

LEARNING (GENERAL)

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Primary Disciplinary Field(s): Psychology, Behavioral Science, Cognitive Science

1. Core Definition and Criteria

Learning is fundamentally defined as a pervasive process through which an organism--whether animal or human--acquires new information, develops specific habits, or gains novel abilities. It is generally understood as any significant and relatively enduring modification of behavior resulting from the organism's continuous interaction or contact with its surrounding **environment**. Although animals and human beings are in constant interaction with their surroundings, they are said to truly learn only when a defined set of criteria, or hallmarks, are satisfactorily met, distinguishing acquired knowledge from temporary or inherent alterations.

The first key criterion mandates that the contact with the environment must effect a discernible change in the way the organism processes information, perceives stimuli, or responds to situations. This alteration must stem directly from engaged activities such as dedicated **observation**, deliberate practice, formal study, or other forms of purposeful activity. This immediately excludes changes caused by transient physical states or inherent biological processes. Conditions such as temporary fatigue, the influence of drugs, acute illness, or inherent developmental processes like biological maturation, are not considered genuine forms of learned modification.

Crucially, the modification of behavior resulting from learning must be **relatively lasting**. If a fact or a skill is acquired but subsequently forgotten immediately afterward, it fails the criterion of permanence necessary to be classified as truly learned. This enduring quality ensures that learning represents a stable change in the organism's capacity to perform or understand. Although the physiological mechanisms underlying this change remain an extensive area of ongoing investigation within neuroscience, the behavioral outcome--the demonstrated capacity--is the primary and current measure used to confirm that learning has occurred.

2. Behavioral Modification and Measurement

At the present time, the only scientifically verifiable way to confirm that anything has been genuinely learned is through the empirical observation of a resultant change in performance. Behavioral scientists infer that learning has taken place only when they note a measurable improvement or alteration in the individual's ability to execute a task or recall information. Examples include a person demonstrating markedly superior proficiency in a new skill, such as riding a bicycle, or successfully recalling complex information, such as reciting a poem, when compared to their prior capabilities. This necessary focus on observable performance underscores

the operational definition of learning within psychology, where internal cognitive shifts are evidenced by external, measurable manifestations.

While behavioral evidence provides the operational definition, the underlying physiological mechanisms--what exactly changes within the organism when learning occurs--remain a subject of intense scientific inquiry. We currently lack complete knowledge regarding the specific neurological changes that materialize in the central **nervous system** to solidify acquired knowledge. However, advances in cognitive neuroscience and molecular biology are anticipated to elucidate the physical transformations, such as synaptic plasticity, that serve as the biological substrates for learning and memory formation.

3. Human Dependency and Developmental Necessity

Human beings exhibit a far greater and more critical dependency on learning for survival and functionality than do lower animal species. This heightened reliance is attributable both to the extraordinary complexity of human social and operational life and to the comparative absence of complex, pre-programmed behaviors. The human behavioral repertoire is significantly less determined by ingrained **reflexes**, inflexible instincts, and immediate physiological drives, compelling the individual to acquire most necessary skills through interaction and instruction.

The human infant enters the world possessing significantly fewer inherent capabilities to satisfy fundamental needs and cope with environmental situations compared to many animal counterparts. Consequently, humans require a notably prolonged period of infancy and childhood--a developmental phase entirely dedicated to intense and continuous learning. During this extended period, the individual must acquire a vast array of complex habits, essential motor skills, highly sophisticated **problem-solving ability**, and intricate communication patterns, including language, which are unparalleled in complexity among other organisms. A unique requirement for human adaptability is the necessity to explicitly "learn how to learn" efficiently.

This extensive and pervasive reliance on acquired behavior introduces a corresponding risk: the greater potential for acquiring undesirable or maladaptive responses. Therefore, human development frequently involves an extensive and necessary process of **relearning**. Relearning necessitates the modification, alteration, or complete reversal of previously established but unproductive habits, ensuring that the individual can adapt successfully to the continuously evolving demands of their personal and social environment throughout the entire lifespan.

4. Diverse Categories of Learned Experience

The field of learning is one of the most thoroughly studied domains in all of psychology, covering an exceptionally wide range of human experience. This expansive scope suggests that fundamental learning principles, whether unified or divergent, operate across virtually all contexts

of human interaction and performance. Learning is often categorized based on the nature of the acquired capability, reflecting the different domains in which acquisition takes place.

These categories include the acquisition of **motor skills**, which range from basic actions like driving a vehicle to complex proficiency in typing or managing intricate factory operations. It also encompasses the mastery of complex intellectual activities, exemplified by learning to play an instrument like the piano or developing high-level strategic reasoning required for games like chess. A significant portion of learning involves the formation of attitudes, which are deeply held, learned orientations, such as developing specific **prejudices** or forming reasoned feelings about broad societal issues like capital punishment or warfare.

Furthermore, learning is essential for social behavior, including the assimilation of cultural **customs** and the understanding and execution of occupational or class roles within a society. Verbal learning is critical for academic achievement and communicative competence, covering everything from studying literature to rote memorization of names and dates. Lastly, the development and expression of emotional responses, such as acquiring genuine sympathy, developing acute fear responses, or harboring lasting resentment, are also understood and studied as products of the continuous learning process.

5. Theoretical Debates and Unifying Principles

A core, enduring theoretical question within the study of learning is whether a singular, common set of principles applies universally to all these disparate forms of acquisition--motor skills, verbal tasks, and emotional responses--or whether there exist several fundamentally different sets of operational principles. Many early and influential psychologists actively sought a single, basic concept that would effectively cover and unify the entire process of learning across species and contexts.

Historical attempts to find this singular concept frequently centered on powerful explanatory frameworks such as **drive reduction** theories, which posit that learning is primarily fueled by the desire to reduce internal psychological tension, or various forms of classical and operant conditioning. At the moment, however, the prevailing evidence suggests that while unifying principles such as association are vital, it appears more likely that there are many different, specialized techniques and processes utilized by the organism for different types of learning, indicating the need for a more comprehensive and multifaceted theoretical model.

6. Practical Principles of Effective Learning

Despite theoretical disagreements concerning the underlying mechanisms, there is considerable practical consensus on many aspects that enhance the efficacy of the learning process. These agreed-upon points form the foundation for established pedagogical strategies and effective

training methods. One of the most important keys universally identified is **motivation**, which acts as the critical impulse for acquisition and engagement.

It is doubtful whether any organism learns effectively unless it is actively impelled by an essential need, confronted with a meaningful problem requiring resolution, or deliberately lured by the prospect of a reward. Crucially, increasing the level of motivation usually and demonstrably enhances the speed, depth, and eventual retention of the learning outcome. Consistent practice and systematic repetition are also generally required elements necessary to advance the learning process and ensure that the acquired material achieves long-term retention, effectively making the knowledge or skill "stick."

In the context of verbal learning, effective practice typically involves the use of **active recitation**--the process of retrieving information from memory without prompts--coupled with regular and periodic review. Research has reliably established that learning periods and practice sessions are often significantly more effective when they are strategically **spaced** out over time rather than being clustered closely together, a method known as massed practice. Moreover, for subject matter that is complex or lengthy, it is frequently, but not universally, better to break the content down and work on it piecemeal rather than attempting to learn the entirety all at once.

To mitigate the risk of focusing too intensely on isolated components--the danger of "missing the forest for the trees"--it is generally recommended that the learner first go through the entire material quickly. This initial sweep provides a crucial **frame of reference**, which serves to provide context and imbue the entire process with more meaning. A core practical principle remains: the more meaningful the material is to the learner, the easier it is to acquire, integrate, and the longer it will be retained in memory.

7. Further Reading

[Learning \(Wikipedia Entry\)](#)

[Psychology](#)

[Nervous System](#)

[Conditioning](#)