

## Book review: Learning with AI

This book is described as 'the comprehensive K-12 teacher's guide to a new era of human learning'. The author, Joan Monahan Watson (2024) asked Claude, Anthropic's generative AI service, to create a jingle that teachers could use to incorporate AI literacy in their elementary classrooms. Her idea was that children would learn how to interact with the AI as if it were a 'class pet'. They would learn how to be polite, to be clear about the questions that they ask, and to ask the question in another way if they didn't get the information they were looking for. This is Claude's creation, sung to the tune of 'Twinkle, Twinkle, Little Star':

AI helper shining bright  
How to ask you questions, right?  
Speak politely, clear and true  
Tell me what you'd like to do  
If confused just ask again  
AI's here, your learning friend.

Her book is largely concerned with text generation like this but the issues she raises—from school plagiarism policy to how to design assignments that cannot be satisfied by a simple AI prompt—have a wider application. She gives 40 prompts to illustrate her approach but omits the responses to make the book 296 pages long. Her approach can be readily extended to projects in science, problem-solving in mathematics and creating art works. She argues that AI needs to be integrated across the curriculum.

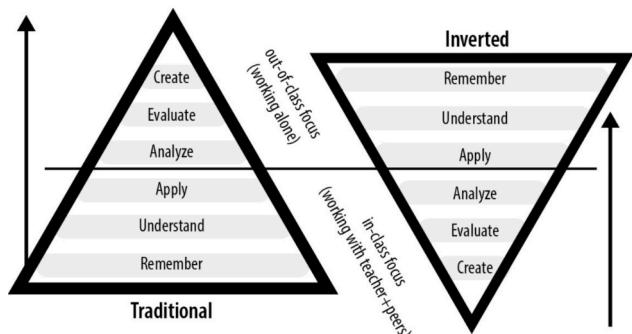
There are three sections: The New Context of AI, Teaching with AI and Learning with AI.

Following an introductory account of AI technology, she cites a 2024 study that found 70% of 1300 college-bound high school seniors have used generative AI tools because they are afraid that other students will have competitive advantage in applying for financial aid, careers

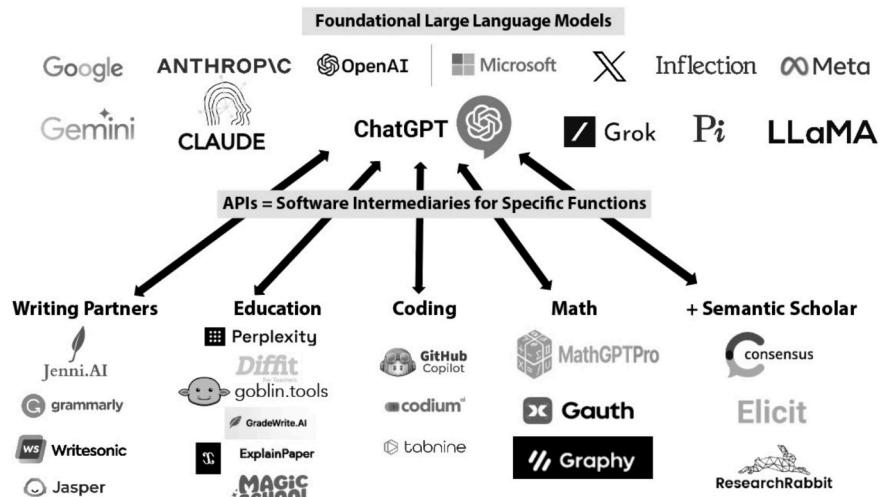
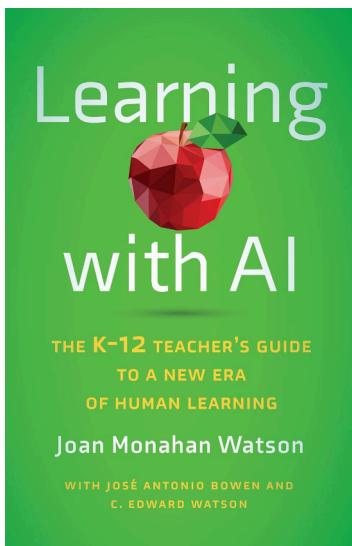
and entry to college. She speculates that 'collaboration with AI will change the nature of human thinking' and notes that educational technology companies see education as a potential market. The market is already becoming crowded with offerings such as Wolfram Alpha, Oak Academy AILA, LearnLM, ChatGPT Edu, Magic School, School AI, Grammarly, Khanmigo, My Essay Feedback and Brisk (Figure 1).

In the 'Teaching with AI' section, she suggests avoiding teacher burnout by delegating administrative and feedback activities to AI. She speculates that as AI makes innovation easier it will change the value of other types of human thinking because even the least creative person will be able to access many ideas. Refining and editing will become more important, and that may shift the skills we used to associate with 'creativity'. In 'flipped' lessons she proposes to shift Bloom's 'remember, understand and apply' activities so they take place outside the classroom (Figure 2). This means class time can be used for analysing, evaluating and creating. She goes on to discuss school policies for AI literacy, AI detection and dishonesty in detail.

The final section on 'Learning with AI' describes a framework for extracting and assigning value to human effort. This includes feedback and role play with AI. The book has a comprehensive bibliography.



**Figure 2.** Revised and inverted models of Bloom's taxonomy for teaching, learning, and assessment (from Chapter 7).



**Figure 1.** The top line shows different Foundational LLMs with some of the software apps that interface with them through APIs (from Chapter 1).

The educational implications of AI go beyond those presented in this book. Michael Caspersen (2022) remarked that the growing transfer of judgment from human beings to machines is a revolutionary aspect of informatics. For societies to maintain or regain democratic control and supremacy over digital technology, informatics should be a distinct subject in general education: it has dual perspectives on both the possibilities and the implications of computing for individuals and society.

Mathematics shares a common logical foundation with informatics. It can provide a micro-world in which techniques of analysis and rigorous thinking can be practiced and enhanced.

At a recent faculty meeting at Stanford, professor Dan Edelstein said that concentrating on the increased risk of cheating ignores ‘a real reckoning with the existential challenge AI presents to a liberal education.’ (Robinson-Shah, 2025). He noted that AI is disrupting the ability to write well and, therefore, think and speak critically. Political science professor Alison McQueen highlighted students’ worries about AI and its effect on their education, saying that ‘some of them do worry that they’re getting dumber.’

The author did not follow the advice of the developers of AI systems (Gabriel et al, 2024) in creating her AI class pet: ‘exercise caution when integrating anthropomorphic features

into AI assistant user interfaces. ...AI assistants are not people.’

The transition to a new way of working should be co-designed with teachers in a gradual transition to a new model. This will be characterised by a teacher taking the attitude of a life learner, learning alongside and from their learners. In mathematics, this process can go in parallel with the inclusion of future teachers in the work of mathematics circles and pilot schools, where such a model is already being implemented.

## References

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