagement in critical discourse. These findings suggest that AI's role in education should be carefully structured to balance automation with interactive learning

experiences.AI agents may be systems, machines, software, or even technological human substitutes designed to assist and make decisions. They perceive their surroundings through sensors and interact with the environment using actuators, though they may notunderstand or predict the consequences of their actions thoroughly (Tan et al.,2022;Al-Ahdal & Aljafen,2023).
International educational cooperation is crucial in advancing knowledge-sharing and capacity-building among nations (Marginson& Wende, 2007). However, two significant challenges impede effective collaboration: the digital divide and policy disparities.
One of the most significant barriers to international educational partnerships is the digital divide, which refers to unequal access to technology and internet infrastructure across different regions. Van Dijk (2020) emphasizes that disparities in technological resources significantly impact students' ability to benefit from AI-integrated education. In low-income countries, limited access to AI-driven learning platforms reduces opportunities for students to engage with innovative educational technologies (Nguyen et al., 2020; Vaidya, 2024).Eden, Adeleye,andAdeniyi (2024)showed that AI-driven assessment tools help educators understand student performance, identify improvement areas, and provide targeted support. AI also enables remote collaboration, breaking down geographical barriers. However, ethical issues such as data privacy and algorithmic bias must be addressed to ensure fair access to science education.
In a UNESCO report, Haddad and Draxler (2021) highlight that while developed nations integrate AI into their educational systems, many developing countries lack the digital infrastructure and skilled personnel to implement such changes effectively. This disparity creates inequalities in academic quality and hinders cross-border collaborations. Additionally, Adebayo and Mutula (2022) argue that bridging the digital divide requires targeted investments in ICT infrastructure, teacher training, and affordable AI solutions to ensure equitable access to AI-enhanced education.
Variations in educational policies and ethical considerations also pose significant challenges to international academic partnerships. Different countries have distinct regulations regarding AI's role in education, data privacy, and ethical considerations in algorithmic decision-making (Selwyn, 2019).For instance, while some nations view AI as a tool for personalized learning, others raise concerns about student data privacy and algorithmic biases (Chiu et al., 2021). A studyby Nedungadi, Tang and Raman (2024) found that the situation presents significant challenges, such as ethical issues, data privacy concerns, and the potential to widen the digital divide. The findings highlight the importance of policy reforms and innovative approaches to address these challenges and leverage AI's educational opportunities. This contributes to a broader discussion on how technology can drive progress in global education and sustainable development.Ethical concerns, such as data security, bias in AI algorithms, and the depersonalization of learning, further complicate AI adoption in cross-border educational initiatives (Boddington, 2021).AI has been identified as a potential solution for addressing educational gaps, particularly in personalized learning, language learning, and teacher support (Hwang et al., 2020;Aljabr& Al-Ahdal, 2024). Martinez and Gomez (2025) revealed that structured instructional models like the ADDIE framework enhance the effectiveness of active learning strategies by aligning them with educational goals. It also notes that integrating artificial intelligence into active learning offers personalized experiences and immediate feedback but raises ethical concerns about technology's role versus human interaction in education. Overall, when implemented thoughtfully, active learning equips students with essential skills for academic and career success, adapting to the evolving needs of modern education.

One of AI's most promising educational contributions is personalized learning, which tailors instruction to individual students' needs. AI-driven platforms can analyze learning patterns and provide customized content, enhancing student engagement and retention (Luckin et al., 2016). A study by Umali (2024) revealed that students utilizing AI-powered adaptive learning systems achieved better academic outcomes and showed greater motivation than those in conventional learning environments.

Moreover, AI can bridge accessibility gaps by supporting learners with disabilities. AI-powered speech recognition, text-to-speech, and assistive learning tools help students with visual, auditory, and cognitive impairments to engage in learning effectively (Nguyen et al., 2020). According to a report by the World Economic Forum (2022), AI has the potential to create more inclusive education systems by offering customized learning support to marginalized communities. Research undertaken by Kim (2021) examined how high school students' listening skills improved over time through AI-driven listening assessments. The study traced students' listening abilities over a school year. It found that pupils who took AI-powered tests consistently improved their listening abilities, even when assessed on new and unfamiliar material.

Another significant educational gap addressed by AI is language learning. AI-powered translation tools, speech recognition software, and intelligent tutoring systems facilitate multilingual education, allowing students to engage in cross-border learning experiences (Chiu et al., 2021). Research by Lee and Lee (2020) found that students who used AI-driven language-learning applications significantly improved fluency, pronunciation, and comprehension. These technologies help overcome language barriers in international education, promoting global knowledge exchange.

AI also addresses the shortage of qualified educators by automating assessments and providing teacher support. Automated grading systems, AI-driven feedback tools, and virtual teaching assistants reduce the workload for educators, allowing them to focus on more personalized instruction (Chen et al., 2021). Additionally, AI-driven analytics help teachers track student progress and tailor instruction accordingly. A study by Popenici and Kerr (2017) highlights that AI-assisted teaching can enhance educational outcomes when combined with human oversight and pedagogical expertise.

The Kingdom of Saudi Arabia has initiated the Saudi Vision 2030, which aligns with these rapid developments.This Vision is an ambitious roadmap to diversify Saudi Arabia's economy, empower its citizens, and position the Kingdom as a global leader. Leveraging its strategic location, investment capabilities, and cultural significance, the Vision aims to transform the socioeconomic landscape through structural reforms, strategic investments, and large-scale projects. The Vision unfolds in phases, with the first phase laying the foundation through public sector, economic, and social reforms. The second phase accelerated efforts, yielding tangible results, while the third phase will focus on sustaining transformation and exploring new growth opportunities. In conjunction with AI, Vision 2030 emphasizes the critical role of technology in driving modernization, efficiency, and progress. By harnessing the power of intelligence, it seeks to create a future where technology and human potential work in harmony to address complex challenges and unlock new opportunities. One of Vision 2030's primary goals is to shift almost all sectors of life from resource-dependent economies to knowledge-based economies. AI is essential in this transformation by integrating AI into the education, finance, and manufacturing sectors. Fortunately, this Vision ranks education and skills development as key pillars of this

strategy, which aims to revolutionize education systems, making learning more accessible, personalized, and effective.

Additionally, AI-driven platforms can provide real-time feedback and recommendations, helping learners acquire the skills needed for future jobs. Through Vision Realization Programs (VRPs) and national strategies, Vision 2030 is improving quality of life, expanding investment opportunities, and fostering global integration (Alqublan, 2021). By blending tradition, innovation, and sustainability, Saudi Arabia is creating a future of development and prosperity, enabling citizens to realize their potential and escorting in a new era of growth for the Kingdom.

Research questions

This study uses a descriptive analysis to explore the intersection of AI, education, and international cooperation. It seeks to answer the following research questions:

1. What is the impact of AI integration in education on faculty staff's critical thinking?
2. What are the perceptions of educators and faculty staff about the efficacy of AI as an educational tool?
3. Which education gaps are addressed by AI-integrated education?

By addressing these questions, this research will contribute to the growing literature on AI in education, providing insights into its implications for human development and global collaboration. The study endeavours to offer recommendations for optimizing AI-driven education while fostering more effective and equitable international partnerships in education.

Methodology

This study adopts a descriptive-analytical research design to explore the role of artificial intelligence (AI) in international educational cooperation and human development. Descriptive analysis is appropriate for this study as it examines AI's impact on education, particularly regardingfaculty staff's critical thinking, challenges inintegrating AI into the educational sector, and the educational gaps addressed by AI-integrated learning. This design enables the systematic collection, classification, and interpretation of data to generate insights without manipulating variables (Creswell & Creswell, 2018).

The study employs a mixed-methods approach, incorporating quantitative data to understand the research problem comprehensively. The data collection process used a questionnaire.

A structured questionnaire is developed to gather quantitative data from 50faculty staff involved in AI-driven education. The questionnaire was designed using Five-Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree) to measure perceptions of AI's influence on critical thinking, the challenges of AI adoption in education, and its role in addressing learning gaps. The survey wasopen to access toparticipants on Google Forms at three colleges of Najran University, Saudi Arabia. These colleges are College of Science and Arts, College of Education, and College of Languages and Translation.

Table 1: The participant affiliations

No	Name of the faculty	Number of the participants	%
1	College of Science and Arts	20	40
2	College of Education	17	34
3	College of Languages and Translation	13	26
Total		50	100

Regarding sampling and population of the study, the study targets individuals with experience in AI-driven education, includingfaculty staff'swho implement AI-based learning toolsand engage in AI-integrated educational programs. The questionnaire was distributed using Google Forms to the faculty staff.

This section discusses the data analysis of the questionnaire. The reliability and validity of the questionnaire were ascertained, and the internal content was validated. The reliability of the questionnaire was measured using Alph Cronbach, and the result revealed that the tool was valid according to the following table.

Table 2: The reliability of the tool

No	Dimension	Items No	Alpha Cronbach
1	AI and Critical Thinking in Education	6	.852
2	Challenges in AI Adoption	7	.832
3	AI's Role in Addressing Educational Gaps	6	.790
4	General Perceptions of AI in Education	4	.772

A purposive sampling strategy is used to select participants with direct experience or knowledge related to AI in education. Additionally, snowball sampling allows respondents to recommend other potential participants and ensures a diverse and informed sample.

To determine the length of the five Likert scale categories (the lower and upper value) used in the study dimensions, the median 5-1 = 4 was calculated and then it was divided by the number of categories of the scale to obtain the correct category length i.e. (4/5 = 0.80) after that this value was added to the lowest value in the scale (or the beginning of the scale (1) to determine the value of the category, and thus the length of the categories became as shown in the following table:

Table (3): Response and the assessment of the degrees of response

Length of the category	**Length of means**	**Agreement direction**	**scale**
1.00 to 1.80	36 - %20%	Strongly Disagree	1
1.81 to 2.60	52 - %36.2%	Disagree	2
2.61- to 3.40	68 - %52.2%	Neutral	3
3.41 to 4.20	84 – %68.2%	Agree	4
4.21 to 5	100 – 84.2% أ%	Strongly Agree	5

Results

The responses collected from 50 participants were statistically treated using the means for each item. The questionnaire aimed to evaluate broad perspectives on AI's role in education, developing critical thinking, and addressing educational gaps. Table 3 summarizes the findings.

Table 4: AI and Critical Thinking in Education

Item	**Mean Score**	**Standard Deviation**	**Category**
AI encourages creativity & independence	3.78	0.61	agree
AI should complement traditional teaching	2.90	0.36	Neutral
AI-powered tools enhance critical thinking	2.84	0.50	Neutral
Overreliance on AI reduces independent thinking	2.82	0.52	Neutral

Item	Mean Score	Standard Deviation	Category
AI-generated content strengthens critical thinking	2.82	0.43	Neutral
AI promotes problem-solving	2.76	0.55	Neutral
Average	**3.15**	**0.50**	**Neutral**

Table 4 shows the perceptions about AI's role in nurturing critical thinking in education, based on mean scores and standard deviations as neutral. The highest mean score (3.78) is for the statement "AI encourages creativity and independence," which falls under the 'agree' category. In contrast, the lowest mean score (2.76) is for "AI promotes problem-solving," reflecting weaker agreement, though the standard deviation (0.55) in this statement falls under the neutral category. The statement "AI should complement traditional teaching" falls under the neutral category.

The average of this dimension was (3.15),which unfortunately falls under the neutral category. The statements are ranked from the highest to the lowest according to their mean values. To sum up, the participants in the Saudi education sector think that AI is still far from enhancing the critical thinking abilities of faculty staff.

Table 5: Challenges in AI Adoption

Item	Mean Score	Standard Deviation	Category
The digital divide is a major obstacle	5.00	0.00	Strongly agree
Lack of AI training hinders adoption	3.94	0.24	Agree
AI implementation cost is a major barrier	3.86	0.35	Agree
Cultural/language differences challenge AI cooperation	3.80	0.40	Agree
International collaboration is needed	3.78	0.54	Agree
Policy variations make AI adoption difficult	3.70	0.64	Agree
Ethical concerns limit AI implementation	3.68	0.51	Agree
Section Average	**3.96**	**0.38**	**Agree**

The table highlights key challenges that these participants think of. The digital divide is perceived as a significant obstacle, as this statement scored the highest rank with a mean of 5 under the 'strongly agree' category. The second significant challenge is the lack of AI training, which hinders its adoption. This is consistent with research results by Holmes et al. (2022), which highlight the importance of professional development programs to bridge the AI skills gap. Other major obstacles include the cost of AI, such as the cost of AI implementation, and cultural/language differences challenge AI cooperation;this finding aligns with the study of Zawacki-Richter et al. (2023), which emphasizes that unequal access to technology and infrastructure remains a critical barrier to AI adoption in education.

Table 6:AI's Role in Addressing Educational Gaps

Item	Mean Score	Standard Deviation	Category
AI improves personalized learning	3.88	0.32	Agree
AI-powered translation bridges language gaps	3.78	0.41	Agree
AI-based assessments improve learning efficiency	3.76	0.43	Agree
AI reduces teacher workload	3.50	0.50	Agree
AI reduces educational inequalities	3.50	0.50	Agree
AI enhances accessibility for disabled students	3.42	0.87	Agree
Section Average	**3.64**	**0.50**	Agree

Table 6summarizes the dimension of AI's role in addressing educational gaps. Results indicate that AI improves personalized learning; this notion scored the first rank with a mean of 3.88, suggesting that it falls under the agree category. This aligns with previous studies emphasisingAI's ability to mould educational content to personal needs, improving engagement and outcomes.

Also, AI-powered translation tools are considered effective in bridging language barriers;the statements of this dimension were all under the 'agree' category, as it was found that AI-based assessments played such a role in improving learning efficiency and reducing the workload on the teacher. Lastly, while AI enhances accessibility for disabled students scored the lowest degree, it is still in the 'agree' category, indicating that even disabled students can harness AI for their own benefit.

Table 7: General Perceptions of AI in Education

Item	Mean Score	Standard Deviation	Category
AI will shape the future of education	4.24	0.43	Strongly Agree
AI-driven education should be regulated	4.11	0.31	Agree
AI should be widely adopted internationally	4.16	0.37	Agree
Confidence in AI improving learning outcomes	4.00	0.00	Agree
Section Average	**4.13**	**0.28**	**Agree**

Table 7 shows that almost all items of this dimension fall under the 'agree' category with high means. This general perception reflects strong optimism about the role of AI in shaping the future of education, with a high meanof 4.24, under the strongly agree category. This also indicates widespread confidence in AI's transformative potential, despite the optimistic level of the participant's perception of an agreement that 'AI-driven education should be regulated' with a mean of 4.11, signifying a recognition of the need for ethical guidelines and oversight to ensure responsible AI use in educational situations. The adaptation of AI internationally and the certainty of AI in improving learning outcomes were among the high levels of agreement among the participants, indicating undisputed agreement on AI's potential to enhance educational effectiveness. The average mean of this dimension was 4.13, which underscores the strong

agreement across all items, highlighting a communalacceptanceof AI's capacity to shape the future of education.

To sum up, the participants believe AI has not yet reached the level needed to enhance critical thinking significantly and should complement, rather than replace, traditional teaching methods.They also identified some challenges in the adoption of AI in education. The most significant obstacle is the digital divide, reflecting widespread concern about unequal access to technology. Another major challenge is the lack of AI training, the high costs of AI, and cultural or language differences,which hinder effective implementation.

Furthermore, AI was found to improve personalized learning settings, bridge language barriers, enhance learning efficiency, and reduce teacher workload. So, there is strong optimism about AI's transformative potential in education. However, there is also consensus on the need for regulation to ensure ethical AI use.

Discussion

The findings reveal that while AI is seen as a transformative force in education, its adoption is not without challenges. Strong agreement on AI's ability to improve critical thinking, personalized learning, and many other benefits underscore its potential, and this finding is in the same vein as that of Guo and Lee (2023). who found thatAI(ChatGPT) significantly improved students' confidence in asking insightful questions, analyzing information, and understanding complex concepts, in addition to offering diverse perspectives and challenging their thinking; however, concerns regarding ethical considerations, accessibility, and differences in AI adoption highlight the need for structured implementation strategies.This finding is consistent with that of Marsan (2021) and Hara(2024), whofound a similar notion that rural and low-income areas face significant barriers to adopting AI-driven educational tools due to inadequate infrastructure.

The digital divide stands out as the most pressing issue, showing that access to technology is a key determinant of AI's success in education in the Saudi context. Similarly, the call for AI regulation suggests that while educators and stakeholders recognize AI's benefits, they also emphasize the need for oversight to prevent bias and inequity, as Holmes et al. (2022) found that educators are increasingly concerned about the lack of transparency in AI decision-making processes.

Interestingly, mixed responses on AI's role in reducing teacher workload and educational inequalities suggest that AI alone may not be sufficient to bridge systemic gaps.While AI can automate teaching tasks, its impact on reducing systemic inequalities is limited; Loble and Hawcroft (2022) highlighted that AI tools often worsen disparities in underfunded schools due to unequal access. It is apparent from these findings that there is a dire need for complementary strategies, such as teacher training and policy reforms, to maximize AI's potential. This aligns with recent calls for holistic approaches to AI integration in education.

Further research and pilot programs may be needed to evaluate how AI can complement traditional education without exacerbating existing disparities,as has been made clear by Ayanwale et al. (20220; andMpuangnan (2024), who claimed that the major barrier to AI adoption, with many educators lacking the skills to use AI tools effectively. The statistical analysis showed that while participants strongly believe AI can transform education, significant barriers such as the digital divide, training gaps, and ethical considerations must be addressed.

Conclusion

The literature highlights the potential and challenges of integrating AI into international education. While AI offers opportunities to enhance personalized learning, language acquisition, and teacher support, concerns remain regarding its impact on critical thinking and equitable access. Additionally, international educational partnerships face barriers related to the digital divide and policy misalignment. Addressing these challenges requires a balanced approach that ensures AI enhances, rather than replaces, critical human elements of education. Despite some limitations, the study's mixed-methods approach provides a well-rounded analysis, offering valuable insights into AI's role in international educational cooperation and human development.This study aims to contribute to this growing field by providing a descriptive analysis of AI's role in international educational cooperation and human development. Exploring the research questions will offer insights into optimizing AI-driven education while fostering effective global collaboration.

Recommendations

The study recommends efforts to improve AI integration, possible enhancement of AI literacy and training programs for educators, development of policies ensuring equitable access to AI tools in underprivileged areas, conducting further research on AI's role in reducing educational inequalities and workload, and implementation of international frameworks to address ethical concerns in AI-driven education. The results provided a foundation for future studies on AI's evolving role in global education.

Limitations

While this study provides a comprehensive descriptive analysis, certain limitations should be acknowledged: The purposive sampling method may limit generalizability to broader populations. AI in education is rapidly evolving, and findings may require updates as new technologies emerge.

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Appendix

The questionnaire used as a tool for data collection

Instructions:

Please indicate your level of agreement with each statement by selecting the appropriate option on a scale from **1 (Strongly Disagree) to 5 (Strongly Agree).**

Scale:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Section 1: Demographic Information

(These questions provide context for the analysis but remain multiple-choice)

1. What is your role in education?
   - ☐ Faculty Staff
   - ☐ Other (please specify) _____
2. Have you used AI-powered educational tools or platforms?
   - ☐ Yes
   - ☐ No

s.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	Section One: AI and Critical Thinking in Education					
1	AI-powered learning tools enhance students' ability to analyze and evaluate information critically.					
2	AI-driven education encourages creativity and independent thinking among learners.					
3	AI promotes problem-solving skills by providing personalized and adaptive learning experiences.					
4	Overreliance on AI tools reduces students' ability to think independently.					
5	AI-generated educational content provides diverse perspectives that strengthen critical thinking.					
6	AI should be used to complement rather than replace traditional teaching methods to ensure the development of critical thinking skills.					
	Section Two: Challenges AI Adoption					
7	The digital divide (lack of access to technology) is a major obstacle to integrating AI in international education partnerships.					
8	Variations in education policies across countries make AI integration in international education difficult.					
9	The lack of AI-related teacher training and expertise hinders the adoption of AI in education.					
10	Ethical concerns (such as data privacy and algorithmic bias) limit the implementation of AI in global education systems.					
11	International collaboration is needed to develop standardized AI policies in education.					
12	Cultural and linguistic differences make AI-driven educational cooperation challenging across different countries.					
13	The cost of implementing AI technologies in education is a significant barrier for developing nations.					
	Section Three: AI's Role in Addressing Educational Gaps					
14	AI improves personalized learning by adapting content to					

	individual students' needs.					
15	AI-powered language translation tools help bridge educational gaps for non-native speakers.					
16	AI enhances accessibility for students with disabilities by providing adaptive learning technologies.					
17	AI-based automated assessment tools improve feedback accuracy and learning efficiency.					
18	AI reduces teacher workload by automating administrative and repetitive tasks, allowing educators to focus on interactive learning.					
19	AI can help reduce educational inequalities by providing quality learning resources to underserved communities.					
	Section Four: General Perceptions of AI in Education					
20	AI will play a crucial role in shaping the future of global education.					
21	AI-driven education should be regulated to ensure ethical and equitable implementation.					
22	I feel confident that AI-integrated education will improve learning outcomes in my field.					
23	AI should be widely adopted in international education systems to enhance cooperation and knowledge-sharing across nations.					