

Chapter 10

Assessing Higher-Order and Critical Skills in the Era of Artificial Intelligence

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ABSTRACT

The rapid development of artificial intelligence has brought about significant changes in the workplace and society, with many tasks being automated and outsourced to AI. As a result, there is a growing need for individuals to develop higher-order and critical thinking skills that cannot be easily replicated by AI. This abstract proposes a study to assess the development and assessment of higher-order and critical thinking skills in the context of AI-enhanced learning environments. The chapter aims to examine the effectiveness of various AI-based educational tools and methodologies in fostering the development of complex cognitive abilities, including problem-solving, critical analysis, and decision-making, and provides insights into how they can be assessed in educational and work settings. It further explores the potential implications of AI on the traditional assessment of higher-order skills and discusses the challenges and opportunities that arise from the integration of AI in educational settings.

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INTRODUCTION

Integrating AI in the workplace has transformed job roles and skill requirements, emphasizing adaptability, problem-solving, and critical thinking. Higher-order and critical thinking skills are crucial for decision-making and innovation in an increasingly AI-driven world. Traditional assessment methods are now complemented by AI-driven approaches, enhancing personalized and adaptive evaluations. AI-enhanced learning environments foster cognitive skills development. Various AI tools can assist in assessing higher-order thinking skills. Educators play a key role in promoting these skills along with purely humanistic skills like empathy and contextual problem solving which cannot be easily taught using AI. AI-human collaboration offers opportunities for critical thinking development, continuous learning, and novel problem-solving competencies. Educational institutions and workplaces must adapt to these changes, balancing technical and human-centered skills for future success.

The Rise of Artificial Intelligence and the Shift in Workplace Skills

The rapid advancement of AI technologies in recent years has significantly changed the job market and the skills in the highest demand. As AI systems have become increasingly capable of automating a wide range of mundane and routine, repetitive tasks, and some aspects of data analysis, the emphasis on these job skills has diminished, while the demand for new, AI-complementary skills has grown. In education, chatbots like the chat generative pre-trained transformer (ChatGPT) can simulate natural human conversations, regulate language processing and its generation, and go beyond working with the given information to generating new data. Thus educators' roles are shifting from being sources and imparters of knowledge to being facilitators of learning. Since chatbots can engage in human-like conversations with learners and answer many of their general questions in any subject matter, human teachers now have to move on to provide that human touch and empathy devoid of machines and foster natural intelligence that can solve novel problems contextually using on the spot thinking not pre-programmed information, emotions and scientific knowledge (Pavlik, 2023).

ChatGPT is a sophisticated pre-trained AI natural language processor. It can grasp the semantics and syntax of natural language, generate human language text, answer questions, and participate in academic and social dialogues on various topics/issues. In academic work, it can be used to generate tests, and learning material and generate responses to questions in assignments and thus can be used by students as an aide and by teachers to generate marking guides and assessment tools. It is therefore imperative that educators acquire or develop digital skills to fully utilize

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