



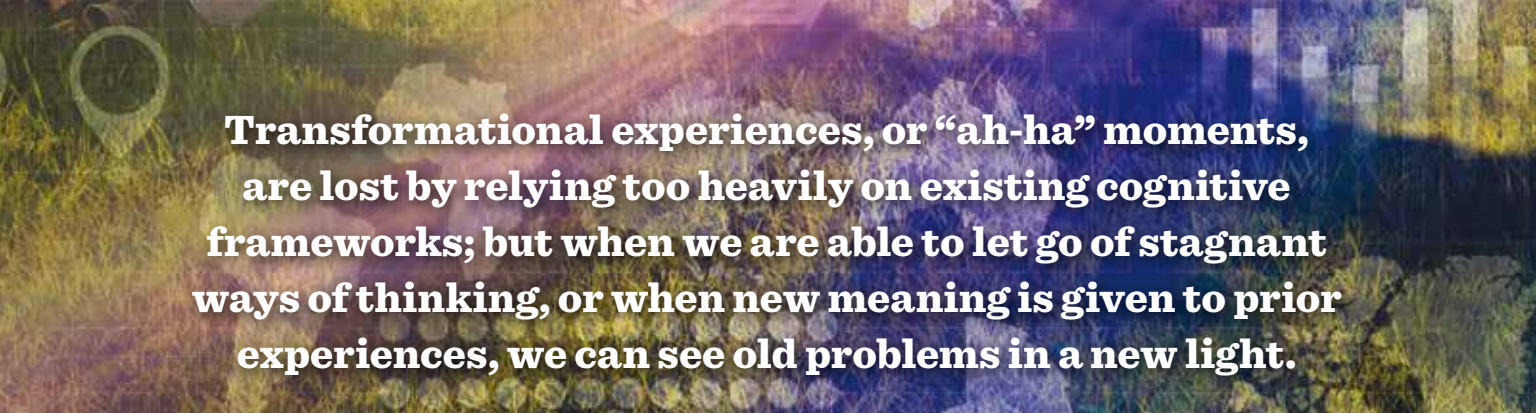
Learning at the Speed of Relevance

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THE NATIONAL DEFENSE STRATEGY (2018) ENCOURAGES THE ACQUISITION COMMUNITIES TO FOSTER a competitive mindset. This competitive mindset requires business practice reforms for superior performance and affordability, replacing outdated business practices that have contributed to our increasing unresponsiveness. The need for speed of relevance requires many of us to rethink how we currently do things. As stated in the 2018 National Defense Strategy, “Success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting.”

Resuscitating existing authorities and repacking old ideas or decade-old streamlining practices may look like sufficient change for those who cannot get out of their comfort zone. If this statement causes a reaction, it was meant to do so because your attention is needed. As members of this acquisition community, we can be part of the problem. Transitioning from a complacent to a competitive mindset requires transformation or deep change. In his 1996 book, *Deep Change: Discovering the Leader Within*, Robert E. Quinn opined that, unlike incremental change, deep change requires a new way of thinking and behaving. It requires innovative thinking. Innovative thinking comes from learning to solve complex problems in a nontraditional way. If we change how we learn, we can solve complex problems. Innovation should not and cannot be

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limited to our research and development community. Innovative thinking should be inculcated into our day-to-day work life.

Innovative thinking needs to be present at every level of our acquisition community...whom we recruit, whom we promote, and whom we retain. A holistic approach involves innovative thinking not only with the program manager and his or her acquisition team but with policymakers, academic community, human capital management, finance and industry. We can either continue operating as we have been, which will mean staying stuck in old ways of thinking, or we can learn how to change the equation and be part of the solution.

Business practice reforms can start with you and your acquisition team through innovative learning at the speed of relevance. This article will give you tips on how to improve the way you learn and enhance your ability to make good business decisions that foster a competitive mindset. Being part of the solution will mean exploring new ways to learn. Improving the way you learn can change your perspective and commitment to acquisition excellence. We cannot solve wicked acquisition problems using only successful methods of the past, including our methods of teaching and learning. Deep change comes from new ideas. So, let's get started.

First, we need to understand how our brain works. Neuroscientists now recognize that our brain operates in two different ways—focused mode and diffuse mode (see Barbara Oakley's 2014 book, *A Mind for Numbers: How to Excel at Math and Science*). Our brain's cerebral hemispheres support these two distinct modes that are associated with learning. The focused mode (left side of brain) is a narrow thought process that filters out information that does not fit a given situation based on past experiences. The diffused mode (right side of brain) is more tolerant of ambiguities and remains adaptive, taking in more nonliteral, nonverbal clues to assess situations through sensing and perceptions.

As adult learners, we often tap into prior experience to guide our decision making. While this has many positive benefits, it can impede “outside of the box” thinking. We should be striving to create new neural pathways to

solve new problems. Instead we continue to solve today's problems with solutions using old neural pathways that were used to solve problems from our past. This is referred to as the Einstellung effect or tendency to habitually rely on our existing cognitive framework which results in negative consequences of innovativeness. Transformational experiences, or “ah-ha” moments, are lost by relying too heavily on existing cognitive frameworks; but when we are able to let go of stagnant ways of thinking, or when new meaning is given to prior experiences, we can see old problems in a new light (see Jack Mezirow's 1990 book, *Fostering Critical Reflection in Adulthood: A Guide to Transformative and Emancipatory Learning*).

Unfortunately, relying on existing cognitive frameworks often is why we see no real change; even with the advancement of technologies, deep change has not occurred. Past thinking often divided brain functions into hemispheres—left brain or right brain with one side playing a more dominant role. The new school of thought is that this is simply not true. In order to solve difficult problems, we must include diffuse mode thinking, and as long as we are consciously focused (i.e., using focused mode) we are blocking our abilities to use the diffuse mode. In order for us to have a competitive mindset as decision makers, policymakers and practitioners within our complex defense acquisition environment, we need to switch between these modes in performing different activities. A new way of learning is required by the acquisition workforce, with a greater emphasis on adult learning principles, as well as an overhaul of our business processes and human development programs. We need deep change in the way that we learn in order to problem solve the wicked problems our Defense acquisition community faces.

Second, we need to understand how our brains store information. Research findings of neuroscientists and psychologists concluded that the most effective way for information to be stored in our brains is through encapsulating ideas into chunks of information (i.e., smaller pieces or sequence learning tasks), so that the information received can be properly stored in our memory systems. Using the focused mode side of our brain to chunk learning activities can help transfer information into our working memory. As these newly form chunks of information enter our brain, the diffuse mode function of the brain can retrieve these chunks

to form innovative ideas and problem solving, thus avoiding the Einstellung effect.

Learning more effective ways to learn and interleaving focused mode and diffuse mode techniques can lead to better problem solving. Hermann Ebbinghaus, considered a pioneer of memory research, published a book in 1913, titled *Memory: A Contribution to Experimental Psychology*, and suggested that we learn best by forgetting. This may sound counterintuitive at first, but when we return to material studied once, and then largely forgotten, the relearning of that material strengthens neural connections. If this process is repeated over time, known as spacing, the brain creates even stronger, more permanent connections. Therefore, enhancing the learning process also involves recalling newly learned chunks of information using a retrieval practice (i.e., knowledge review quiz or practice exam used in an academic settings or recalling information learned by testing yourself instead of rereading the material). Retrieval practice is a knowledge retention strategy that provides a better opportunity for storing the information gained and transferring it into our long-term memory system, especially when you are unfamiliar with the content.

Another knowledge retention strategy involves interleaving information. Interleaving information means organizing information by intermixing rather than grouped by topic or type. Increased learning performance occurs when a subject, e.g., statistics, was being introduced, individuals will understand and retain more information when after each lesson, a set of practice exercises follows that provide a brief review of concepts that were learned several days or weeks prior. This interleaving technique creates a degree of time intervals or space between learning which enhances memory retention and learning performance. Terry Kidd and Lonnie Morris explained this process as modular learning in their 2017 book, *Handbook of Research on Instructional Systems and Education Technology*. Modular learning is the process of chunking new information using interleaving technique and time intervals.

Third, we need to increase the use of technology. More than a decade of research and met-analysis led Claire Wladis, Katherine Conway and Alyse Hachey in a 2017 article, titled "Studies in Higher Education," to conclude that the learning outcomes are the same for both online and traditional classroom learning. Integrating technology and modular learning into the Department of Defense and Armed Services academic settings will enable the speed of relevance, as current research findings suggest and improve learning outcomes. As we reform our business practices for superior performance to increase our national defense responsiveness, so must our academic and training communities embrace the use of technology in the design, development and delivery of information.

Sources and Suggested Reading List

Barbara Oakley, *A Mind for Numbers: How to Excel at Math and Science*, (New York, New York: Penguin Random House, 1999).

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Ultimately, increasing job performance through learning, memory retention and relevance of material.

Fostering a competitive mindset, for me, is where the sense of urgency comes from ... the need for protecting our democratic society and providing our warfighters with the tools and resources they need to defeat our adversaries. As leaders of the Free World, our national defense posture depends on all members of the acquisition workforce. Parts of what we do require deep change. Oakley's salient points remind us that we need to be willing to "learn how to learn" using new and innovative methods and we need to expect this willingness from our colleagues as well as ourselves. Our future truly does reside in our brains!

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