

IMPACT OF COGNITIVE NEUROSCIENCE IN CORPORATE LEARNING AND DEVELOPMENT FOR SUSTAINABLE COMPETITIVE ADVANTAGE

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Abstract:

Learning and Development are crucial for organizational competency. Understanding the neuroscience of the learners is the key to successful learning and development. A constant progression of the employees must be made sure by the organizations to gain more value and move forward in the market with a strong and good position. One of the major challenges of an organization is to stay ahead of its competitors. For that employees must be efficient enough to withstand the challenges. Designing and delivering learning and development to the employees will be effective only by understanding how the brain process and retain information. So this study is focusing on the knowledge of neuroscience and learning in the organizational setting. It further shows the way of understanding the insights from neuroscience and how they can be applied to organizational learning and development for sustainable competitive advantage.

Introduction

Learning and Development practices support the acceleration of employee development in the organizations. The capability to learn faster when compared to competitors can be the only way for sustainable competitive advantage. Considering learning as a core competency needs to have a look at the approach of organizational learning. Over the past 10-15 years, cognitive neuroscience has found some profound insights into the process of learning. These insights relevant today can help in designing learning interventions that can boost the brain and promote proper learning. The application of such insights and interventions into workplace learning enhances organizational efficiency by achieving sustainable competitive advantage.

Review of Literature

The duration and the power of learning are proportionate to the engagement of the different regions of the brain. The learning cycle consists of gathering experiences through senses, reflecting on the observations, creating new concepts based on the reflections, and active practical testing of the concepts. The completion of the learning cycle is requisite for the change and improvement in behavior and performance (Zull, 2002). The brain must be trained to think and learn. In long-term learning, the minor shifts in the process of learning create knowledge. The learners must get the opportunity to bring out their meaning and conclusion on what they have learned. There is less chance for learning to endure unless and until the learners actively create their concepts (Richland, Bjork, Finley, and Linn, 2005). The brain plays a major role in the learning of human resources. It regulates certain neurocognitive skills such as reflection, attention, memory power, emotional reactivity, adopting certain rules and perspectives, critical thinking, self-regulation, analytical reasoning, etc. (Hart and Associates, 2013). Neuroscientific research has revealed that cognition and emotion are not merely divided in the brain. Virtually, all mental activities involve both cognition and emotion (Cozolino, 2006).

L&D and Neuroscience

Learning and Development is one of the defining factors of being human. A profound learning experience can change a person. Learning involves reflection and action, thinking and doing. At the core it brings change. It changes brain capacity and structure and results in organization and reorganization. Learning is a physical phenomenon where new knowledge in the brain is represented by new brain cell connections. The formation and strength of these connections are enabled by certain chemicals in the brain known as growth factors. The availability of these growth factors can be enhanced with optimal sleep, routine exercises, silencing of the mind, etc. It is the continuous experience that shapes the structure of the brain and modifies the behavior.

Good knowledge about the learning and performance of the brain is an inevitable skill. It is vital for the future success of the employees and the organization to be competitive with a sustainable advantage. In the past several studies reported the positive impact of learning and development in bringing structural and functional changes in the

brain. Therefore, the insights from neuroscience must be considered as a part of modern learning and development practices. These insights are shown in the figure below:

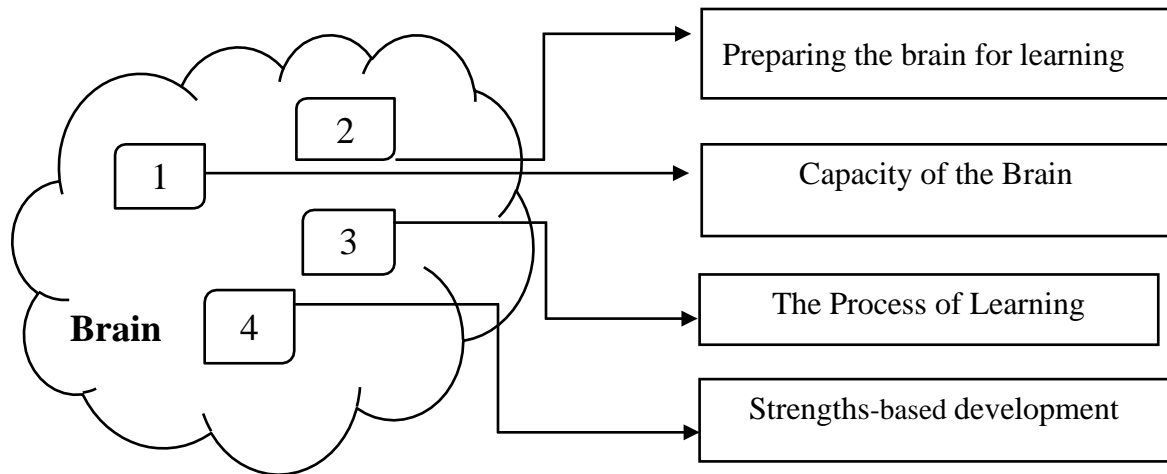


Figure 1: Learning and Our Brain

Source: Van Dam, 2016

1. Preparing the brain for learning

An important insight from neuroscience regarding L&D is to prepare the brain for learning. This preparation begins with an optimum sleep that influences learning and memorization. People who lack sleep will have 50% of memory loss and those who are sleep deprived will have 19% less efficiency at recalling memories. The final two hours of sleep are critical for memories to become constant in our brain.

A balanced diet is a prerequisite for our brain to function properly and efficiently. A good diet includes carbohydrates (brown rice, oatmeal, fruits, vegetables whole grains, etc.) and proteins (fish, chicken, eggs, etc.). Simple carbohydrates (soda, pasta, white bread, cookies, etc) will hurt learning by destabilizing the blood glucose level. A good deal of water is essential for the brain to produce neurotransmitters and hormones which play a vital role in the brain's communication process. Therefore, it is important to have a good healthy breakfast before starting a day of learning.

Learning capabilities are greatly supported by adequate and regular exercise. Regular exercise produces a protein known as BDNF (Brain-Derived Neurotrophic Factor) which is a fertilizer for brain cells keeping them growing, functioning, and supporting the progression of new neurons. Exercise also motivates and boosts the brain by increasing the production of dopamine, serotonin, and norepinephrine.

Meditation enhances the alpha brainwaves that improve the capacity to study, focus attention, and memorize. This is one of the reasons why companies like Google, McKinsey, Facebook, and eBay offer meditation classes for employees at work. Stress affects learning ability negatively. Studies report that acute stress activates hormones (corticotrophin) that disrupt the process of the brain's memory collection and storage. Exercise is the best medicine for stress.

2. Our brain capacity

Many employees (millennials and generation Z) suggest multitasking and switch-tasking. Unfortunately, the brain is not wired for multitasking. The brain needs to stop working before it has to work on another task. The human brain needs full focused attention for learning. Studies prove that employees who shift their job frequently make 50% more errors and spends almost 50% more time on both jobs.

Learning activates and brings changes to the brain's existing networks. Therefore, experiences and previous knowledge, and innovative and creative thinking in our brains support the foundation of learning and development. The brain continuously draws solutions for complex problems from the already existing store of knowledge. Knowledge is the building block for innovation and that is the main priority for most organizations.

Emotions have an important and complex role in the process of learning. The presence of neural wiring between emotion and thinking in the brain proposes that emotions can inhibit or enhance the ability of the brain to learn. Thus emotion becomes the foundation and fuel of learning, the right amount of emotion. The influence of emotional events on learning ability is the reason for creating a climate favorable for L&D and thereafter on the job.

3. The learning process

One of the key insights of neuroscience regarding learning and development is, "The one who does the work does the learning". Studies have reported that learning will be the best when one uses multi-senses that includes seeing, hearing, tasting, smelling, and touching. The brain is divided into half or hemispheres. Each half provides a different set of behaviors, controls, and functions. The right half is the creative side of the brain, and the left is the analytical or logical side of the brain.

The brain changes following the attainment of new skills. However, the changes reverse when the attained skills are not developed or utilized – use them or lose them. Unfortunately, many L&D programs become less effective when employees are not applying in the workplace what they have learned after the completion of their training program. To reinforce the application of what has been taught on the job, the organizations must follow up the L&D initiatives with specific interventions.

The learning and development professionals must be aware of the working of the brain and the application of the cognitive neuroscience knowledge into practice for the development of the workforce for sustainable competitive advantage.

4. Strengths-based Development

Over the last few decades, many companies have moved forward focusing on strengths-based development methodology. It is believed that unique strengths when encouraged and provided with proper learning will produce full engagement and high-quality results. Focusing on weakness will rather end up with a negative result. Strengths-based development is rooted in positive psychology. The term positive psychology was first used by Abraham Maslow, the humanistic psychologist who included this term in his book "Motivation and Personality" (1954) in the chapter entitled "Toward a Positive Psychology".

When a child is born, approximately 100,000 billion neurons each capable of 15,000 synapses are available in the brain. A synapse is a process where one neuron passes chemical or electric signals to another neuron. As the child grows, the brain starts a pruning work, and certain roadways are created by the synapses which are frequently used and the unused connections disappear. When the child becomes an adult, the strong roadways have become superhighways in the brain that are widened and developed. And these superhighways are the strengths and talents of a person. It is on these foundations the L&D uploads new knowledge and skills for further advancement. Those employees who use their talent-based strengths achieve good performance with a sustainable competitive advantage and will be successful in life and work.

Conclusion

The concepts taken from neuroscience will have a positive impact on the approaches and initiatives taken to corporate L&D. It helps to understand more about how the brain learns and how the learning abilities can be improved for better performance. Gaining fresh insights regarding the development of skills supports further learning and advancement of the employees. Neuroscience produces a lot of insights that are genuine and relevant for L&D and when applied to the employees produces enhanced performance and productivity resulting in a sustainable competitive advantage for the individual and the organization as a whole.

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