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TEACHING WITH AI

A Step-by-Step Guide to Meaningful AI Integration in the Classroom

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Introduction

It's been over two years since the rise of generative AI, marked by the release of ChatGPT in November 2022. Yet, the impact of this technological shift continues to intensify rather than plateau. Just recently, OpenAI introduced ChatGPT Deep Search, a tool that promises to redefine how we conduct research. Meanwhile, China's DeepSeek, a ChatGPT competitor, entered the scene with a level of hype and controversy that signals the ever-escalating global AI arm race.

For those of us in education, these rapid advancements feel deeply personal and immediate. Our students are already engaging with these tools, and unlike past technological revolutions (e.g., the telegraph, television, or even the internet) GenAI tools are becoming mainstream within weeks, not decades. This is an unprecedented moment in history, as we witness a radical transformation in how knowledge is created, analyzed, and shared.

Within educational circles, AI has sparked heated debates. Some approach it with skepticism, fear, and uncertainty, while others see it as a gateway to boundless learning and teaching possibilities—what author Suleyman (2023) has called a "new wave" of technology.

As an advocate for thoughtful technology integration in education, I can't help but emphasize the incredible potential of AI in learning. For the first time, we have a tool that amplifies human cognition, extending our ability to analyze, create, and innovate. However, this potential is only realized when AI is used ethically, responsibly, and with clear pedagogical intent.

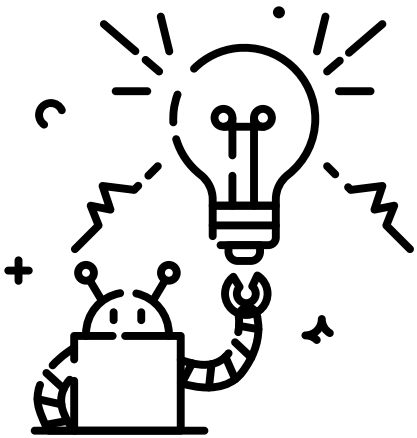
If you are a teacher or educator feeling uncertain about AI's impact on your practice, here's the reality: AI is here to stay, and it will only get better. Your role is not to resist it but to adapt, explore its potential, and guide your students in using it wisely.

To this end, I have put together this short guide to share with you some ideas on how to make the best use of AI in your instruction. I argue that we need to shift the conversation from simply using AI to integrating AI thoughtfully into our teaching practices.

There is a clear difference between technology integration and random technology use—the former is structured, intentional, and pedagogy-driven, while the latter is haphazard and often lacks educational value.

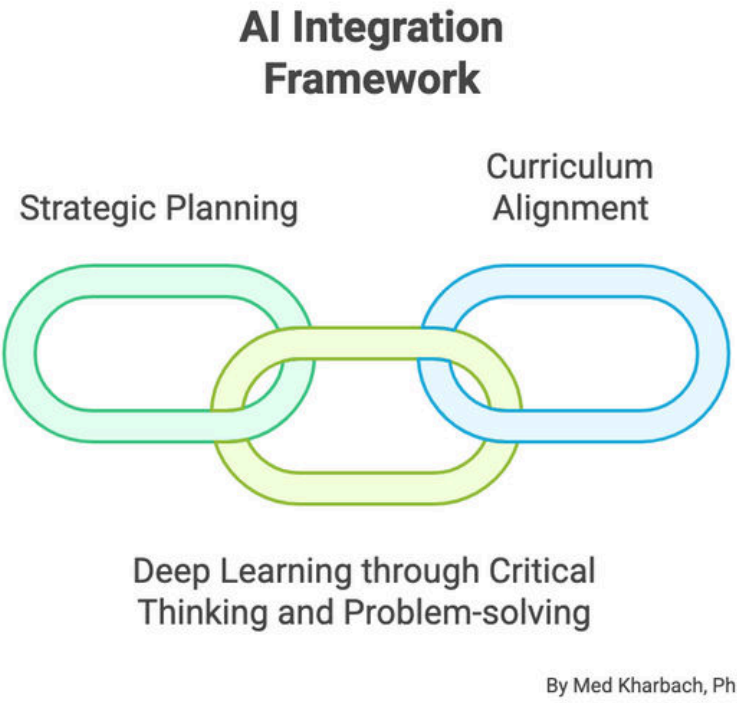
I believe AI integration is what we should be aiming for. We need to move beyond using AI as a novelty and instead embed it purposefully and meaningfully into instruction. This means adopting a well-thought-out approach that ensures AI is not just another tool in the classroom but a powerful ally in enhancing learning.

When used with intention, AI can help students develop critical thinking, personalize instruction, and foster deeper engagement with content. I argue that this shift in mindset—from random AI use to structured AI integration—is what will make all the difference in unlocking AI's true potential in education.



AI Integration Framework

A structured AI integration framework ensures that AI is used purposefully, ethically, and in alignment with educational goals. I argue that effective AI integration must be built on three key components: strategic and purposeful planning, alignment with curriculum goals, and fostering deep learning through critical thinking and problem-solving.



1. Purposeful and strategic planning

To integrate AI in your instruction, you need to make strategic, deliberate and informed decisions driven by clear pedagogical intent. This 'strategic planning' precedes the actual selection and incorporation of AI tools. At this stage, you are basically mapping out the learning objectives and evaluating how AI can support these goals and which instructional strategies to use to materialize them.

Strategic planning for AI integration in teaching involves multiple considerations, starting with a thoughtful reassessment of your role as an educator. Will AI function as a tutor, a collaborator, or a creative assistant in your classroom? How will students engage with it, and what key skills—critical thinking, problem-solving, or digital literacy—will it help develop?

Most importantly, at this stage, you should be able to clearly define the purpose behind AI's inclusion and ensure it aligns with your instructional goals.

Another key aspect of strategic and purposeful AI planning is building an AI policy for your classroom. This should be a collaborative effort where both you and your students engage in meaningful discussions about AI's role in learning. The purpose of this policy is to establish a shared understanding and provide an agreed-upon reference that outlines how AI should—and should not—be used in classroom (and beyond).

A well-crafted policy, I believe, should address various key topics including academic dishonesty, plagiarism, AI bias, AI hallucinations, inaccuracies, privacy issues, responsible AI-assisted research, critical engagement with AI-generated content, among others.

I can not stress enough the importance of taking your time to carefully craft your AI classroom policy, this is not something to rush. A well-thought-out policy ensures that AI is integrated responsibly, ethically, and effectively into the learning process.

Start by doing your homework, explore authoritative resources such as the UNESCO's AI Competency Framework for Teachers, as well as other free AI educational guidelines and best practices available online. These resources provide valuable insights into how to marry AI and pedagogy to create instructional frameworks for your teaching.

You can also use AI itself to help with planning. AI chatbots like ChatGPT-4, Claude, or Perplexity AI can help you generate ideas, refine policy wording, brainstorm clear definitions, and even create fictional classroom scenarios where AI may be beneficial or problematic.

Even better, involve your students in this process. Use these AI chatbots collectively with your class to co-develop parts of the AI policy. Invite them to experiment with various prompt iterations to generate ideas for the policy and most importantly engage them in critical evaluation of the generated ideas.

As the saying goes, you're hitting two birds with one stone—not only are you co-creating a foundational document that will guide AI use in your classroom throughout the year, but you're also providing students with a hands-on learning experience in ethical and responsible AI engagement.

Through this process, students gain practical skills in critically assessing AI-generated content, refining their prompts, and understanding when and how AI can be a valuable tool rather than a shortcut.

The purpose of involving students in co-constructing your classroom AI policy extends beyond simply being a pedagogically sound, student-centered practice—; it also fosters a sense of accountability and shared responsibility.

When students actively participate in shaping the guidelines, discussing, refining, and debating them with you, they develop a deeper understanding of AI's role and ethical implications. This involvement makes them far more likely to respect and uphold the policy because they see it as something they helped create rather than a set of imposed rules.

If you want to take it a step further, consider using tools like Canva to design a visually engaging infographic or poster highlighting the key AI policy guidelines. Display it on your classroom board as a constant reference throughout the year. Whenever a policy breach occurs, you can redirect students to the poster, using it as a starting point for discussion and reflection.

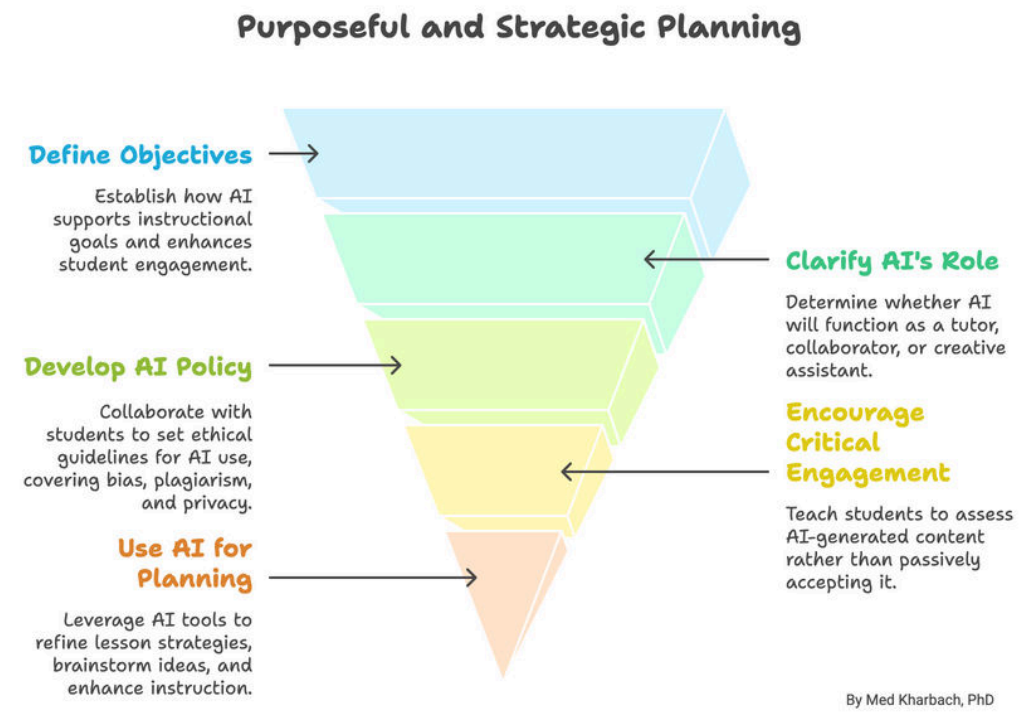
Remember, the strength of your AI policy lies in its ability to foster ongoing dialogue—it should be a living document, not a static set of rules. Encourage students to revisit and refine it as they gain more experience with AI. Given the rapid evolution of AI technology, with new tools and updates emerging almost daily, it's crucial to regularly assess and update your policy to reflect current best practices, ethical considerations, and institutional guidelines.

Here are some thoughtful questions to help guide your efforts to create an AI policy for your classroom. Some of these questions are informed by insights from Shah (2023, pp. 6-10):

- What specific purposes will AI serve in my classroom? Will it be used as a tutor, a collaborator, a research assistant, or a creative tool?
- How will AI support student learning rather than replace essential thinking and problem-solving skills?
- What types of tasks will AI be allowed to assist with, and which tasks should remain entirely student-driven?
- How can I teach students to use AI responsibly while maintaining academic integrity?
- What constitutes academic dishonesty when using AI in my classroom?
- How do we ensure that students engage critically with AI-generated content rather than accepting it at face value?
- How can I help students recognize and navigate AI biases, inaccuracies, and hallucinations?
- What data privacy concerns should I consider when students use AI tools?
- What guidelines should I establish regarding the input of personal or sensitive information into AI systems?

- Should students be allowed to create accounts on AI platforms, or should we use school-approved tools with appropriate privacy protections?
- How can I teach students to cite AI-generated content properly and acknowledge when AI has assisted in their work?
- What boundaries should be set for AI-generated creative work, such as essays, images, or coding projects?
- How can I involve students in shaping and refining our classroom AI policy?
- How often should we revisit and update our AI policy as new tools and ethical considerations emerge?
- How can I create an open dialogue where students feel comfortable discussing their experiences, challenges, and ethical concerns related to AI?
- How will I communicate the AI policy to students and ensure they understand it?
- What consequences will be in place for students who misuse AI, such as plagiarism or unethical use?
- How can I encourage students to self-regulate their AI use and report any concerns about its misuse in the classroom?

Summary of Purposeful and Strategic Planning



2. Alignment with Curriculum Goals

Building on the strategic planning phase where we established a clear AI framework and laid the foundation for critical AI literacy through a collaboratively developed classroom AI policy, we now turn to the practical implementation.

The first and most essential step in this process is ensuring that AI integration aligns seamlessly with curriculum goals and actively supports existing learning objectives.

When I talk about aligning AI with curriculum goals, I'm referring to the various ways AI can enhance learning outcomes, strengthen instructional strategies, and provide scaffolding and personalization.

This is an investigative process that requires a deep analysis of your curriculum objectives to determine where AI can provide real educational value. However, making this assessment is only possible if you have a solid understanding of the AI tools available and what they offer.

This means familiarizing yourself with different AI tools—their capabilities, limitations, and how they align with pedagogical needs. But that doesn't mean you have to navigate this alone. Blogs like this one do the heavy lifting for you, reviewing and curating the most effective educational AI tools so you can make informed decisions without spending hours researching.

For instance, in this document, I've compiled over 100 AI tools that are particularly valuable for educators. With access to these resources and a clear focus on your curriculum goals, you can strategically select AI tools that best support your instruction, enhance learning outcomes, and enrich your teaching practices.

To make your selection structured and informed by clear decision-making, here are some key questions to guide your process:

- Does this AI tool directly support my learning objectives? Is it reinforcing key concepts, skills, or competencies outlined in the curriculum?
- How does this AI tool enhance my existing instructional strategies? Does it complement methods like inquiry-based learning, project-based learning, or differentiated instruction?
- Does this tool allow for meaningful student engagement? Is it promoting deeper understanding, or is it just automating tasks without cognitive engagement?
- How does AI support differentiation and scaffolding? Can the tool adapt to different learning paces, needs, and styles?
- Is this AI tool compliant with my school's privacy policies and data protection regulations?
- Does this tool require students to create accounts, and if so, what data is being collected?
- Is this AI tool approved by my school or district, or do I need to seek permission before using it in my classroom?
- Does this tool align with accessibility standards to support all learners, including those with disabilities?

- Can I control or customize the AI tool's settings to ensure appropriate content and safe interactions for students?
- How transparent is the AI tool about its data sources, biases, and potential limitations?
- Does this tool allow students to develop critical thinking skills, or does it simply provide ready-made answers?
- How does this AI tool fit into my overall teaching approach without creating unnecessary dependency among students?

The point at this stage is to build on the strategic planning from the previous phase and further enrich the initial AI framework you created. This involves moving beyond broad conceptual planning into practical implementation—but not just in terms of logistics and functionality.

More importantly, this phase is about ensuring the meaningfulness of AI integration in the learning process. It's not just about how AI works or which tools are available, but rather why and to what extent these tools contribute to deeper learning, engagement, and instructional effectiveness.

Summary of ‘Alignment with Curriculum Goals’

- **Ensure AI supports learning objectives:** Choose AI tools that reinforce key curriculum concepts and competencies.
- **Align AI with instructional strategies:** Integrate AI into teaching methods like inquiry-based and project-based learning.
- **Enhance differentiation and scaffolding:** Use AI to personalize learning experiences and accommodate diverse student needs.
- **Evaluate AI tool suitability:** Assess AI capabilities, limitations, and ethical implications before classroom implementation.
- **Ensure compliance and accessibility:** Verify that AI tools meet school privacy policies and support all learners, including those with disabilities.
- **Promote critical engagement:** Encourage students to analyze AI-generated content rather than passively accepting it.
- **Regularly assess AI integration:** Continuously refine AI use in instruction to maximize its educational value.

3. Fostering Deep Learning through Critical Thinking and Problem-solving

AI in education is a subject of ongoing debate. I have been recently reading contradicting papers on it. While some argue that it dulls student creativity and critical thinking (e.g., Almazrou et al., 2024; Deng et al., 2025; Essien et al., 2024; Li et al., 2024; Walter, 2024), others see it as a powerful enhancer of cognitive skills (e.g., Gerlich, 2025; Stadler et al., 2024; Garcia Castro et al., 2024; Zhai et al., 2024). Regardless of where you stand in this debate, one fact remains: AI is here to stay, and it will only get better.

What truly matters is how we choose to engage with it in the classroom. AI, like any technology, is just a tool—but a powerful one—and its impact depends entirely on how we use it. To ensure optimized and purposeful integration, we must, as I emphasized earlier, align AI with our curriculum goals and use it to enhance student outcomes.

This is a solid foundation, but it primarily reflects our perspective as teachers. The real challenge begins when we put these tools in students' hands—that's when we need to shift from theoretical conceptualization to practical application, considering how AI can actively shape students' learning experiences.

At this stage, the focus must go beyond subject-specific learning—it's not just about using AI to teach math, science, or literature more efficiently. The real question is: how can AI help students develop the "Swiss Army knife" skills of learning: critical thinking and problem-solving? These are cross-disciplinary, foundational skills that transcend subject areas and serve as the bedrock of lifelong learning.

As educators, our role is to design activities, strategies, and instructional methods that ensure students engage with AI in ways that actively develop these skills. There is no AI tool that inherently builds deep learning or critical thinking, these are not fixed properties of a tool but rather a result of how students interact with it.

This is a crucial distinction often overlooked in online discussions, where AI tools are sometimes mislabeled as "critical thinking enhancers" or "problem-solving boosters" by default. The truth is, it’s not about the tool itself, but how we structure its use, that’s what makes all the difference.

What we want to do here is to teach our students how to use AI tools as cognitive partners, fostering a form of co-intelligence (Mollick, 2024). This means guiding them not just to use AI, but to "think with AI" (Bowen & Watson, 2023).

Thinking with AI requires students to play an active learning part: to engage critically, ask the right questions, challenge AI-generated outputs, and refine their ideas as they interact with the tool. The best way to achieve this is by modelling it to them, show them how AI can be used as a collaborator rather than a passive information source.

Here is an example of how you can do that! Let's say students have an assignment to write an essay on climate change. Instead of simply entering a prompt and letting an AI chatbot generate the entire essay, we can teach them how to scaffold the writing process thoughtfully.

We can do this by showing them how to break the task into structured steps tackling each step at a time.
First, they can generate an outline of key ideas using AI using a prompt such as:

"I am a grade 11 student working on an essay about climate change. I need help generating a structured outline that includes key arguments, supporting evidence, and counterarguments. Please suggest an outline with clear sections and bullet points for each main idea."

Next, ask students to carefully review, refine, and expand on the generated ideas. They can add their own insights and edits, ensuring the outline reflects their understanding and research.

Once revised, they can submit the edited outline back to AI for feedback using a prompt such as:

"I have refined my outline for an essay on climate change. Please review it and provide feedback on its structure, clarity, and strength of arguments. Suggest any improvements or areas where I can add more depth."

At this stage, encourage them to discuss the AI's feedback with their peers, debating its strengths and weaknesses before deciding on the next steps. From there, they begin developing the essay one section at a time, each time AI generates a suggestion, students should pause and critically evaluate it, asking key questions such as:

- Does this argument have strong supporting evidence?
- Is the reasoning logically sound and free from bias?
- How does this align with what we've learned in class or researched independently?
- Can I improve or challenge this perspective with my own insights?

Encourage students to use multiple online sources to fact-check arguments, strengthen their reasoning, and engage with diverse perspectives. Guide them to cross-reference information, cite credible sources, and critically analyze differing viewpoints. It is through this iterative process that we can ensure that AI use can deepen students understanding and help them cultivate critical thinking and problem-solving skills.

Yes, they are still using AI but not as a replacement of their thinking but rather an extension, and amplifier. The fact that they actively question, refine, evaluate and expand on ideas allow students to move beyond surface-level engagement and develop a more analytical and evidence-based approach to learning.

Let me conclude with this real-life example of how a teacher used AI to foster deep thinking and creative exploration in an AI theory class. Instead of having students rely on AI for direct answers, the teacher encouraged 'possibility thinking', guiding them to engage in dialogues with AI that refined their ideas and expanded their creative boundaries.

One student spent an hour exploring world-building by discussing with AI how physical spaces shape narratives, rather than simply asking for story ideas. With each exchange, as the teacher observes, both the student's questions and AI's responses grew more nuanced, leading to deeper insights.

What is even more important (at least to me) is that in workshop sessions, students got to shared not just their writing but their 'exploratory processes', highlighting how AI was shaping the way they approached creativity and problem-solving.

Summary of ‘Fostering Deep Learning through Critical Thinking and Problem-solving’

- The impact of AI on critical thinking is widely debated, with some arguing it dulls creativity while others see it as a tool to enhance cognitive skills.
- AI should function as a cognitive partner, helping students engage critically rather than serving as a shortcut to ready-made answers.
- Educators must design structured activities where students actively question, refine, and expand AI-generated content to develop deep learning skills.
- Encouraging scaffolded learning processes, such as generating AI-assisted outlines, reviewing feedback, and refining arguments, helps strengthen analytical reasoning.
- AI should be used to amplify student thinking, promoting problem-solving, creativity, and deeper engagement with complex topics rather than replacing independent thought.

Conclusion

I believe the key to successful AI integration lies in intentionality and pedagogy-driven implementation. AI should not be a gimmick or a shortcut but a cognitive partner that enhances learning, fosters critical thinking, and supports deeper engagement.

As I explained above, AI can become an asset that empowers both teachers and students rather than a replacement of human intelligence. This can be done through strategic planning, alignment with curriculum goals, and interactive student engagement.

And let me re-iterate it: AI is the 'new normal'; it is an active force reshaping the way we teach and learn. Unfortunately, as educators we need to make a choice, we cannot just stay neutral and hope things will take its usual course. This time, we need to either resist the change and risk being left behind or embrace it thoughtfully and make sure AI plays a meaningful and effective role in our instruction. I have made my choice, have you made yours?

References

- Almazrou, S., et al. (2024). Enhancing medical students' critical thinking skills through ChatGPT: An empirical study with medical students. Nutrition and Health, Advance online publication. https://doi.org/10.1177/02601060241273627
- Bowen, A. J. & watson, C. E. (2024). Teaching with AI: A Practical Guide to a New Era of Human Learning. Johns Hopkins University Press.
- Deng, R., Jiang, M., Yu, X., Lu, Y., & Liu, S. (2025). Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies. Computers & Education, 227, 105224.
- Essien, E., et al. (2024). The influence of AI text generators on critical thinking skills in UK business schools. Studies in Higher Education, 49(5), 865-882. https://doi.org/10.1080/03075079.2024.2316881
- Garcia Castro, M., et al. (2024). Exploration of ChatGPT in basic education: Advantages, disadvantages, and its impact on school tasks. Contemporary Educational Technology, 16(3), Article ep511. https://doi.org/10.30935/cedtech/14615
- Gerlich, M. (2025). AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking. Societies, 15, 6,

- Li, X., et al. (2024). Expert or machine? Comparing the effect of pairing student teachers with in-service teachers and ChatGPT on their critical thinking, learning performance, and cognitive load in an integrated-STEM course. Asia Pacific Journal of Education, 44(1), 45-60. https://doi.org/10.1080/02188791.2024.2305163
- Mollick, E. (2024). Co-Intelligence: Living and working with AI. Portfolio (Penguin Random House).
- Stadler, M., et al. (2024). Cognitive ease at a cost: LLMs reduce mental effort but compromise depth in student scientific inquiry. Computers in Human Behavior, 160, Article 108386. https://doi.org/10.1016/j.chb.2024.108386
- Shah, P. (2023). AI and the future of education. John Wiley & Sons.
- Suleyman, M. (2023). The Coming Wave: Technology, Power, and the Twenty-first Century's Greatest Dilemma. Crown
- Walter, P. (2024). Embracing the future of artificial intelligence in the classroom: The relevance of AI literacy, prompt engineering, and critical thinking in modern education. International Journal of Educational Technology in Higher Education, 21(1), 15. https://doi.org/10.1186/s41239-024-00448-3
- Zhai, X., et al. (2024). Can generative AI and ChatGPT outperform humans on cognitive-demanding problem-solving tasks in science? Science & Education, Advance online publication. https://doi.org/10.1007/s11191-024-00496-1

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Med Kharbach, PhD, is the editor of www.educatorstechnology.com. A seasoned educator with over 13 years of classroom experience, Med earned his doctorate in Educational Studies from Mount Saint Vincent University in Halifax, Canada. His scholarly work includes numerous publications in prestigious peer-reviewed journals, alongside co-authoring several impactful book chapters. Med's latest work is a book titled ChaGPT for Teachers: Mastering the Skill of Crafting Effective Prompts. Currently, Med's research is passionately focused on exploring the integration and implications of AI in education. Med is currently working on a book on the use of AI in academic research.

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