
How AI Can Improve Human Performance



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AI training enhances strategic skills, especially in lower-skilled individuals. But it isn't a perfect substitute for human training partners.

As artificial intelligence (AI) advances at breakneck speed, there is growing concern about the possibility of it replacing humans in almost every task. However, [recent research](#) sheds light on AI's capacity to train and augment human performance, specifically in complex strategic interactions.

To understand how AI can train employees and improve performance, it is worth looking to the past. In our latest study, we explored how AI transformed the domain of chess. Chess computers have been at the frontier of AI and exemplify two fundamental aspects: complexity and the capability to mimic human thought processes. Our study revealed that chess computers served as artificial training partners and led to a significant improvement in player performance.

To examine how AI helps people improve, we leveraged the staggered availability of chess computers in Western Europe and the Soviet Union from the 1970s. Chess computers became widely available for players in Western countries from 1977 onwards. In contrast, for geopolitical reasons, chess computers remained practically unavailable for players in the Soviet Union until the late 1980s.

We analysed the performance of more than 20,000 chess players across half a million tournament games. Our analysis illustrated that having access to chess computers accelerated learning and gave players a competitive advantage, as chess computers helped players improve by serving as a substitute for scarce human training partners.

How AI can level the playing field

We found that disadvantaged players with inferior skills benefitted more from chess computers. The extent to which people benefitted varied due to two key factors. First, the AI system had to surpass the player's skill level to provide effective training. Otherwise, the player would be able to anticipate the AI's moves, thereby limiting the training value. A useful analogy is how non-native speakers benefit more from a spelling and grammar checker than native speakers.

Second, the difference in benefits can be attributed to the lack of access to human training partners. In such cases, the chess computer served as an essential replacement. This underscores the potential of AI as a substitute for human training partners, particularly in situations where resources and opportunities are scarce.

AI has the ability to democratise access to training and enable individuals from diverse backgrounds to develop their skills and excel in their respective fields. For instance, in industries with a high volume of customer complaints, training customer service representatives to handle various scenarios can be a challenging task, especially when training needs to be conducted at scale. Traditional methods like role-playing exercises can be expensive, time-consuming and difficult to replicate realistically. By generating simulated complaint scenarios, AI systems could help with large-scale individualised training.

During conversations with a leading facilities management company in France, an executive emphasised the financial challenges associated with

training a significant number of employees to handle customer interactions. By using AI-powered training platforms, such companies can provide consistent and scalable training experiences to their employees, enabling them to acquire the necessary skills and knowledge. This not only reduces the financial burden but also ensures that a larger workforce can benefit from extensive training.

Where AI falls short

However, AI is not a perfect substitute for human training partners. Our research findings highlighted that players who trained with chess computers were less proficient at recognising and capitalising on human errors, as AI does not exhibit the same vulnerabilities or make the same types of mistakes as human opponents.

This is particularly important when it comes to learning strategic interactions such as negotiation or competition. Chess – with its interactive nature, large number of scenarios and the difficulty of credit assignment – is often considered a prime illustration of **strategic interaction**.

Much like playing chess with another human, engaging in live negotiations, competitive games or role-playing exercises with human counterparts allows individuals to develop their ability to recognise and exploit human blunders, adapt to changing circumstances and effectively respond to interpersonal dynamics.

Our findings suggest that a balanced approach is recommended. Combining AI-powered training with opportunities for real-world practice and interactions with human partners can offer a more comprehensive learning experience.

While AI-powered training platforms provide accessible and scalable learning opportunities, relying solely on AI for training has its limitations. To excel in strategic interactions, it is crucial to harness the strengths of both AI and human intelligence. Even though the complete replacement of humans by AI is not imminent, we may soon be seeing **humans armed with AI** outperforming those without AI.

T H E A L L I A N C E



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<https://knowledge.insead.edu/strategy/how-ai-can-improve-human-performance>

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About the research

["Training with AI: Evidence from chess computers"](#) is published in *Strategic Management Journal*.

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