Review of: *Should robots replace teachers?*

FASIKA MELESE

doi: 10.22488/okstate.25.100635

In an era of rapid educational automation and expanding artificial intelligence (AI) tools, Neil Selwyn's (2019) *Should Robots Replace Teachers?* offers a timely, critical analysis of AI and robotics in education. This review highlights the book's core arguments, examples, and relevance for teachers, researchers, and policymakers navigating the AI age. By adopting a socio-technical perspective, Selwyn provides a critique of how education, a strongly human endeavor, is being reshaped by technology. Selwyn's insights prompt educators, technologists, and policymakers to consider how AI might complement rather than replace human teachers.

This book, based on several examples of applications of AI and robotics in different parts of the world, gives a solid grasp of the extent to which teaching as a profession is impacted by AI technologies. The book is organized into five chapters in total: AI, robotics and the automation of teaching, physical robots in the classroom, intelligent tutoring and pedagogical assistants, 'behind the scenes' technologies, and revitalizing teaching for the AI age. Selwyn does not outright reject AI in education, but urges us to be cautious, ask questions, and to integrate it in a context-aware way, complementing rather than replacing human teachers. Some sections may feel overly skeptical, such as those about synthetic experiences, which might underestimate the evolving nuances of human-computer interaction. However, the book's call to rethink what kind of education we want in the AI age is a necessary provocation.

In the first chapter, Selwyn starts the book by discussing how modern work environments are being conquered by robotics, AI, and automated systems, replacing humans in several fields. However, in the context of education, there seems to be a consensus that humans are at the center of the teaching profession, as learning is believed to be a social process. But recent developments in the field of AI, and robotics makes us reconsider this. Selwyn critiques biases in AI systems and raises critical questions about the nature of "good teaching" and whether its complexities can ever be fully replicated by machines. He also explores the socio-technical dimensions of AI, cautioning against techno-solutionism and the corporate push to reform education.

In the second chapter, Selwyn explores the role of physical robots in classrooms, noticing their origins in the 1950s and 60s, and their limited, task specific use today, such as language tutoring and companionship. While some European studies have demonstrated that students generally have positive attitudes towards robots, they prefer them as classroom aids rather than teacher replacements. However, in the age where schools are having issues with proper management of classroom technologies such as

laptops, robots require major skill development for school administrators and classroom teachers. Another challenge is the robot ethics in education being less clear and subtle when compared with other fields such as the military. While robotics in the military is applied into specific tasks such as targeting a specific enemy point, in robotics for classrooms there is the issue of privacy of students, and the issue of emotional bond between students and robots. The cultural, political, and social context also shapes the adoption of robots, as seen in Japan's focus on robotics research driven by labor shortages and cultural values. Selwyn concludes the chapter that while humanoid robots may not replace teachers, task-specific automation and AI systems that are like Alexa or Google Home are more practical for classroom use.

In the third chapter, Selwyn identifies intelligent tutoring systems as sophisticated software that guides students along pre-modeled learning pathways. These systems often feature pedagogical agents (Schroeder et al., 2013), which are on-screen characters that facilitate instruction. Grounded in cognitivist learning theories, such systems compare students' performance with expert models to identify and address deviations. The roots of intelligent tutors trace back to the 1960s' computer-aided instruction, which aimed to mimic human-like interaction. Selwyn references American philosopher Patrick Suppes, who in 1984 predicted the emergence of AI-driven systems capable of Socratic dialogue—a vision that may be becoming realized today with tools like ChatGPT (OpenAI, 2024) that was created 3 years after the release of this book. Selwyn (2019) also notes some examples of pedagogical agents' developments in the 2000s and 2010s, such as AutoTutor, Steve (Soar Training Expert for Virtual Environments), Coach Mike, Herman, and Ada & Grace. He mentions that these systems provide "safe learning spaces," tirelessly supporting students while freeing teachers to focus on individual needs. However, he critiques the "synthetic experience" of such interactions, emphasizing that human teachers offer emotional and cognitive connections unmatched by machines.

In the fourth chapter, Selwyn shifts focus to the "behind-the-scenes" systems that complement or replace teaching-related tasks. These include personalized learning platforms, learning analytics, and automated grading tools. Personalized learning systems such as Knewton and China's YiXue Corporation use adaptive learning algorithms to guide students through customized educational pathways. Learning analytics are data-driven tools that analyze attendance, feedback, and other metrics to optimize classroom performance. Automated grading AI systems like Pearson's robo-grading evaluate written responses for mass standardized tests. Selwyn warns

against the potential for these technologies to “teacher proofing” classrooms by marginalizing teachers’ decision-making roles. He emphasizes the importance of scrutinizing the values, assumptions, and biases embedded in AI-driven educational tools. Selwyn also raises concerns about the “individualization” trend driven by AI technologies. While personalized learning promises tailored instruction, it risks exacerbating inequalities by privileging self-motivated and resourceful students. He questions how education, a fundamentally social endeavor, can balance individual learning pathways with broader societal goals. He critiques the fragmentation and routinization of teachers’ work due to digital mechanization. He warns that automation could marginalize experienced or unionized educators, perpetuating inequities in the teaching profession.

In the fifth and final chapter, Selwyn concludes by affirming the irreplaceable value of human teachers. While AI excels at recognizing patterns, providing scalable instruction, and performing repetitive tasks, it falls short in key areas such as emotional bonding with students, improvisation in teaching, and social and cognitive connections that foster holistic learning. He emphasizes that AI should be viewed as a double-edged sword, offering opportunities to renegotiate education while posing risks of over-reliance and inequity. Although he calls for critical, interdisciplinary engagement to shape AI technologies that serve humanity’s educational aspirations, Selwyn falls short of offering actionable strategies that educators could use in actual classrooms today. I believe examples of successful AI integrations in classrooms that align with his socio-technical lens could benefit readers such as educators, education policy makers, and educational technology designers

Though the book includes cases in various countries, it tends to center largely on Western contexts. Expanding on how AI and robotics are being navigated, implemented or resisted in other contexts, especially those in under-resourced education systems, could make the book’s arguments more relevant. Overall, the field of teaching and curriculum benefits from the addition of Neil Selwyn’s *Should Robots Replace Teachers?* book as an essential contribution to debates on AI in education. The book balances optimism with caution, challenging techno-utopian narratives while centering the social, political and ethical complexities of teaching in the digital age. His critical perspective underscores the importance of human teachers and the need to prioritize education’s social and ethical dimensions in the age of AI.

References

OpenAI. (2024). *ChatGPT* (Dec 15 version) [Large language model]. https://chat.openai.com/chat

Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. John Wiley & Sons.

Schroeder, N. L., Adesope, O. O., & Gilbert, R. B. (2013). How effective are pedagogical agents for learning? A meta-analytic review. *Journal of Educational Computing Research*, *49*(1), 1–39. https://doi.org/10.2190/EC.49.1.a