



WHAT IF...

Imagining Possibilities

How People Learn Today

(Third in a series of articles on a lifelong learning paradigm in churches)

John Roberto

An important element of embracing a lifelong learning paradigm is to design faith formation experiences that reflect our best understanding of how people of all ages learn. Over the last twenty years we have been blessed with substantive research on how learning happens and how people learn best. In a recent study, *How People Learn II: Learners, Contexts, and Cultures* (2018), The National Academies of Sciences, Engineering, and Medicine updated their 2000 report with new research and conclusions. The report begins by saying, “There are many reasons to be curious about the way people learn, and the past several decades have seen an explosion of research that has substantially expanded understanding of brain processes and what they mean for individual learning, schooling, and policy. In 2000, the report *How People Learn: Brain, Mind, Experience, and School: Expanded Edition* (National Research Council, 2000) was published and its influence has been both wide and deep, but 20 years later the research landscape has evolved still further. *How People Learn II* provides a much-needed update.”

This article presents the major conclusions of the study, excerpted from Chapter One, organized into the following categories:

1. The Influence of Culture
2. Types and Processes of Learning
3. Knowledge and Reasoning
4. Motivation to Learn
5. Implications for Learning
6. Learning Technology
7. Learning across the Life Span

You can download the PDF of the entire report, *How People Learn II: Learners, Contexts, and Cultures*, from the National Academies of Sciences, Engineering, and Medicine website: <https://doi.org/10.17226/24783>.

The Influence of Culture

Learners function within complex developmental, cognitive, physical, social, and cultural systems. Research and theory from diverse fields have contributed to an evolving understanding that all learners grow and learn in culturally defined ways in culturally defined contexts. While humans share basic brain structures and processes, as well as fundamental experiences such as relationships with family, age-related stages, and many more, each of these phenomena are shaped by an individual's precise experiences. Learning does not happen in the same way for all people because cultural influences are influential from the beginning of life. These ideas about the intertwining of learning and culture have been reinforced by research on many facets of learning and development.

Conclusion #1: Each learner develops a unique array of knowledge and cognitive resources in the course of life that are molded by the interplay of that learner's cultural, social, cognitive, and biological contexts. Understanding the developmental, cultural, contextual, and historical diversity of learners is central to understanding how people learn.

Types and Processes of Learning

Learning is a remarkably dynamic process; from before birth and throughout life, learners adapt to experiences and their environment. Factors that are relevant to learning include influences from the microscopic level (e.g., lead levels in the learner's blood) up to the macro level (e.g., qualities of the learner's neighborhood, society, and culture). Even at the most basic individual level, brain development and cognition (and the connectivity between cortical areas) are influenced and organized by cultural, social, emotional, and physiological experiences that contribute to both age-related and individual variability in learning. Different situations, contexts, and pedagogical strategies promote different types of learning.

Conclusion #2: The individual learner constantly integrates many types of learning, both deliberately and unconsciously, in response to the challenges and circumstances he or she encounters. The way a learner integrates learning functions is shaped by the learner's social and physical environment but also shapes his or her future learning.

Conclusion #3: The brain develops throughout life, following a trajectory that is broadly consistent for humans but is also individualized by every learner's environment and experiences. It gradually matures to become capable of a vast array of complex cognitive functions and is also malleable in adapting to challenges at a neurological level.

Conclusion #4: The relationship between brain development and learning is reciprocal: learning occurs through interdependent neural networks, and at the same time learning and development involves the continuous shaping and reshaping of neural connections in

response to stimuli and demands. Development of the brain influences behavior and learning, and in turn, learning influences brain development and brain health.

Conclusion #5: Successful learning requires coordination of multiple cognitive processes that involve different networks in the brain. In order to coordinate these processes, an individual needs to be able to monitor and regulate his or her own learning. The ability to monitor and regulate learning changes over the life span and can be improved through interventions.

Conclusion #6: Memory is an important foundation for most types of learning. Memory involves reconstruction rather than retrieval of exact copies of encoded mental representations. The cues available in a learner's environment are critical for what she will be able to recall; they also play a role in the way the learner begins to integrate new information as knowledge.

Knowledge and Reasoning

Learners identify and establish relationships among pieces of information and develop increasingly complex structures for using and categorizing what they have learned. Accumulating bodies of knowledge and the capacity to reason about them are key cognitive assets throughout the life span. The strategies that have shown promise for promoting learning help learners to develop the mental models they need to retain knowledge so they can use it adaptively and flexibly in making inferences and solving new problems.

Conclusion #7: Prior knowledge can reduce the attentional demands associated with engaging in well-learned activities, and it can facilitate new learning. However, prior knowledge can also lead to bias by causing people to not attend to new information and to rely on existing schema to solve new problems. These biases can be overcome but only through conscious effort.

Conclusion #8: Learners routinely generate their own novel understanding of the information they are accumulating and productively extend their knowledge by making logical connections between pieces of information. This capacity to generate novel understanding allows learners to use their knowledge to generalize, categorize, and solve problems.

Conclusion #9: The learning strategies for which there is evidence of effectiveness include ways to help students retrieve information and encourage them to summarize and explain material they are learning, as well as ways to space and structure the presentation of material. Effective strategies to create organized and distinctive knowledge structures encourage learners to go beyond the explicit material by elaborating and to enrich their mental representation of information by calling up and applying it in various contexts.

Conclusion #10: The effectiveness of learning strategies is influenced by such contextual factors as the learner’s existing skills and prior knowledge, the nature of the material, and the goals for learning. Applying these approaches effectively therefore requires careful thought about how their specific mechanisms could be beneficial for particular learners, settings, and learning objectives.

Motivation to Learn

Conscious learning requires sustained effort. To learn intentionally, people must want to learn and must see the value in accomplishing what is being asked of them. Numerous factors and circumstances influence an individual’s desire to learn and the decision to expend effort on learning. Engagement and intrinsic motivation develop and change over time; they are not properties of the individual or the environment alone, and they are strongly influenced by cultural and developmental processes.

Conclusion #11: Motivation to learn is influenced by the multiple goals that individuals construct for themselves as a result of their life and school experiences and the sociocultural context in which learning takes place. Motivation to learn is fostered for learners of all ages when they perceive the learning environment is a place where they “belong” and when the environment promotes their sense of agency and purpose.

Conclusion #12: Educators may support learners’ motivation by attending to their engagement, persistence, and performance by:

- helping them to set desired learning goals and appropriately challenging goals for performance
- creating learning experiences that they value
- supporting their sense of control and autonomy
- developing their sense of competency by helping them to recognize, monitor, and strategize about their learning progress
- creating an emotionally supportive and nonthreatening learning environment where learners feel safe and valued

Implications for Learning

While focusing on learning that occurs throughout life, the research has implications for learning in formal educational settings. The following five conclusions reflect the implications of the research for learning in formal educational settings.

Conclusion #13: Effective instruction depends on understanding the complex interplay among learners’ prior knowledge, experiences, motivations, interests, and language and cognitive skills; educators’ own experiences and cultural influences; and the cultural, social, cognitive, and emotional characteristics of the learning environment.

Conclusion #14: A disparate body of research points to the importance of engaging the learner in directing her or his own learning by, for example, providing targeted feedback and support in developing metacognitive skills, challenges that are well matched to the learner's current capacities, and support in setting and pursuing meaningful goals.

Conclusion #14: A growing body of research supports adopting an asset model of education in which curricula and instructional techniques support all learners in connecting academic learning goals to the learning they do outside of school settings and through which learning experiences and opportunities from various settings are leveraged for each learner.

Conclusion #15: Purposefully teaching the language and practices specific to particular disciplines, such as science, history, and mathematics, is critical to helping students develop deep understanding in these subjects.

Conclusion #16: Assessment is a critical tool for advancing and monitoring students' learning in school. When grounded in well-defined models of learning, assessment information can be used to identify and subsequently narrow the gap between current and desired levels of students' learning and performance.

Learning Technology

There is strong empirical support for the effectiveness of learning technologies, but there is no one universally ideal learning technology. The effectiveness of technology depends on the characteristics of the learner, the types of learning being targeted, sociocultural context, and support from instructors in the use of the technologies.

Conclusion #17: The decision to use a technology for learning should be based on evidence indicating that the technology has a positive impact in learning situations that are similar with respect to:

- the types of learning and goals for learning
- characteristics of the learners
- the learning environment
- features of the social and cultural context likely to affect learning
- the level of support in using the technology to be provided to learners and educators

Conclusion #18: Effective use of technologies in formal education and training requires careful planning for implementation that addresses factors known to affect learning. These factors include alignment of the technology with learning goals, provision of professional development and other supports for instructors and learners, and equitable access to the technology. Ongoing assessment of student learning and evaluation of implementation are

critical to ensuring that a particular use of technology is optimal and to identifying needed improvements.

Learning across the Life Span

Individuals learn throughout their lives in every setting. What and how much they learn, particularly outside of compulsory education, is largely directed by their own choices and circumstances. Learners' capacities and resources shift over time. For example, both reasoning and knowledge increase up to early adulthood, when their paths begin to diverge. One's abilities to quickly generate, transform, and manipulate factual information begin to decline, while knowledge levels remain stable or increase. However, the brain adapts throughout life, recruiting and orchestrating its resources to compensate for declines and adapt to circumstances.

Conclusion #19: People continue to learn and grow throughout the life span, and their choices, motivation, and capacity for self-regulation, as well as their circumstances, influence how much and how well they learn and transfer their learning to new situations.

Conclusion #20: People learn continually through active engagement across many settings in their environments; learning that occurs outside of compulsory educational environments is a function of the learner's motivation, interests, and opportunities. Engagement with work (especially complex work that involves both intellectual and social demands), social engagement, physical exercise, and adequate sleep are all associated with lifelong learning and healthy aging.

Works Cited

National Academies of Sciences, Engineering, and Medicine. 2018. *How People Learn II: Learners, Contexts, and Cultures*. Washington, DC: The National Academies Press. (Free Download) <https://doi.org/10.17226/24783>