ACCELERATING EXPERTISE IN VOLATILE WORK ENVIRONMENTS

Expertise is one of the most valuable assets a business invests in, and one of the most costly. Expertise takes a long time to develop, which means it is a long-term strategic investment for any business especially those that are under pressure to deliver better, faster and at lower costs.

Capturing, storing and transferring expertise (i.e. expert knowledge) is one of the biggest challenges all organizations face and several converging factors are moving this challenge to "critical".

First, the workforce is aging, which means that expertise will soon be exiting the industry at greater numbers than ever before. As this trend continues, experience and domain knowledge are peaking but are set to fall away dramatically as we are hurtling towards an expertise drain.

Second, increasingly disruptive technological change means that expertise redundancy is accelerating. Uber's impact on the taxi industry provides a compelling example. The expertise of black-cab drivers in London has been marginalized as technology has changed the expectations and platform of the industry. A collective reputation has been superseded by the ability to choose an individual driver based on a personalized rating system. The expertise intrinsic to the Uber platform has captured the expertise in the industry. The knowledge of black-cab drivers is not redundant, but its influence in the industry has fallen away. Not only must companies find new ways to capture expertise, they must also continuously update it.

Given these trends and the inherent value of expertise, the question becomes "how can companies develop expertise more efficiently?"

WHAT MAKES AN EXPERT?

Malcom Gladwell popularized the idea that in order to become an expert 10,000 hours of "deliberate practice" is required. Deliberate practice in this context is defined as "engagement in structured activities created specifically to improve performance in a domain."

The findings are persuasive and backed with compelling examples: while aptitude plays a role in enhancing expertise, those who get a jump start on completing 10,000 hours are more likely to become top experts in their field than people who are born with natural capabilities or who possess extraordinary genius.

Superficially these findings overturn our assumptions about the role that natural talent and aptitude play in skills development. However, the "10,000 hours rule" applies primarily to structured environments like chess or sports, where success has more predictable rules. Furthermore, it neglects the subtle aspects of expertise that are needed in unpredictable workplace settings, like the mining industry.

One recent analysis aggregated hundreds of studies completed over the last 20 years on the impact of deliberate practice across a number of domains. The analysis revealed that in structured domains like chess and sports, deliberate practice accounts for roughly 20% of the difference between superior achievers and their average colleagues.

However, in "other professions," which included computer programmers, pilots, and salespeople, deliberate practice accounted for only 1% of this difference. This means that in these more unstructured domains, the amount of deliberate practice one completes is not necessarily a strong predictor of success.

The results of these studies are especially critical for highly volatile domains, such as war, emergency first-response, and mining, where rules, goals, and standard practices need to be more fluid to accommodate complexity in rapidly evolving situations. Traditional training methods based on classical knowledge transfer are insufficient and structured training programs that rely on deliberate practice alone will not suffice.

Developing leading experts in these domains requires not only a large amount of practice, but a different kind of practice.

ACCELERATING EXPERTISE THROUGH GUIDED DISCOVERY

So, how can we develop expertise in volatile domains in less than 10,000 hours?

Developing expertise in volatile contexts is not defined by the number of hours one spends in deliberate practice, it is defined by the number of failure cycles that a person experiences.

A learning process occurs when an individual encounters a new problem, then discovers and applies a solution. If that solution fails, they can begin exploring a different solution set. Learning is accelerated when these challenges can induce failure cycles more rapidly. The more failure cycles they encounter, the more refined and innovative the solution set becomes.

In highly structured domains with routine tasks, practicing the same solution over and over increases your performance and differentiates you from others. In highly volatile domains, this kind of routinized practice can actually become a deficit. Understanding how to navigate infrequent events, disruptions and uncertainties is the key ingredient to developing and accelerating expertise.

Solutions to complex problems in complex situations cannot be learned by practicing and following recipes for action. Solutions must be discovered through failure cycles. The "guided discovery" learning method does not prescribe recipes for action, nor does it rely on structured outcomes. Instead, it provides a safe-to-fail environment where inadequate approaches can fail, new solutions can be discovered, and new approaches can be modeled. These environments allow individuals to rapidly cycle through approaches that do not work, accelerating the development of expertise.

Gaining expertise for workers in highly volatile domains demands safe-to-fail learning environments in which employees encounter infrequent, disruptive events, more frequently, without risk. While a worker may have spent 10,000 hours completing tasks in a dangerous working environment, he or she may only have spent a handful of hours experiencing and reacting to rare events. Length of time served may be a good barometer for how well someone carries out predictable tasks. But when disruptive, infrequent events occur, experts can no longer rely on typical, repeated past experiences to provide a successful solution to complex problems.

Expertise is an ongoing commitment. It requires constant updates, maintenance and most importantly, revision. By giving our standard ways of thinking a chance to fail and be reorganized, we can accelerate the time it takes to develop expertise, unlocking innovative ways to think and deliver enormous value to the well-being of the organization and its people.

Next month, in Part 2 of this article, we'll explore how guided discovery works, why experts learn so differently and why it is essential for volatile industries like mining to adopt new training paradigms based on current best practices in learning and decision making.

Original Journal article challenging the 10,000 hours idea
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