KORN FERRY

AVOIDING THE AI MASTERY DEFICIT

How to ensure expertise and future leadership capability develop in an AI-enabled workplace

Thought Leadership

Introduction

Organizations are increasingly exploring how to leverage AI to automate tasks, improve operations, and reduce costs, but they also must consider a critical long-term consequence: the impact of adopting generative AI on the development of individual expertise and institutional knowledge. Work experience has long been a critical pillar of development. For example, executives' strategic thinking proficiency is shaped by their accumulated experience handling challenging work activities.

As AI changes the nature of work, the conditions that shape professional and leadership development are also evolving. AI can accelerate many work processes, but it also removes the effort that turns experience into expertise. Deep cognitive processing — the kind required for durable learning, schema formation, and expert judgment — increasingly needs to be intentionally designed into learning experiences.

The risk is not that AI reduces performance in current roles. The risk is that it weakens the development of mastery needed to support future talent pipelines.

The Cognitive Architecture of Expertise

What separates an expert from a novice is not the volume of information they retain, but how that information is organized and used. Research across domains shows that experts build deep structural schemas: mental frameworks that connect related information into meaningful patterns, making it easier to store, retrieve, and apply knowledge when it matters most.

Novices have not yet developed these frameworks. They rely more heavily on surface features, external cues, and working memory to navigate unfamiliar situations. This can make decision-making slower and retrieval more difficult under pressure. But working memory is limited for both experts and novices.

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Experts bypass these constraints by anticipating what information will be needed and encoding it accordingly. The result is that they can draw on long-term memory in ways that support real-time performance.

Expert performance is also more cognitively efficient. Within their domain, experts recognize meaningful patterns faster, focus on the most relevant signals, and ignore irrelevant information. They are not simply storing more knowledge; their brains are processing in a more effective and synchronized way and with less cognitive effort.

This distinction matters when considering AI. If AI performs too much of the cognitive work, the immediate output may look the same: a decision is made, a recommendation is generated, a memo is written. But the underlying mental frameworks that support expertise may never fully develop. The result is competent output today, but potentially less expertise tomorrow.

Development of Expertise

Multiple disciplines have concluded that experience plays a key role in the development of mastery. Studies of experts, from chess and sports to professional practice, consistently show that advanced proficiency is built through deliberate practice. Research on leaders' development reaches a similar conclusion: tackling unfamiliar assignments with the right level of intensity and stretch builds the capabilities needed to run organizations.

Moderately intense experiences are distinguished by time pressure, amount of responsibility, visibility, and impact that push developing leaders to do more. Stretch requires people to work outside previous areas of expertise, pushing us to develop new skills or deepen existing ones to succeed. Too little or too much challenge may stall development. Moderate friction, by contrast, can accelerate learning.

Design Principles for AI-Integrated Capability Building

Maximize practice. As AI automates more routine work, organizations cannot assume employees are still developing expertise through day-to-day task repetition. Research suggests that AI-assisted work can reduce attention, neural connectivity, and cognitive engagement compared to unaided work, with downstream effects on recall and long-term learning. An MIT Media Lab study of ChatGPT-assisted writing found lower levels of deep cognitive processing and weaker memory of self-generated content. When AI is reducing the cognitive strain traditionally associated with skill-building on the job, learning environments need to compensate by creating space for independent thinking, problem-solving, discussion, and application practice that builds expertise rather than rewards passive or AI-driven completion. Research also shows that working with partially automated, rather than fully automated AI, enhances engagement and performance.

Make it a habit to use AI to reflect. AI's cognitive impact extends beyond the immediate task. Over time, habitual reliance on LLMs for answers, synthesis, or judgment can weaken people's confidence in their own reasoning, reduce independent exploration, and distort their ability to accurately assess what they truly understand. While AI can improve short-term performance and output quality, it may simultaneously dampen the internal feedback mechanisms that support self-awareness and expertise calibration. Experts have historically shown stronger self-assessment accuracy than novices, but AI use appears to narrow that gap, with both groups becoming more prone to overestimating what they understand. Using AI as a reflective partner by asking it to challenge assumptions, critique reasoning, or surface blind spots, reinforces metacognition rather than replacing it. This shift turns AI from a substitute for thinking into a tool that strengthens insight, calibration, and learning awareness.

Frame AI use as teaching, not outsourcing. One of the clearest indicators of mastery is the ability to teach. Explaining concepts, organizing knowledge, and articulating reasoning all reinforce the deep encoding and synthesis processes that underpin expertise. AI is changing how memory is formed: when people expect information to remain externally accessible through AI or search platforms, they are less likely to encode and retain that knowledge themselves. Instead of building durable mental models, they remember how to retrieve information. Over time, habitual cognitive offloading can weaken the schema formation associated with expert cognition. Encouraging employees to improve prompts, build agents, and teach AI systems how to perform tasks positions them as active architects of knowledge rather than passive consumers of generated outputs. Framing AI interaction as teaching reinforces understanding, synthesis, and application.

Continue to identify and use stretch assignments. Research has identified the developmental experiences that matter most for people at different management levels. AI may shift when to position these in a career journey, but it does not replace them. Many involve challenging interpersonal situations that help leaders hone people skills, such as working with an abrasive supervisor or managing someone struggling with performance issues. Others involve pushing boundaries to develop strategic skills. AI-driven simulations and coaching can help people prepare for these moments, but humans still need to wrestle with, navigate, and execute moderate-risk assignments to develop the mental and emotional processing that builds expertise.

Designing for Tomorrow's Experts

Mastery deficits accumulate over time. Schema formation weakens. Metacognitive calibration degrades. Experience pipelines deliver fewer developmental moments. While they may benefit from enhanced performance, greater efficiency, and broader access to capability, the longer-term risks are shallower expertise, more fragile judgment under pressure, weaker succession pipelines, and a workforce that overestimates its knowledge. The strategic imperative for leaders is ensuring AI does not invisibly transform how expertise is built. The strategic imperative for leaders is ensuring AI does not invisibly transform how expertise is built.

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Organizations that optimize only for performance may unknowingly accumulate mastery deficits by trading durable expertise for short-term efficiency. The ones that pull ahead will keep investing in stretch assignments and create opportunities for learners to handle the unfamiliar. Organizations that intentionally design for both efficiency and development will compound the advantage.