

LEARNING PRINCIPLES FOR WORKPLACE TRAINING



Introduction

The way we learn is a process that evolved over millions of years. However, a lot of mechanisms of learning have remained a mystery to us -- until as recently as a few decades ago. Researchers around the world have striven to unlock these answers about human cognition as a way to know ourselves better but perhaps more importantly about how learners are shaped by the environment and their interactions with it. Here, we discuss the fundamental learning mechanisms that have been discovered and understood through cognitive science and its implications in the Learning and Development processes of a modern workplace.

The fundamental learning mechanisms here are based on research explored in Susan A. Ambrose's *How Learning Works* among other renowned literature as listed in the references section. The objective of this eBook is to bring together the latest research in the field of Learning and Development and setting it to the context of Workplace Learning.

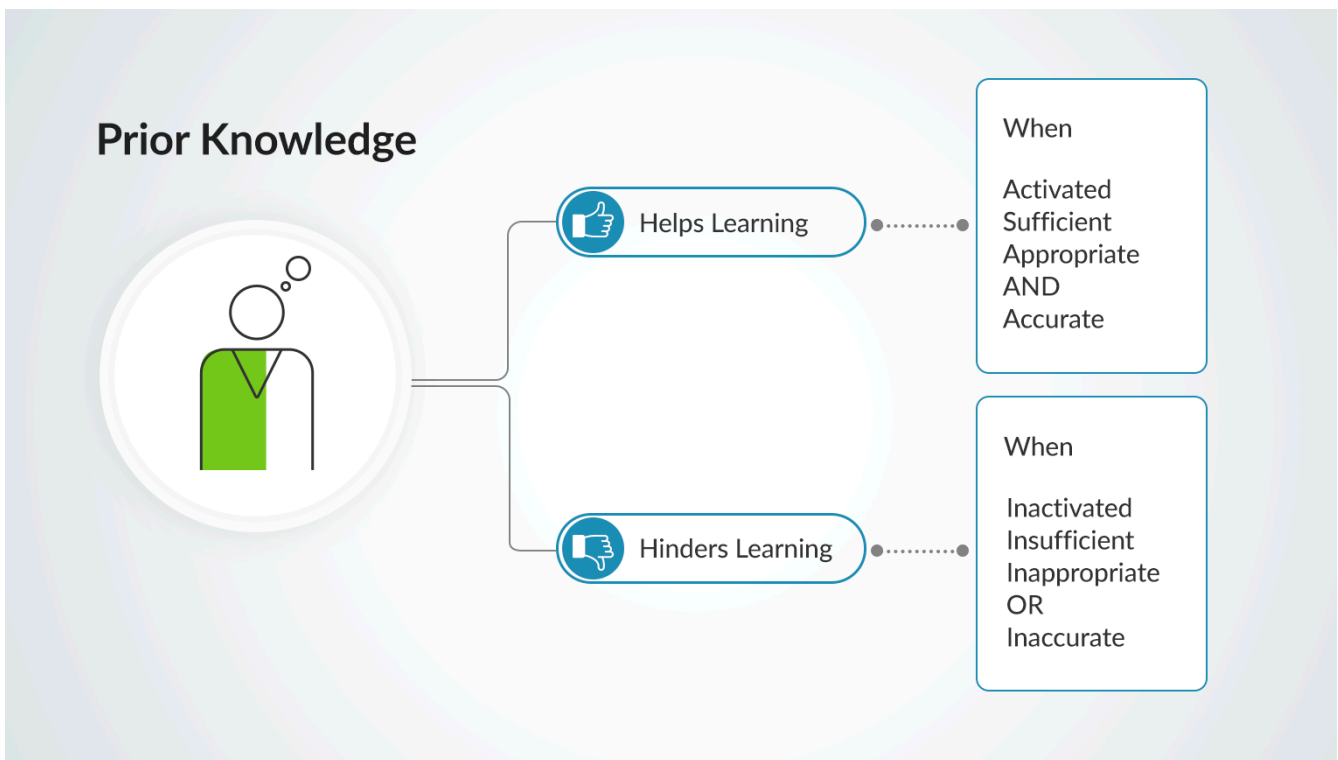


The Principles of Learning

Research from Cognitive science and Educational psychology has led to what can be defined as the laws of learning. These fundamental principles are based on research leading to discovery, that is tried and tested in learning programs.

Prior knowledge can help or hinder learning

In most cases, adult learners may not be blank slates when participating in a learning exercise. A combination of facts, beliefs, and perceptions, both accurate and inaccurate, is gained through other courses or experiences. Prior knowledge may be insufficient for the objectives of the course and may hinder how information is interpreted.

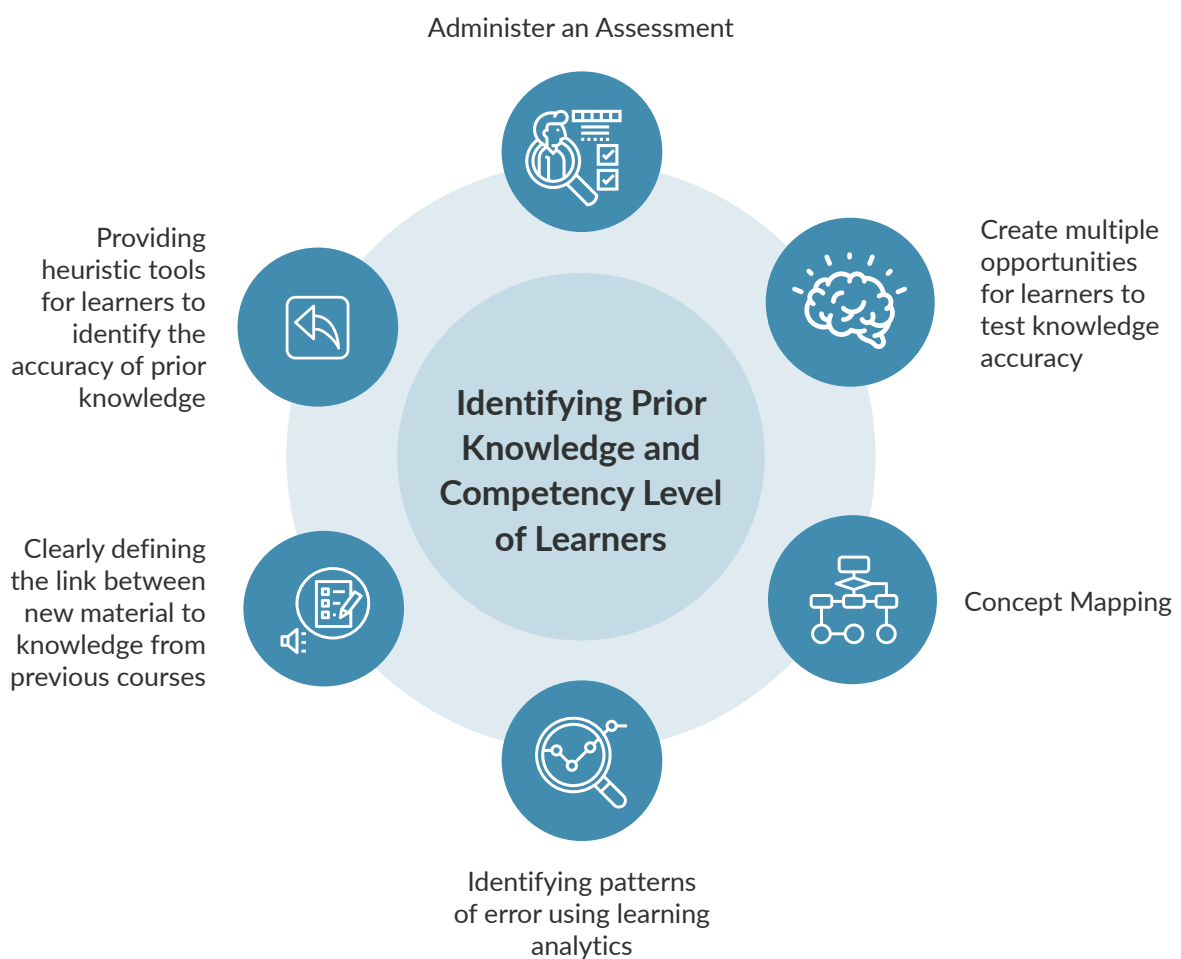


Source: Ambrose, S. A. et al. How learning works: 7 research-based principles for smart teaching, 2010

In essence, there are two kinds of problems associated with prior knowledge:

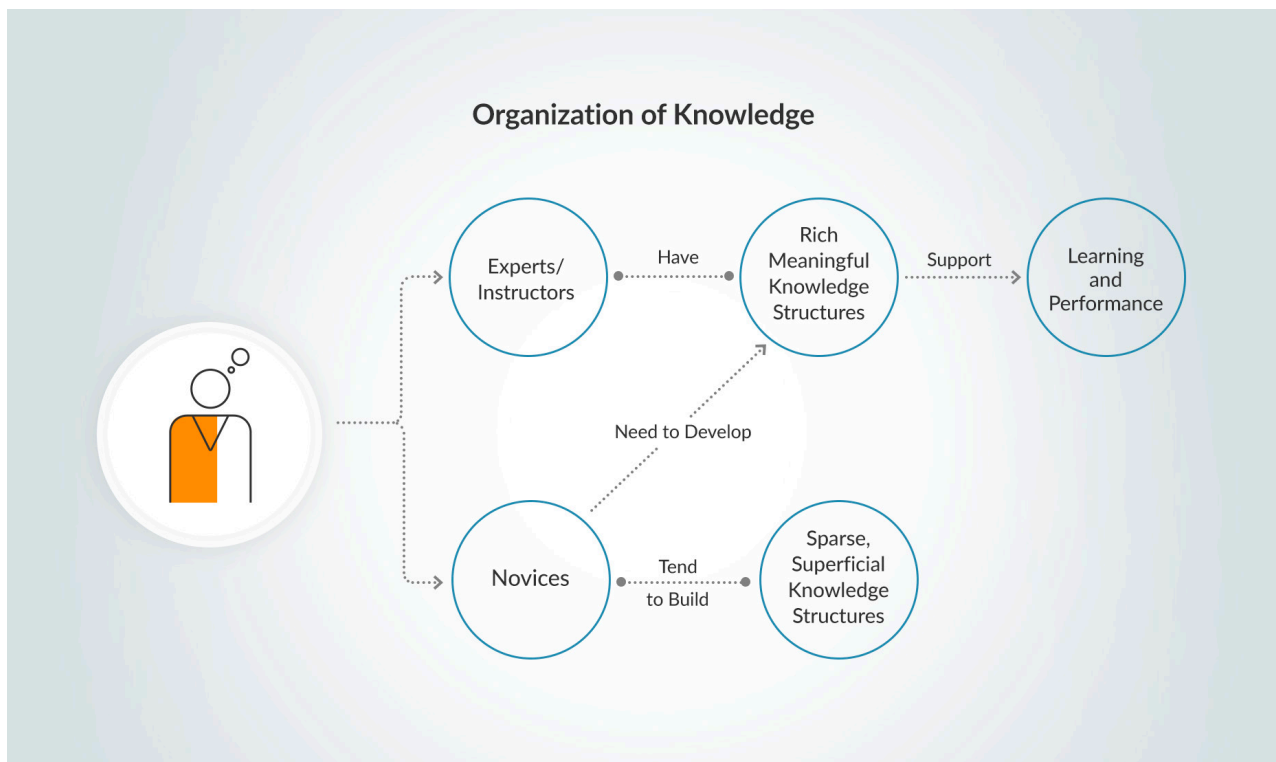
Insufficient Prior Knowledge: Even when a learner’s prior knowledge is accurate and activated, it may not be sufficient to support subsequent learning or a desired level of performance. When participants possess some relevant knowledge about the course or learning objectives, it can lead content developers and learners to assume better preparedness, incorrectly.

Inappropriate Prior Knowledge: Prior knowledge, when accurate and appropriate, may aid learning. However, when accurate but inappropriate for the context of a course goal or performance requirement, be detrimental to learning.



Knowledge organization influences learning and application

When we talk about the way people organize their knowledge (or, for the sake of simplicity, their knowledge organizations), we are not talking about particular pieces of knowledge, but rather how those pieces are arranged and connected in an individual's mind. A healthy learning curriculum aids the learner's journey of organizing knowledge to facilitate effectiveness and retention.



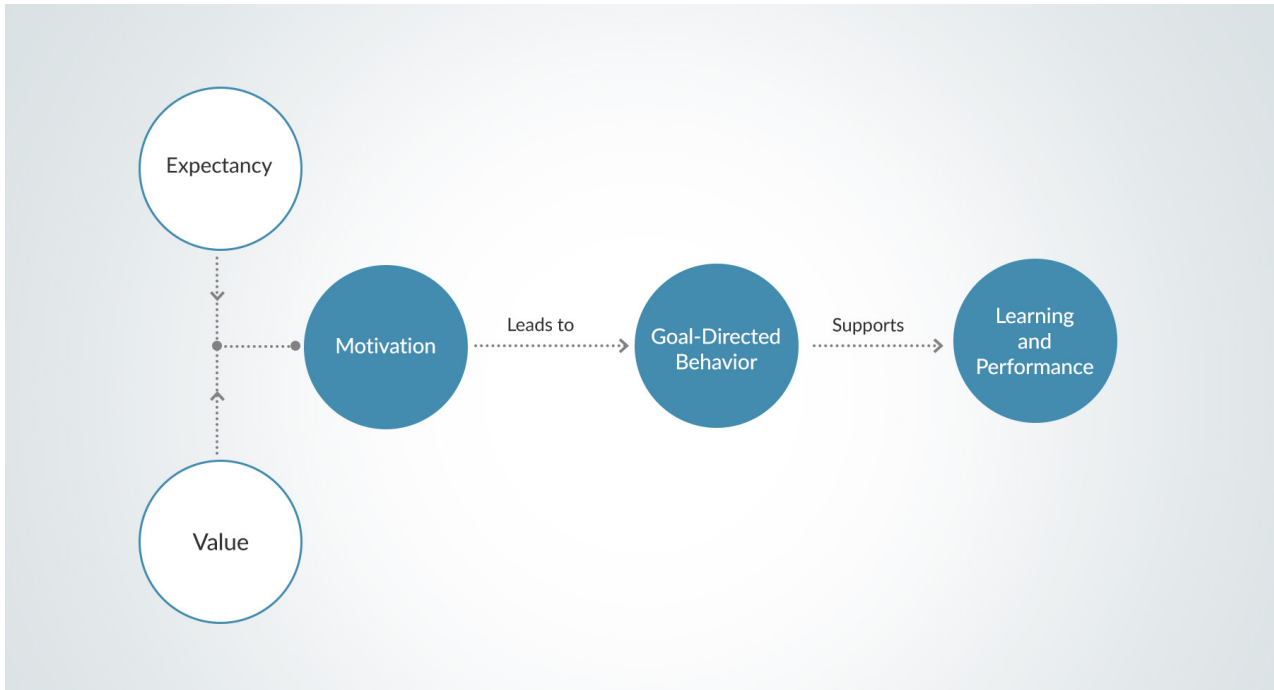
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How to Enhance Knowledge Organization:

- Create a Concept Map
- Provide Users with the organizational structure of learning objectives
- Highlight Deep Features and applications of a concept
- Analyze micro assessments for shortfalls in knowledge organization

Learner motivation generates, directs, and sustains what they do to learn

In the context of learning, the importance of motivation cannot be overstated. Motivation is critical to the approach and attitude of learners to the goals of the organization. When time, energy, and attention span is finite, it is crucial to identify what may increase or decrease the motivation of learners to pursue specific objectives or performance requirements.



Source: Ambrose, S. A. et al. How learning works: 7 research-based principles for smart teaching, 2010

Motivation can be influenced by three factors:

Goals

Goals serve as the basic feature of motivated behavior (Elliot & Fryer, 2008). Goals guide and direct actions, including those that relate to intellectual, social and creative pursuits. At the workplace, the goals of learners are often the promise of increased potential, career development, and long-term success.

Value

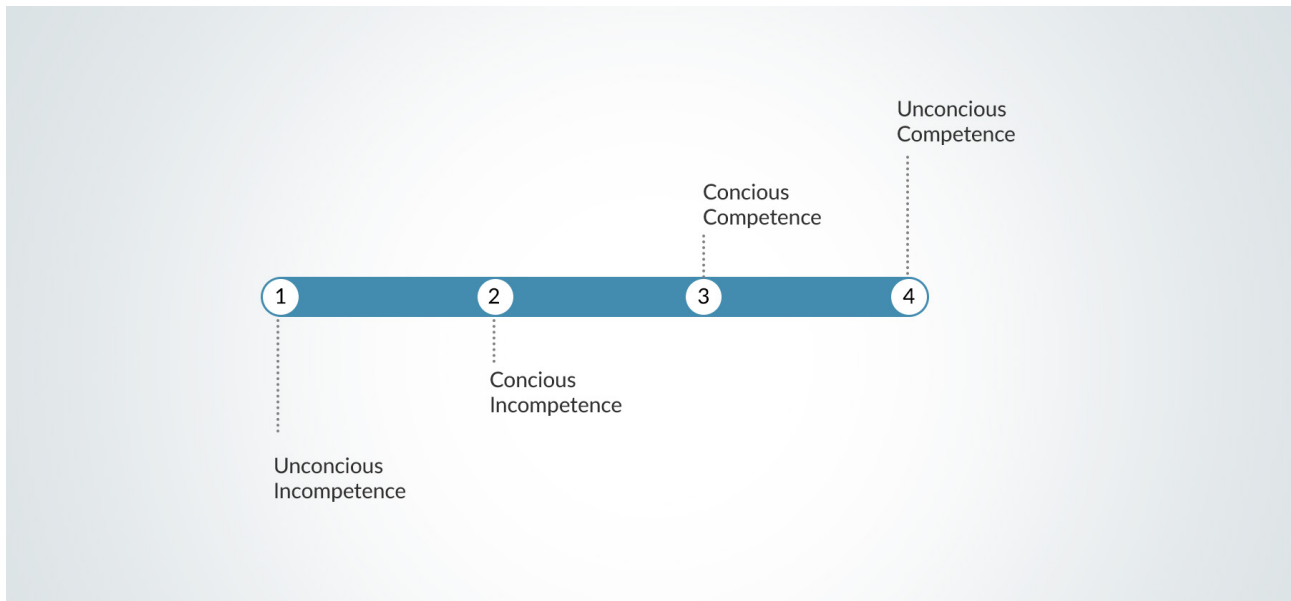
The importance of a goal defines its value and influences a person's motivation to pursue it. According to a survey by Gallup, 87% of millennials think development is important in a job.

Expectation

Although one must value a desired outcome to be motivated to pursue it, value alone is insufficient to motivate behavior. Individuals are also motivated to pursue goals that are achievable by them according to their own judgment. The opposite is also true, if learners do not expect to successfully achieve a defined goal or outcome, they may not engage in the behavior and cultivate the attitude to work for those goals.

The Development of Expertise through Learning

Expertise refers to the attainment of a high degree of competency within a particular function or area through the gradual development of many distinct skills and abilities. This process is universal to any task or function. From driving a car to writing better code, a similar process exists in the development of skill to the point of mastery.



Source: Ambrose, S. A. et al. How learning works: 7 research-based principles for smart teaching, 2010

Developing mastery requires the acquisition of component skills, practice in integrating them, together with knowing when to use the acquired knowledge in the appropriate context. Therefore, let us break these down to better examine the mechanism of developing expertise or mastery.

Acquiring Component Skills

Research supports that component or basic skills first need to be taught and developed for learners to develop more complex skills (Binder, 1993; Johnson & Layng, 1992, 1993)

When the training objective involves a complex task, the training instruction should effectively unpack it into chunks. The advantage of practicing a component skill in isolation is that it allows learners to focus their attention solely on a particular function.

Integration of Skills

By itself, acquiring component skills does not prepare learners to perform complex tasks. Achieving mastery in a complex function requires both the integration of subskills and the opportunity to practice.

Integrating these component skills can be difficult and demanding, several studies have shown that performance tends to degrade when subjects are required to do more than one task at a time (Kahnemann, 1973; Wickens, 1991). This is because performing complex tasks can cognitively overload learners, especially when they have not yet developed fluency in all the component skills.

Application of Skills

A learner, despite acquiring fluency in component skills, cannot achieve mastery of a function without application. Application refers to learners being able to use a skill in a wide range of settings and situations or to accurately determine the set of skills necessary to accomplish a certain function.

This application of knowledge, strategies, and approaches is called the *transfer of skills*.

Learners may fail to transfer relevant knowledge and skills when they associate that knowledge too closely with the context in which they originally learned it or not know how to apply the skills outside that context (Overspecificity or Context-Dependence; Mason Spencer & Weisberg, 1986).

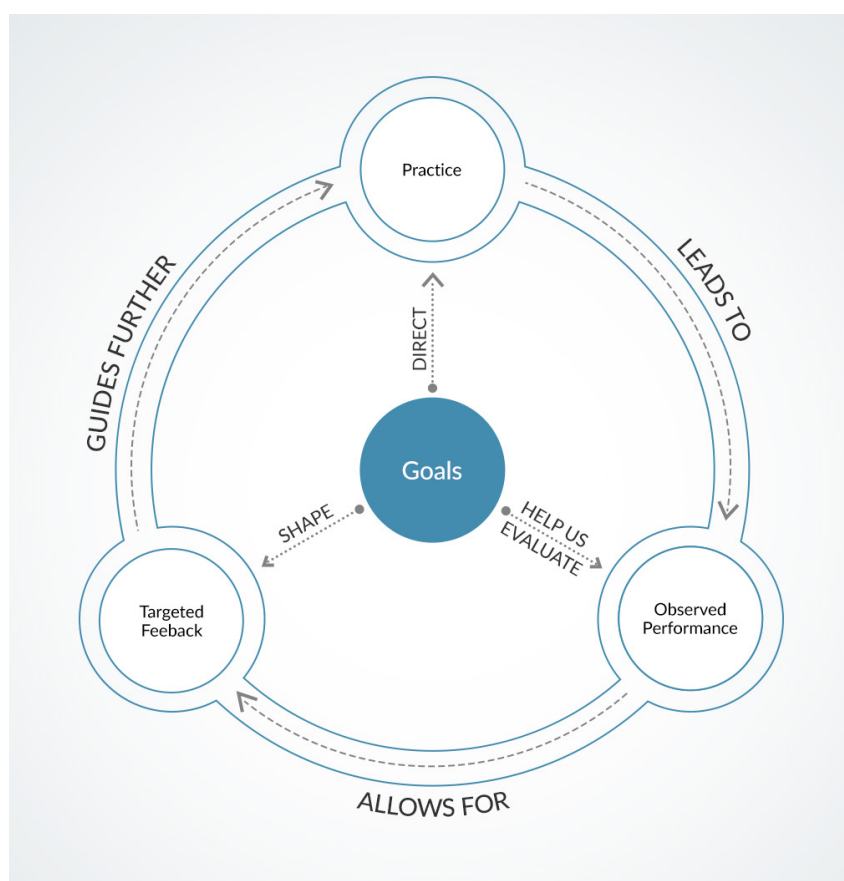
This makes “teaching for transfer” an essential part of instructional strategies to help learners make appropriate connections between the knowledge and skills they have acquired and the contexts in which those skills become applicable.

Practice and Feedback Enhance Learning

The core idea behind this principle is the importance of combining objective-oriented practice with performance feedback, i.e, the information given to learners about their performance.

All too often, learners do not become proficient in a task or function after training. They do not perform at the desired level and make costly mistakes. This is because achieving proficiency takes time.

Understanding the correlation between practice, feedback, and time to proficiency directly influences the way we develop and support learning experiences.



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Additionally, improving speed and the time to proficiency helps to build employee confidence and keep them [better engaged](#) with the training programs.

Characteristics of Right Practice:

- Specific objectives
- Matching current skills with prior knowledge
- The amount of practice deemed necessary

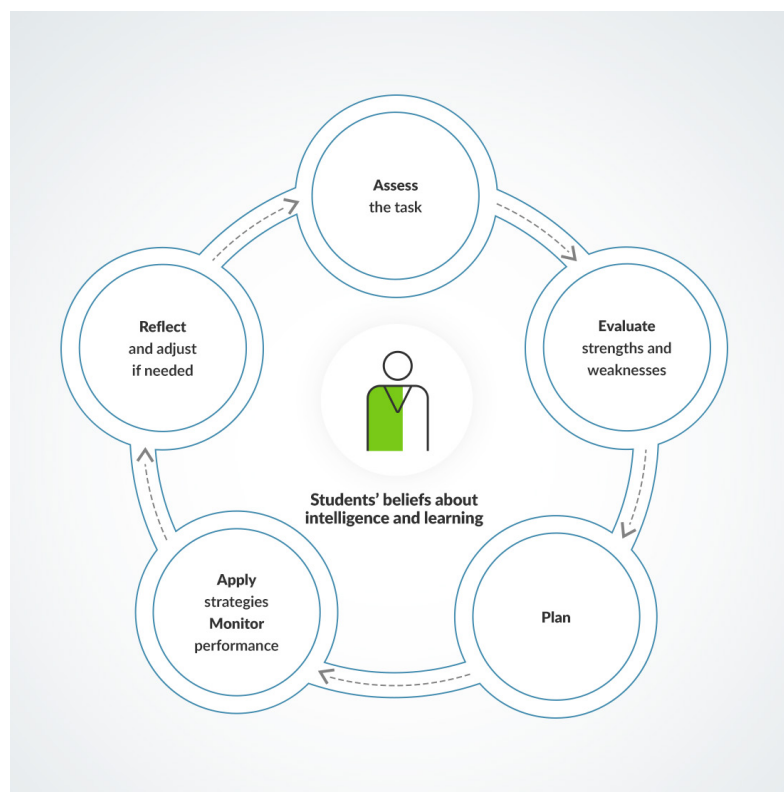
Characteristics of Right Feedback:

- Communicating Progress and Directing Subsequent Effort
- Provided at a time and frequency most beneficial to learners
- Leads to additional practice opportunities

Metacognition is the key to Self-Directed Learning

Adult learners are usually responsible individuals who want to take charge of their own learning as a natural psychological process of cognitive development (Knowles, 1975). In this regard, Self-Directed Learning taps into a natural human behavior.

Metacognition can be defined as the act of monitoring and assessing one's understanding and performance and planning for the advancement of skills and knowledge. To become self-directed, learners must evaluate their knowledge and skills, plan their approach, monitor progress towards the objectives.



Source: Ambrose, S. A. et al. How learning works: 7 research-based principles for smart teaching, 2010

Self-directed learning is defined by flexibility in structuring learning activities through learner responsibility and ownership of attaining goals.

When learners are self-directed, there are several benefits. Let us explore a few here:

Relevance to Learner Needs:

Learning at one's own pace, in accordance with one's own needs and unique learning preferences makes Self-directed learning more relevant to learner needs. Relevance also leads to better motivation to learn.

Facilitates Knowledge Updation

Adult learners who are motivated to learn and possess the tools and resources to chart their own learning path can be on top of the latest updates pertaining to a function. Employees who keep up with the developments are important for the vitality of an organization

Enhances Learning of Specialized Skills

For adult learners, mastering specialized skills helps to keep up with competition at the workplace. The freedom to obtain additional skills and knowledge is a huge motivation. Being able to schedule their learning to fit their preferences without waiting around for classroom sessions encourages learners to practice and master their skills.

Facilitates Subject Mastery

When learners can learn the way they do best—by pacing the lessons according to their needs and moving between resources to analyze and synthesize information to build their own body of understanding—there is greater mastery of a subject.

Conclusion

Understanding these principles that dictate the mechanism of learning can help to bridge the gap between cognitive science and training design and delivery. When we create material that harnesses the natural learning capabilities of individuals, it becomes effective and ensures a successful learning experience.

To summarise, here are the **3 R's** of Effective Workplace Training

Reception

The first step to engaging and effective training is to ensure the learning content is attractive to users and therefore well-received. Ways to achieve this include the use of:



Multimedia Content



Gamification



Interactive video



Virtual Labs

Retrieval

This step considers the importance of retrieving learned material for long-term retention and can be achieved with the use of:



Learning Objectives



Microlearning

Reinforcement

The last and most important consideration in the learning process considers the reinforcement of learning material and processes using the following:



Learner Feedback



Introducing
Concept Maps



Scenario-Based
Learning



Learner
Self-Assessment

Origin's solutions team, comprising Instructional Design Strategy, Graphic Design and Quality Assurance, depend on cutting edge advances in learning research and technology to give users the best Learning Experience. To find out how we can help with your next virtual learning project, write to us at info@originlearning.com.

References:

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