

AI in Education Reading List

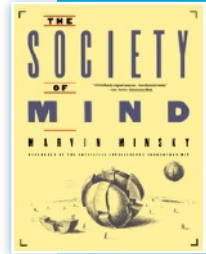
From the whitepaper, [Game-Changing AI Tools for Education](#) by Gary S. Stager, Ph.D.

Educators, or anyone else interested in understanding what artificial intelligence may contribute to learning, education, and society, would be well-advised to read the following books.

***Society of Mind* by Marvin Minsky**

[Society of Mind](#) by Marvin Minsky offers an intricate exploration of the human mind and its complexities. The book presents the idea that the mind is not a singular entity but a vast network of agents working in harmony, each with simple operations, culminating in what we understand as consciousness or intelligence.

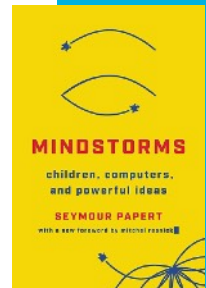
Minsky delves deep into how these elemental processes combine and interact to produce emotions, thought patterns, and the spectrum of human cognition. Through a blend of philosophy, cognitive science, and artificial intelligence theories, the book challenges conventional perceptions and provides a multi-faceted view of the enigmatic processes that constitute the human psyche.



***Mindstorms: Children, Computers, and Powerful Ideas* by Seymour Papert**

[Mindstorms: Children, Computers, and Powerful Ideas](#) by Seymour Papert is a groundbreaking work that delves into the world of education, proposing innovative ways to rethink learning in the digital age. Papert, a pioneer in artificial intelligence and the co-inventor of the Logo programming language, posits that computers can be powerful tools in nurturing a child's natural ability to learn and think creatively. He champions the idea that, when used correctly, technology can transform education from a rigid, traditional system to a more dynamic and interactive one where students actively engage and build knowledge.

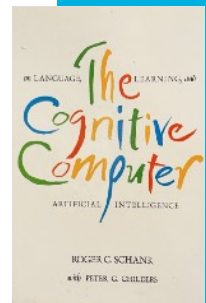
Through the lens of constructionism, Papert argues that children can become the architects of their own learning journeys, reshaping the educational landscape for generations to come. Those seeking a humane vision for what artificial intelligence could mean for learners would be well-advised to read Chapter 7, “Logo’s Roots: Piaget and AI.”



***The Cognitive Computer: On Language, Learning, and Artificial Intelligence* by Roger Schank**

[The Cognitive Computer: On Language, Learning, and Artificial Intelligence](#) by Roger Schank presents an ambitious vision of computers that can understand and exhibit human-like thinking. Schank, an influential figure in cognitive science and artificial intelligence, asserts that for machines to truly emulate human cognitive functions, they must be designed to perform tasks not just through pre-programmed instructions, but by experiencing and understanding the world as humans do.

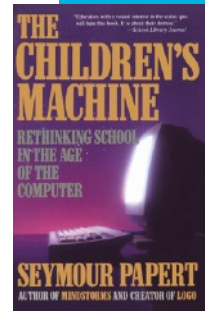
Drawing upon his expertise in story-based reasoning, the book delves deep into how a machine can learn from stories, making connections, and generating insights. Schank argues that the future of computing lies in creating machines that think by doing, learning from their environment, and continuously evolving — much like the human mind.



***The Children's Machine: Rethinking School in the Age of the Computer* by Seymour Papert**

[*The Children's Machine: Rethinking School in the Age of the Computer*](#) by Seymour Papert is a continuation of his transformative thoughts on education in the digital age. Building on ideas from his previous work *Mindstorms*, Papert emphasizes the potential of computers as powerful tools to revolutionize the learning process for children. He argues that, instead of viewing computers merely as devices to replicate traditional teaching methods, educators should harness their capabilities to foster a more dynamic, explorative, and student-centered approach to learning.

Through a blend of poignant anecdotes, case studies, and theoretical discourse, Papert advocates for an educational landscape where children are active constructors of knowledge, empowered by the digital tools at their disposal.



***Being Digital* by Nicholas Negroponte**

"[*Being Digital*](#)" by Nicholas Negroponte is a prophetic examination of the transformational power of the digital age. Published in 1995, the book provides a forward-looking analysis of the shift from a world dominated by atoms to one defined by bits. Negroponte, drawing from his experiences at the MIT Media Lab, delves into the profound changes that digital technology brings to communication, entertainment, and work.

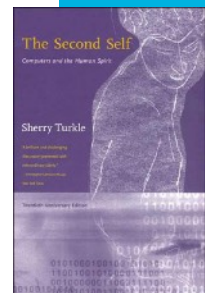
He envisions a future where the boundary between the physical and digital realms blur, resulting in novel human-computer interactions and a revolution in how we consume media and information. "Being Digital" is a seminal work that captures the essence of the burgeoning digital era, laying the groundwork for many of the technological advancements we witness today. It remains a must-read text.



***The Second Self: Computers and the Human Spirit* by Sherry Turkle**

[*The Second Self: Computers and the Human Spirit*](#) by Sherry Turkle delves into the complex relationship between humans and computers, examining how digital technology affects our perceptions of self and society. Drawing from extensive interviews and research, Turkle explores the psychological and sociological impacts of computer interactions, revealing how they shape our identities, relationships, and understanding of the world.

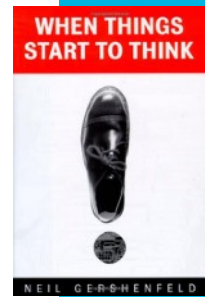
Published in the early days of personal computing, the book was one of the first to address the profound philosophical and emotional ramifications of our growing digital lives. Turkle's insights highlight the dual nature of computers as both tools and mirrors, offering a nuanced view of technology's role in human evolution and self-reflection.



***When Things Start to Think* by Neil Gershenfeld**

[*When Things Start to Think*](#) by Neil Gershenfeld is a captivating exploration of the merging boundaries between the digital and physical realms. Gershenfeld, from his vantage point at MIT's Media Lab, provides a compelling narrative on the future of computing, where the distinction between consumer electronics, personal computers, and our everyday items blur into a seamless fabric of interconnected intelligence. The book delves into a future where shoes can communicate with pavements, books have the capability to feel and respond, and even our clothes have computational power.

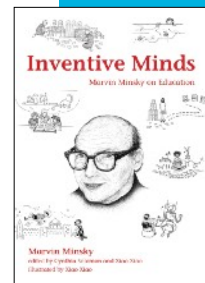
Gershenfeld's vision challenges the reader to reimagine a world not just of smart devices but of an integrated digital ecosystem, elucidating the transformative potential of truly embedding intelligence in our everyday objects.



***Inventive Minds: Marvin Minsky on Education* edited by Cynthia Solomon and Xiao Xiao**

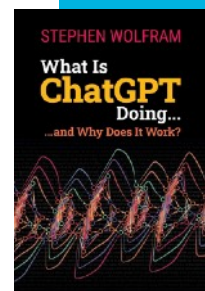
[*Inventive Minds: Marvin Minsky on Education*](#) is a curated collection of essays by Marvin Minsky, one of the foundational figures in artificial intelligence and cognitive science. Edited by Cynthia Solomon and Xiao Xiao, this anthology delves into Minsky's profound thoughts on education and learning. This collection showcases Minsky's vast range of expertise and his multidimensional approach to understanding intelligence, both human and artificial. Through these essays, Minsky challenges traditional pedagogical methods and presents visionary insights into how education can be transformed to cultivate creativity, critical thinking, and true understanding.

Touching upon topics from problem-solving to the potential of technology in the classroom, the book serves as a testament to Minsky's belief in the limitless potential of the human mind and the essential role of education in unlocking it. (I contributed an essay to the book.)



***What Is ChatGPT Doing ... and Why Does It Work?* by Stephen Wolfram**

[*What Is ChatGPT Doing ... and Why Does It Work?*](#) by Stephen Wolfram is a short, but compelling book by one of the world's leading mathematicians and experts on artificial intelligence describing how generative AI work. This new book makes an essential contribution to anyone's understanding of software like ChatGPT.



Additional Resources

Evenson, L. (1997). [SUNDAY INTERVIEW -- Seymour Papert / Computers In the Lives of Our Children / An MIT mathematician and philosopher is exploring how technology can educate the next generation -- and their parents.](#) *San Francisco Chronicle*.

Goldenberg, E. P., & Feurzeig, W. (1987). *Exploring language with Logo*. Mit Press.

Papert, S. (1991). Perestroika and Epistemological Politics. In I. Harel & S. Papert (Eds.), *Constructionism* (pp. 13-28). Ablex Publishing Corporation. (transcript online at <https://dailypapert.com/perestroika-and-epistemological-politics/>)

Papert, S. (2000). Papert talks about middle school mathematics education. <https://vimeo.com/101596910>

Papert, S. (2006). [Seymour Papert Keynote Lecture at ICMI 17 Conference in Hanoi, Viet Nam.](#)

Resnick, M. (1993). [Logo Overnight.](#) https://el.media.mit.edu/logo-foundation/resources/papers/pdf/logo_overnight.pdf

Wolfram, S. (2016a). [How to Teach Computational Thinking.](#) *Stephen Wolfram Blog.* <https://writings.stephenwolfram.com/2016/09/how-to-teach-computational-thinking/>

Wolfram, S. (2017). [What Is a Computational Essay?](#) *Stephen Wolfram Blog.* <https://writings.stephenwolfram.com/2017/11/what-is-a-computational-essay/>

Wolfram, S. (2023a). [ChatGPT Gets Its “Wolfram Superpowers”!](#) *Stephen Wolfram Blog.* <https://writings.stephenwolfram.com/2023/03/chatgpt-gets-its-wolfram-superpowers/>

Wolfram, S. (2023b). [Instant Plugins for ChatGPT: Introducing the Wolfram ChatGPT Plugin Kit.](#) *Stephen Wolfram Blog.* <https://writings.stephenwolfram.com/2023/04/instant-plugins-for-chatgpt-introducing-the-wolfram-chatgpt-plugin-kit/>

Summer Professional Development for Educators

This summer, join educators from around the world for the 15th annual **Constructing Modern Knowledge Summer Institute**, July 9-12, 2024 in Manchester, New Hampshire.

CMK is a minds-on institute for educators committed to creativity, collaboration and computing. Participants have the opportunity to engage in intensive computer-rich project development with peers and a world-class faculty. Inspirational guest speakers and social events round out the fantastic event.

Don't miss out! [Find out more at constructingmodernknowledge.com](https://constructingmodernknowledge.com)