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The Educator's Lens: Understanding the Impact of AI on Management Education

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ABSTRACT

This study aims to investigate the impact of AI on management education and its implications for both students and educational institutions from the educator's perspective.As AI technologies continue to advance, it is crucial to understand how educators perceive and adapt to these changes in their teaching practices and the implications for management education.The study employs a qualitative research methodology, including interviews conducted with educators in management schools and institutions. Through in-depth interviews, the research examines how educators perceive AI's impact on teaching methodologies, curriculum design, and student engagement.The results show how educators view AI's impact on management education. AI can improve teaching, student engagement, and decision-making, according to educators. They also emphasize the significance of humanizing AI, critical thinking, and ethical considerations in the classroom.The study finds that educators need continual professional development and training to navigate AI in management education. To responsibly integrate AI technology into management education, instructors, educational institutions, and AI developers must work together. This research article sheds light on management educators' views on AI's impact. It provides a platform for conversations, policymaking, and strategic planning to utilize AI's potential while protecting quality education and human engagement in management learning environments.

Keywords: *Educators; Management Education; Artificial Intelligence (AI); Tutorial System (TS); Social Learning (SL)*

BACKGROUND

Some of the most significant technological advances in the previous decade can be attributed to the expansion and increased use of artificial intelligence (AI) over a broad range of sectors. With the widespread adoption of data, algorithms, and automation, the educational sector has also been adjusting to the benefits and disadvantages of artificial intelligence enabled technology (Luckin et al., 2016).According to Zawacki-Richter et al. (2019)most of the research in the field of Artificial Intelligence in Education (AIED) has primarily focused on the development of technology, such as creating adaptive or personalized systems or developing more precise and equitable algorithms.The COVID-19 epidemic has accelerated the adoption and use of educational technology (Reich & Mehta, 2020)by exposing pupils and educators at all levels to the latest digital educational methods. More psychological studies on education technology are needed to better understand the elements that influence the opinions of educators toward, comfort with, and implementation of such tools in the classroom. In the early months of 2023, generative AI tools based on big language models, such as AI-powered chatbots like GPT, gained popularity and became widely available. This development prompted educators and academic policymakers to reconsider the role of technology in the classroom (Yan et al., 2023).Because technology is used at educational institutions and keeps detailed records of what students do and how well they do,

educators can learn about their students' growth and problems. This is an important use that highlights the need for deeper investigation into the various factors that influence educators' attitudes towards technology adoption. The results suggest that social, psychological, cultural, and societal factors play a crucial role in shaping these attitudes. It is particularly relevant when considering the adoption of artificial intelligence-driven technologies like Programmable Logical Arrays, which can introduce erroneous assumptions and raise privacy-related concerns (Nazaretsky et al., 2022a, 2022b)AI is increasingly used in education to interact with and teach students, building strong social bonds and providing personalized instruction. Lee & Kim (2020) suggest that artificial beings are being incorporated as collaborative agents in the educational setting, serving as tutors, teachers, assistants, advisors, and even learning peers to students.

Applications utilizing artificial intelligence (AI) exhibit distinct characteristics compared to other technologies, as they are designed to function as active participants within educational settings, hence influencing the learning experiences of students. Nevertheless, the incorporation of artificial intelligence (AI) in the classroom has raised significant pedagogical concerns for instructors, since it alters the traditional dynamics of student-teacher relationships and learning processes (Gunkel, 2012).

This research paper provides valuable insights into the perspectives of educators regarding the impact of AI on management education.

Objective of the study

The primary objective of this study was to gather educators' perspectives on four critical aspects:

- Curriculum design
- Student-AI interaction
- Learning environments required for student-AI collaboration (SAC) in learning, and
- The challenges and concerns expressed by educators related to AI integration in management education.

Significance of the Study

The study on AI's impact on management education investigates how AI can affect management education teaching, learning, and overall educational processes. Management educators can modify their approaches, curricula, and learning environments to remain relevant in a future driven by AI by comprehending this influence. The study outlines obstacles, chances, and modifications that management education institutions must make to successfully educate students for workplaces powered by AI. Furthermore, it assists in developing guidelines and frameworks for the moral and responsible use of AI in assessment and education. The research helps management educators make well-informed decisions about resource allocation, infrastructure development, faculty development, and strategic planning.

The Role of AI in Management Education

AI in management education offers opportunities for personalized learning, intelligent tutoring system (TS), data-driven decision-making, automation of administrative tasks, predictive analytics, and the promotion of ethical considerations. Embracing AI technologies in management education can enhance the learning experience, improve outcomes, and prepare students for the AI-driven workplaces of the future.

Definition of AI and its Applications

AI has several different subfields and methods, such as machine learning, robotics, natural language processing, computer vision, and expert systems. Each of these areas focuses on different aspects of AI technology and have specific applications. Here are some common applications of artificial intelligence:Artificial intelligence (AI), also known as "Machine Intelligence", involves designing devices that resemble cognitive processes such as learning, problem-solving, and decision-making, to model human intellect. Baker and Smith (2019) define AI in the context of computers performing cognitive tasks such as learning and finding solutions to problems, where such tasks are typically associated with human minds. This umbrella term encompasses a wide range of technologies, including neural networks, machine learning, natural language processing, data mining, and algorithms.

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1. *Machine Learning*:Machine learning is a subfield of artificial intelligence that involves training computers to learn from data and improve over time without explicit programming. It has various applications such as recommendation systems, predictive analytics, fraud detection, and personalized marketing.
2. *NLP (Natural Language Processing)*:Natural Language Processing (NLP) is a technology that enables computers to understand, interpret, and generate human language. Various applications of NLP include virtual assistants, chatbots, translators, sentiment analysis, and speech recognition systems.
3. *Computer Vision:*The process of teaching machines to read and comprehend visual data from images or videos is known as computer vision, and it has a wide range of applications in various fields such as autonomous vehicles, facial recognition, object recognition, picture and video analysis, and medical imaging.
4. *Expert Systems:*Expert systems are artificial intelligence (AI) systems that are created to emulate the knowledge and judgment of human experts in particular fields. They can offer suggestions or answers based on intricate rules and data in fields like diagnosis and decision support systems.
5. *Robotics and Automation*: AI is a key part of robotics and automation because it lets computers see and interact with their surroundings on their own. This could be used in smart houses, industrial automation, drones that fly themselves, surgical robots, and more.
6. *Predictive Analytics*: AI algorithms can analyze large datasets to identify patterns and predict future events. This is used to create data-driven decisions and streamline processes in a variety of industries, such as finance, marketing, healthcare, and supply chain management.
7. *Intelligent Virtual Assistants*:Virtual assistants like Siri, Alexa, and Google Assistant utilize artificial intelligence (AI) technology to understand and respond to human requests and questions, perform various tasks, and provide personalized recommendations.
8. *Autonomous Systems*: Autonomous systems that can operate independently, such as self-driving cars, unmanned aerial vehicles (drones), and automated industrial machinery, are being developed using artificial intelligence (AI) technology.
9. *Gaming and Entertainment*: AI has a significant presence in the gaming industry, powering intelligent NPCs (non-player characters), generating realistic graphics, and enabling immersive gameplay experiences. AI is also used in content recommendation systems for personalized entertainment platforms.
10. *Healthcare and Medicine*: AI has applications in healthcare for disease diagnosis, medical image analysis, drug discovery, virtual nursing assistants, and patient monitoring systems.

These are just a few examples of how AI is applied across various domains. AI technologies continue to evolve and find new applications, contributing to advancements in fields ranging from business and education to healthcare and transportation.

AI in the Educational Context

The use of artificial intelligence (AI) in education has been on the rise in recent years. According to Luckin, Holmes, Griffiths, and Forcier (2016), the current AI software used in education can be categorized into three groups: personal tutors, intelligent collaborative learning help, and intelligent virtual reality. Intelligent tutoring systems (ITS) can be particularly useful in simulating one-on-one personal tutoring. Baker &Smith (2019) discussed a comprehensive approach to AI tools for education, focusing on the learner, the teacher, and the system. Their report outlined these three key areas in which AI can be applied to improve the educational experience.

Learner-facing AI tools are essentially software applications that are designed to assist students in their learning process. These tools include adaptive or personalized learning management systems, as well as intelligent tutoring systems (ITS). Teacher-facing technologies help teachers and make their jobs easier by automating tasks like administration, review, feedback, and plagiarism detection. AIED systems also let educators track their pupils' progress so they can help when needed. System-facing Artificial Intelligence provides data to institutional managers and administrators, such as faculty attrition trends. The integration of AI into the education industry has the power to transform the processes of teaching and learning. The following are some significant AI in education (AIED) applications:

1. *Intelligent Tutoring*: AI-powered intelligent tutoring systems mentor pupils virtually. These systems assess student responses, detect weaknesses, and provide targeted support, improving learning outcomes. Intelligent teaching systems imitate real-world circumstances and let students practice and apply their knowledge in interactive environments.
2. *Personalized Learning*: AI can evaluate student data to personalize learning. AI-powered adaptive learning solutions give students personalized content, tools, and evaluations at their own speed and according to their requirements.
3. *Automated Grading and Feedback*: Automatically, AI can grade assignments and give students immediate feedback. This helps teachers save time and gives students quick feedback so they can see their progress and make adjustments. AI can also spot frequent mistakes or misunderstandings, helping teachers fill in specific knowledge gaps.
4. *Translation and Language Instruction*: Interactive language education, speech recognition, and real-time translation services can all be offered via AI-powered language learning platforms. These tools support students in acquiring new languages, practicing pronunciation, and improving communication skills.
5. *Virtual Assistants and Chatbots:*Virtual assistants and chatbots are powered by AI and can offer immediate responses to student inquiries, help with administrative tasks, and provide support throughout the learning process. They can address common questions, offer resources, and guide students through various learning activities to enhance the learning experience.
6. *Data Analytics and Predictive Modeling*: Algorithms using artificial intelligence can look at student success, attendance records, and levels of engagement to gain insights and predict what will happen in the future. This information can assist educators in identifying struggling students, designing targeted interventions, and making data-driven decisions regarding curriculum and instructional design.
7. *Content Recommendation and Personalized Learning Paths*: AI algorithms are capable of recommending educational resources, including articles, videos, and exercises that align with individual student preferences and learning objectives. This approach empowers students to explore topics of interest and discover additional learning materials that go beyond the traditional curriculum.

8. *Academic Integrity and Plagiarism Detection:* AI tools can analyze student submissions and compare them against a vast database of sources to detect instances of plagiarism or academic misconduct. This helps ensure academic integrity and maintains the credibility of educational assessments.
9. *Administrative Support*: AI can help with jobs like scheduling, course registration, and keeping track of student records. This technology speeds up and simplifies administrative tasks, giving teachers more time to spend on teaching.
10. *Learning Analytics and Institutional Decision-Making*: AI-driven learning analytics provide institutions with insights into student performance, engagement, and retention rates. This data can inform strategic decisions related to curriculum development, resource allocation, and student support services.

Artificial intelligence (AI) has the potential to enhance the educational landscape by optimising the learning process, tailoring instruction to individual learners, and providing educators with insightful data to enhance their pedagogical practices. This educational approach affords students the autonomy to acquire knowledge at their individualized speed, while simultaneously enabling teachers to instruct in manners that align with the unique needs of each student.

“Learning with AI” and “Learning about AI” are the two main ways that AI has been marketed as a new and useful teaching tool (Holmes, 2019). Wooldridge (1995), stated that Experts in AIED find it interesting to study AI because it is self-aware, social, and responsive. Learners as well as teachers are being replaced by AI in many positions, including those of learning peers, tutors, and assistants (Simmler 2021). The study explores the role of AI in students' learning experiences by focusing on the social interaction between students and AI as collaborative learning partners or peers. It moves away from the traditional emphasis on AI-related school curricula and AI technology and instead examines the nature and quality of this interaction. The study also considers the implications of this interaction for the learning environment, particularly in terms of supporting the student-centered approach to learning.The recent theoretical advancements in the field of Artificial Intelligence in Education (AIED) hold great potential to improve the development and execution of interventions. The goal is to encourage the adoption and effective use of these interventions, leading to better learning outcomes, educational achievement, and equity in education (Buckingham Shum, 2019).Over the years, many higher education institutions have implemented Predictive Learning Analytics (PLA) to identify students who may not complete their degrees. For instance, the Signals system at Purdue University was introduced in 2006 (Arnold, 2012), the GPS Advising system at Georgia State University was introduced in 2012 (Kurzweil, 2015), and OU Analyse at the Open University was introduced in 2014 (Kuzilek, 2015). Since then, a variety of for-profit systems have emerged in the market to provide administrators and teachers with PLA-based data.

RESEARCH METHODOLOGY

The study uses a qualitative research methodology, which includes interviews with educators at management institutes and schools. It seeks to uncover the educators' understanding, experiences, and insights regarding the integration of AI in management education.

The paper begins by providing an overview of AI technologies and their potential applications in management education, including personalized learning, data analytics, and decision support systems. It then delves into the educator's perspective on the benefits and challenges associated with AI adoption.

Through in-depth interviews, the research examines how educators perceive AI's impact on teaching methodologies, curriculum design, and student engagement. It explores their experiences with AI-powered tools and platforms, such as intelligent tutoring systems, virtual assistants, and

automated grading systems. Additionally, the paper explores the educators' opinions on the role of AI in enhancing critical thinking, problem-solving skills, and experiential learning opportunities for management students.

Data Analysis

The conclusions drawn in this research are derived from comprehensive, semi-structured interviews conducted with the 12 educators identified in Table 1 below.

Table 1: *Participant Characteristics*

Table 1 Participants characteristics				
Participant		**Gender**	**Teaching experience**	**AIED experience**
Bachelor's educators in management education	B1	F	14	AIED instruction, Academic research, AIED curriculum development
	B2	M	5	AIED instruction, Academic research, AIED curriculum development
	B3	M	5	AIED instruction, Academic research, Publication, AIED curriculum development ,Consulting for an educational AI design
	B4	M	11	AIED instruction, Academic research, AIED curriculum development
	B5	F	17	AIED instruction, Academic research, Publication, AIED curriculum development,Consulting for an educational AI design
	B6	F	3	AIED instruction, Academic research, AIED curriculum development
Master's educators in management education	M1	F	5	AIED instruction, Academic research, Publication, AIED curriculum development,Consulting for an educational AI design
	M2	M	17	AIED instruction, Academic research, AIED curriculum development
	M3	F	5	AIED instruction, Academic research, Publication, AIED curriculum development,Consulting for an educational AI design
	M4	F	15	AIED instruction, Academic research, Publication, AIED curriculum development,Consulting for an educational AI design
	M5	M	17	AIED instruction, Academic research, AIED curriculum development
	M6	M	9	AIED instruction, Academic research, Publication, AIED curriculum development,Consulting for an educational AI design

Source: data analysis

Initially, a semi-structured interview guide was developed, consisting of 15 questions that were derived from the recommended SAC model (see Figure 1). These questions were specifically designed to address the key components of the model.

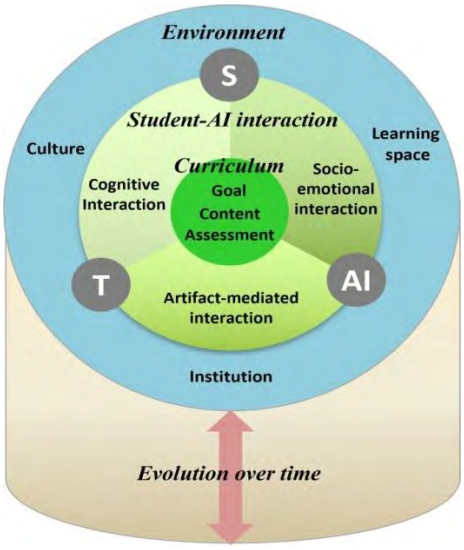

Figure 1: S A C Model

Except fortwo of the participants (M1 and B2), who preferred face-to-face interviews, most of the interviews were conducted over videoconference using the Zoom software. After being audio recorded, the interviews were transcribed.

To discover themes related to the proposed framework, a hybrid approach that combines both inductive and deductive thematic analysis, as suggested by Braun & Clarke (2006), was used. A deductive thematic analysis was used to construct first codes after repeatedly reviewing transcripts in order to create early topics based on the suggested framework.Afterwards, we carefully reviewed all of the annotated transcripts to check for any discrepancies in interpretations and to ensure the accuracy of the codes. The investigation was then carried out using an inductive methodology to look for newly appearing codes and undiscovered themes. The team looked over the codes and came up with themes, combining or dividing some themes into subthemes. The researchers went through this process again and again until there was agreement on every theme. Each area of study was finally given a name and a definition that gave the theme its complete meaning.

We initially checked the interview transcripts with each participant to make sure they were accurate, and they made corrections as needed. The authors discussed the analysis methodology and conclusions, and any discrepancies were explained.

RESULTS

Research Findings

Based on the four study questions, a total of 23 themes were identified. These themes were further categorized into seven themes for Question 1 (Curriculum), six themes for Question 2 (Student -AI

Interaction), seven themes for Question 3 (Environment), and four themes for Question 4 (Co-evolution).

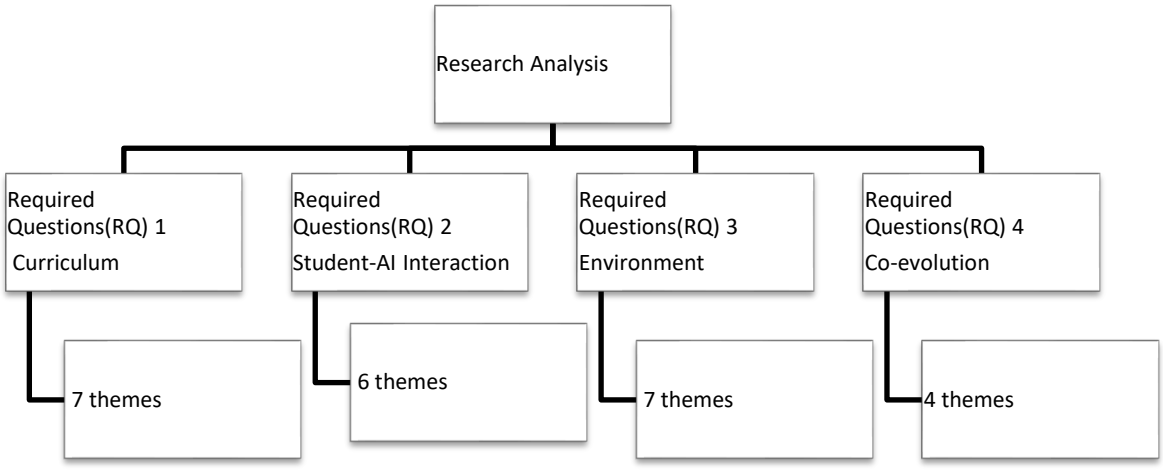

Figure 2: Research Analysis

Teachers were optimistic that SAC (student-AI collaboration)would assist in the development of higher-order thinking skills among students, such as critical thinking, innovative problem-solving, and analytical reasoning. These educators considered various objectives for their students while devising strategies for integrating artificial intelligence (AI) into the classroom:

(1) Problem solving,
(2) Divergent thinking, and
(3) Systematic problem solving (Kafai & Burke, 2014; Resnick, 2006)

The findings shown here align with the outcomes of a prior empirical investigation carried out by Lin et al. (2021), which provided measurable evidence supporting the positive impact of the SAC on students' imaginative abilities, deductive reasoning skills, and problem-solving aptitude.

DISCUSSION

The Student Agency Conference was designed to help students develop their social capacity for peer collaboration, effective communication (including public speaking, storytelling, asking the right questions, and synthesizing messages), and leadership skills such as grit, persistence, achievement orientation, and coping with uncertainty.M3, for instance, said:

> *"It has been hard to program machines to handle and use feelings like negotiating, resolving conflicts, and having empathy for others in the same way that humans do. Students don't just learn how to interact with AI through learning projects with their peers that involve AI. They also learn how to do things that AI won't be able to do."* (M3)

Teachers also believed that Student AI collaboration would assist students in developing a deeper, more thorough understanding of the material. On the other hand, they noted that

> *"…educators seek to help students develop their knowledge and skills into useful products, workable solutions, and fresh information, not only convey topic knowledge"* (B1)

Most educators argued that to provide students with a solid foundation in AI, informatics/computer science courses must include instruction in algorithms, mathematics, and statistics. But they also emphasized how crucial it is to link SAC to extracurricular topics to accomplish the learning objectives more effectively. Teachers explained how multidisciplinary education can benefit students' ability to:

> "*Gain a thorough understanding of artificial intelligence itself ("Students can better understand AI and technology by connecting it to its origins in linguistics, social science, economics, neuroscience, etc."* (M2)

> *"By implementing Artificial Intelligence (AI) in various academic disciplines, students can improve their overall task performance…". "A more integrated curriculum that enhances students' consistent use of AI and diversifies experience…"*(M3)

Teachers underlined the importance of foregrounding and the utilization of realistic projects that let students develop and use standards-based knowledge to solve real-world issues. Teachers have developed a variety of learning experiences that relate subject-area knowledge to practical problems through the task-focused interactions between the student-AI team. Students, for instance, addressed issues in their own classrooms, such as:

> *"…a face detection of students running inside the classroom in outdoor shoes in communication*"(B4).

daily challenges;

> "*A weekly budget plan for the family in home finance; illustrated job description in human relations*", (B1)

along withworldwide issues;

> "*Predicting the future of organization strategy in organization behavior and strategy making"*(M4).

Teachers pointed out that SAC should engage in creative work as another crucial learning topic and activity. Students have the potential to enhance their cognitive skills, such as critical thinking and problem-solving, by engaging in various academic tasks, including but not limited to illustrating, writing, and producing. These assignments facilitate the exploration of ideas, the establishment of connections, the generation of creative outputs, and the development of effective communication and evaluative abilities.

Bachelor level management schoolteachers emphasized the importance of assisting students in clearly distinguishing between AI and other technologies, as many students tend to confuse them. Additionally, they stressed the significance of helping students understand the unique attributes of AI that could either enhance or hinder their learning and decision-making. The teachers anticipated that AI would be capable of providing students with scaffold interactions, thereby offering detailed instructional support while engaging in learning activities.

In one assignment which required the class to use an AI speaker to research the moon, the younger kids occasionally struggled with knowing what questions to ask and where to start when looking for knowledge. It was noted that,

> *"Instead of merely responding to student inquiries, AI should engage with students more proactively by posing specific questions like, 'Do you know how crater looks like?' to scaffold the study process"* (B3).

Educators place particular emphasis on the significance of instructing students not only on the potential ethical and psychological ramifications associated with artificial intelligence (AI) or its improper application, but also on the imperative role of ethical principles in shaping competence, which subsequently impacts individuals and society.

According to the professors at the Bachelor level management school, it was suggested that the interface should serve as a potent means of expression and enable students to engage with the task at hand without relying on physical textbooks to comprehend the artificial intelligence system. The tutors proposed that artificial intelligence (AI) should engage in socio-emotional relationships with students in a manner that holds educational significance. It is thus recommended that the development of AI take into consideration the affective domain of pupils.

Teachers especially need to construct a classroom that accommodates students' different talents, needs, and interests. Students can collaborate with AI in many ways to complete the objective.

Teachers argued that the traditional classroom might be used for SAC in addition to the digital learning environment and one device per student is essential. To enhance the accessibility of digital content for learners and promote continuous and immediate online interaction both inside and outside the classroom, as well as to help with the systematic collection of student data for personalized learning, teachers have the option to provide school-owned individual devices instead of implementing a bring-your-own-device (BYOD) policy.

As per the recommendations of educators, it is advised that the administration should establish a governance and coordination mechanism that spans across different sectors. This mechanism would facilitate collaboration and sharing of resources among various stakeholders, including pupils, instructors, parents, legislators, scientists, and EdTech providers. The aim is to effectively develop "educational AI" and ensure its secure and efficient implementation in the field of Artificial intelligence.

M1 emphasized the following:

> "*Government, educational institutions, research institutions, and Edtech businesses must collaborate to create AI and AIED. To promote virtuous collaboration, AIED collaboration councils should include stakeholders and other specialists. Schools should regularly communicate with external stakeholders about AI development and teaching activities."* (M1)

All the educators involved in this initiative are prominent figures in the field of AI-enhanced education (AIED). However, they have collectively expressed a keen interest in gaining comprehensive knowledge in the latest advancements in AI, as well as enhancing their skills in course design. They seek expertise from specialists in AI finance, statistics, mathematics, and education to effectively interpret AI-generated results, and provide meaningful feedback to students during the Student Assessment.

> "*Pupils frequently pose difficult issues that call for a thorough understanding of mathematics, statistics, and cutting-edge AI techniques. I therefore made the decision to learn by going to open lectures at universities and workshops held by an EdTech business*" (M1).

When attempting to create a collaborative learning environment among their peers, the educators faced various challenges.Teachers questioned current homework and evaluation methods that have been used to achieve higher test scores for an institution and solve common difficulties in the classroom. Such a classroom environment does not encourage making mistakes or appreciating issues or potential solutions.

For example, B5 stated:

> *"During SAC, I aggressively encourage students to make mistakes and even experience failure. For people to view failure as productive and attempt many approaches to problem-solving with AI and their friends, it is crucial to establish such an environment and culture. They also discover to value or else consider the feedback that failure provides."*(B5)

Educators typically prioritise the cultivation of a favourable disposition towards artificial intelligence (AI), enhancing students' comprehension of AI concepts, and providing guidance in the practical application of AI by systematically guiding them through the execution of tasks. It is improbable for students to connect the acronym SAC with the broader context beyond the confines of the classroom within a certain subject area.

Limitations of the Study

The perspectives and experiences of educators can vary based on factors such as geographical location, institutional resources, and the level of technology integration. The study's sample size could be insufficient, which could affect the findings' representativeness. A greater sample size would enable more thorough analysis of the educator's viewpoint and more conclusive results. The study's findings may be influenced by the biases and subjectivity of the participating educators. Individual opinions, beliefs, and prior experiences can shape the perspectives shared during the study, potentially limiting the objectivity of the results. This limited scope may restrict a holistic understanding of the challenges, opportunities, and implications of AI integration in management education.

Despite these limitations, studying the educator's perspective regarding AI in management education can provide valuable insights into their experiences, challenges, and opportunities. It serves as a starting point for understanding the impact of AI and highlights areas that require further exploration and consideration.

CONCLUSION

The study finds that educators need continual professional development and training to navigate AI in management education. To responsibly integrate AI technology into management education, instructors, educational institutions, and AI developers must work together.

In conclusion, AI's impact on management education is profound. AI technologies offer a range of benefits and opportunities for both educators and students in the field of management education. Management education can be tailored for students using AI. AI-powered tutoring systems can provide individualized instruction and feedback to improve learning.

AI helps management educators evaluate big data sets for data-driven curriculum design, program evaluation, and industry relevance. Students can practice management skills in interactive environments using AI algorithms.

AI automates administrative processes, freeing educators to focus on high-value jobs like creating creative teaching tactics, giving individualized feedback, and mentoring students.

AI also requires ethical usage of AI technologies in management education. Students learn how to use AI ethically and responsibly by learning about AI ethics.

AI transforms management education by enabling individualized learning, intelligent tutoring, data-driven decision-making, automation, simulation, and ethical issues. AI in management education improves learning, outcomes, and preparation for AI-driven workplaces. Management educators

must modify their teaching techniques, curricula, and learning environments to stay relevant in an AI-driven world and educate students for the changing management industry.This research article sheds light on educators' views on AI's impact on management education. It provides a platform for conversations, policymaking, and strategic planning to utilize AI's potential while protecting quality education and human engagement in management learning environments. Because educators make these decisions, understanding how they see AI technologies is crucial. If educators express concerns regarding the usability, occurrence of errors, and presence of algorithmic biases, it is likely that a system that aims to be trustworthy, accurate, and fair will not succeed. It is currently unclear what the opinions of educators are towards different AIED systems, their level of understanding regarding the underlying technologies, and the extent of their faith in such systems.

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Annex 1

Summary of Emergent Themes				
Group		**Themes**	**Sub-themes**	**Exemplary quotes**
RQ1-Curriculum	Learning goal	T1-Capacity building	Cognitive capacity	The essential tool required to solve a complex problem of the future that students will face is thinking ability. As iron sharpens iron, students evolve collective intelligence with their friends so as with AI. They are learning how to address problems appropriately both to a human friend and AI, and they also need to critically evaluate solutions generated both by humans and AI. (M5)
			Social capacity	It has been hard to program machines to handle and use feelings like negotiating, resolving conflicts, and having empathy for others in the same way that humans do. Students don't just learn how to interact with AI through learning projects with their peers that involve AI. They also learn how to do things that AI won't be able to do. (M3)
			Digital capacity	Students are learning AI thinking that goes beyond what computational thinking offers. They become familiar with data process- ing and ideas behind deep learning and cognitive computing. (M2)
		T2-Subject-matter knowledge building		Students seemed not well understanding the concept of variation. But their understanding of the ideas and concepts of variation taught in the class were reinforced through the composition activity with AI like Google Doodles and AIVA. (B1)

	Content	T3-Interdisciplinary learning		Students learn about and expose to AI in informatics very few times, go to the next class and come back to the informatics class after new weeks with empty- minded of AI. A more integrated curriculum that enhances students' consistent use of AI and diversifies experiences in AI for learning. (M3)
		T4-Authentic problems and tasks		Students developed an AI model of predicting the future of Antarctica's melting glaciers after some trial and error with peers and AI. (M4)
		T5-Creative tasks		There were moments that students wondered about AI's suggestions and felt disappointed about its inability to recognize their drawing, but it was interesting to see how they were developing stories by connecting their sketch and AI's suggestion. (B5)
	Assessment	T6-Process oriented assessment		Students are not AI developers so their technical skills are not the main area of assessment. I pay more attention to how they understand and apply the content knowledge in a subject domain to solve problems as well as the process of data collection and processing. (B2)
		T7-Collaboration performance		How they helped teammate each other and performed individual roles in completing the tasks are also assessed. (B5)
RQ2-Student-AI Interaction	Cognitive interaction	T8-Teacher support for students	Instruction on AI principles	Teaching AI principles, concepts and mechanisms is important to decide what to expect from AI and what they should do with AI. (M3)
			Data literacy	The ability to contextualize and interpret data allows students to critically question AI suggestions. (M2)

			Debugging AI model and error analysis	Students improve both techniques and domain knowledge as they reflect and reason about what was wrong during SAC. (M5)
		T9-AI offering an instructional scaffolding		AI should more proactively interact with students by asking specific questions to scaffold the research process, instead of simply answering questions asked by students. (B3)
	Social interaction	T10-Teacher support for building students-AI relationship	AI ethics education	Establishing their ethical grounding is crucial in highlighting the risks of Educational efforts might be beneficial in highlighting the risks of malicious intent or adversarial data input. (M4)
			AI experiences in daily life	As they interact with the classroom AI speaker and robot vacuum cleaner, they become more aware that AI has assimilated into their everyday life than they have assumed. They then take more seriously about the challenges it posed and consider how they might make a difference to make responsible engagement with AI. (M4)
		T11- AI attributes as a learning mate	Gamification	Educational AI should make students feel interesting and fun of learning and entertaining learning process. (B3)
			Understanding of students' psychological characteristics	I let one of my students struggle with the math, with little or no success at school tests, to work with the AI math platform after the class. He didn't seem to like it since he was left alone to do extra works. But after some hours with AI, he became delighted by being told by AI that he is clever enough doing the math really well and is improving on his math scores. (B5)

	Artifact mediated interaction	T12- Intuitive interface of AI Understanding of students' psychological characteristics		A kind of AI that students mostly experience in school is an algorithm-based AI, not the physically embodied AI in a robot. They can't interact with their bodies with AI. So I think the interface serves as a bridge between students and AI. Designing an interface that helps students understand the AI task performance process would less puzzle and complicate them on the task execution process. (B2)
		T13-Availability of diverse digital tools		Can't a function of Word, PowerPoint, video-production, or many others be together? (B3)
RQ3-Environment	Learning space	T14-Flexible classroom design		Desks and chairs should be moveable first. Depending on the type of SAC-related learning activity, students may perform it individually or be engaged in group work, or even flexibly switch from one another. (M1)
		T15-Digital learning environment	1:1 device to student ratio	When a student opens their designated device, their account appears straight away and they only need to input their password to access the AI platform. This is so much easier and faster than using shared devices. (B4)
			Secured wireless network	Without Wi-Fi at school, students cannot access and store their works in the cloud-based AI platform. Students are buffered in data processing which delays the interaction and task process with AI. Also, they cannot quickly and easily share their works with peers. (M5)
			Cloud-Based Learning platform	Cloud-based learning platform that offers a wide range of learning tools and adequately collects and analyzes data generated through interactions between friends, teachers, communities, and

				technologies in learning is essential. (M2)
	Institution	T16-Systematic AIED policy	A system-wide vision and strategic priorities	The clear goals and direction of AIED need to be set so that teachers can be committed to aspired learning goals that AI can make for students. (M4)
			A master plan for curriculum design, use of AI in education management, and assessment	A sort of roadmap on what to be taught to students needs to be shared with every A sort of roadmap on what to be taught to students needs to be shared with every school. Otherwise, students who were offered AIED in a specific school can only be advantageous. (B5)
			Interdisciplinary planning and intersectional governance	The private sector needs more consideration of the pedagogical aspect of AI design rather than concentrating on the need for commercial advantage and quick profit. There is no room for collaboration among schools, industry, and academia. (B2)
		T17-Flexible school system		If the school aims to use AI to best support personalized learning, school structures and curricular approaches should allow students to have a choice in subjects and pursue areas of strength and interest to create a personalized learning path and make connections across learning with AI and human teachers.*
		T18-Teacher capacity building in AIED		Most teachers in my school do not feel comfortable designing and teaching with digital tools and AI. I think it would be a great burden if I am told to teach English one day. More training needs to be offered to teachers to know about how to utilize AI and apply it in their classes. (M5)

	Culture	T19- Culture of collaborative learning	The reason that I employed peer assessment is that I wanted students to listen actively to their peers' practice on SAC and learn from them. This needs to go the same for teachers. We need to establish a collaborative atmosphere to design the lesson with other teachers and reflect on each other's practice. (M4)
		T20-Safe to fail	We have a class rule of not blaming friends for making an error when they work on building an AI model in the group. Instead, we ask each other what you have learned from making errors and fixing errors. (M1)
RQ4-Co-evolution		T21-Learn about AI	At first, students come into the class unknown of AI. As we don't expect students who don't even know how to bounce the ballot compete in a basketball match, students need to learn from the basic concept and principle of AI and apply AI to solve the structured problems. (B4)
		T22-Learn from AI	As students gradually develop their skills to control and appropriately address the errors generated from the AI model, they are more deeply engaged in learning with AI by solving real- world problems together with AI, and also reviewing and critiquing the AI suggested outcomes. (M5)
		T23-Learn together	The entire community is connected and actively engaged in supporting students' learning via AI. (B5)
***Availability of data and material N/A"**			