

CEP 911 Paper 2: Thorndike

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**What are Thorndike's fundamental "laws" of learning? State them without quoting**

In *Elementary Principles of Education* (Thorndike, 1929), two laws are discussed in terms of guiding the process of learning. The first, the Law of Effect, stated that a person learns to react to a situation or context in a way that produces certain effects (87). Behavior was described as needing motives (organic or social) to satisfy a want or decrease annoyance. It is stated that individuals do not act without expectation of an effect (88) and that acts are not done nor are reactions learned unless done as a means to fulfill a want.

The concept of want is further elaborated during the author's discussion of types of learning - primary, the mastery of a task, and concomitant, all other reactions or attitudes towards a task, teacher, or subject. The author described the process of learning to write as an exemplar for primary learning, noting that the primary reactions hold significantly less significance without concurrent concomitant reactions of which he classified concepts such as thinking, habits of judgement, emotional control and interest. Concomitant reactions are vital to the function of the Law of Effect as reactions of this nature feed the action of wanting to fulfill a want (99).

Interestingly, the discussion of the Law of Effect, while it supported the notion of environmental determinism in that situations and environments are portrayed as significant in influencing reactions, drew intellectual parallels with notions discussed by other educational theorists such as Dewey regarding his concept of *collateral learning*. The parallel between the concepts of concomitant learning and collateral learning lied in their emphasis on the importance of interest with regards to future reaction or experience (Thorndike likely to use the former term and Dewey the latter). This is an interesting construction between two different perspectives of education, partially because *Elementary Principles of Education* is largely considered a piece

written from a behaviorist perspective, but although similarities arise between this work of Thorndike and Watson's *Behaviorism* (1924), it could be argued that the use of certain terms such as thinking and planning, terms that are not acknowledged in *Behaviorism*, indicate a slight divergence from the parameters of Watson's behaviorism.

The statement of the Law of Effect in *EPE* fit well within the parameters of behaviorism, but the discussion of the influence of concomitant reactions to the Law of Effect is somewhat surprising, given that terms such as thinking are so readily acknowledged. Of importance to recognize is that *Behaviorism* discussed behaviorism theory as a general psychological framework while *EPE* discussed much of this theory in terms of schooling and the process of teaching and learning. This is important as both books, in some wording, state that behavior is elicited by want, while *EPE* elaborates upon this notion by arguing that learning only occurs when want is elicited.

The second law, the Law of Readiness, stated that levels of want are not static, rather they fluctuate, influencing the need to satisfy or fulfill a want. Additionally, according to this law, time and state sensitive levels of want, or readiness, can determine whether a reaction would fulfill a want or elicit annoyance (89). Hunger was used to illustrate the Law of Readiness, describing a diminishing want for food as a being is fed more and more, ultimately, resulting in annoyance if fed when the readiness for food does not exist.

The author discussed the Law of Readiness in terms of situations students encounter in school and teacher responsibility to facilitate situations that warrant the most productive states of readiness. This law was further explored by discussing ideas such as scheduling as they hint (but do not explicitly address) towards notions of associations by habit. This was described under the

heading of acquired desires and motives, which suggested that associations between situations influence states of readiness.

The role of concomitant learning is also prevalent when discussing the Law of Readiness, as the concepts of success and failure are mentioned as being significant in determining levels of readiness. Success is discussed as promoting interest, a concept already discussed as being crucial to the engagement in consequent learning while failure is described as eliciting an opposite trend of uninterest. Again, this relationship between concomitant learning and the laws discussed in *EPE* is interesting as it hints towards concepts beyond the environment not previously proposed nor acknowledged by *Behaviorism*.

### **What is Thorndike's view of the transfer of learning?**

The concept of transfer is discussed in *EPE* as being the ability to react a certain way across different situations. More specifically, part of learning is discussed as the organization of reactions. The importance of recognizing essential elements is talked about when addressing ability to exhibit transfer, meaning a learner's capacity to pick out commonalities among many situations and to select a reaction or organization of reactions to appropriately fit each situation relies heavily on this capability to understand shared elements. This ability is also described as *brightness*, which is discussed as a static attribute, innate, and unchanging. Because brightness is considered innate, one may speculate that *EPE* suggests and supports the notion of birth-given intellectual ability. This is an important characteristic within the discussion of transfer as prominent works in the field of behaviorism, such as *EPE*, insert brightness as a constant variable among other fluctuating variables (instructor competence, school environment) when examining the processes of transfer.

*EPE* elaborates on its explanation of transfer by continuing its discussion of primary and concomitant reactions. Reactions such as writing (primary) as well as attitudes, beliefs, and interests (concomitant), are described as being able to transfer across different situations. Transfer is discussed as being influenced by brightness, teaching methodology, and the nature of the task (101-105). Factors of influence as well as the concepts of each type of reaction may be discussed with relation to each other in a somewhat interdependent flow of learning. An example of the influence that different types of tasks have on transfer is the generalizability of reactions. Concomitant reactions such as will to work are discussed as being applicable to most all learning situations while attitudes regarding an attitude towards a specific topic or task is not as applicable to such a wide range of situations. An example of the connectedness among factors influencing transfer could be as follows: Brightness (ability to recognize commonality) is thought to influence correct primary reactions which may influence concomitant reactions of confidence and interest. Concomitant reactions, as discussed earlier, are influenced by teaching methodology which is driven by the nature of the task as well as awareness of learner ability. In *EPE*, the process of transfer is not explained much further than the ability to recognize essential elements of a situation and react or organize reactions correctly to different situations.

Though some ideas, like that of transfer, in *EPE* seem to diverge from more traditional behaviorist principles in that they acknowledge concepts such as thinking and reasoning, aspects of transfer are mentioned in great parallel to works such as *Behaviorism*. For example, frequency and severity are discussed as significant determinants for reacting, suggesting that the quantity of situations reacted to has strong implications towards the process of transfer.

**What is Thorndike's view of thinking? (Note that "thinking" is not "learning"; it is a kind of intellectual skill that must be learned.)**

To understand Thorndike's conceptualization of thinking, it may be useful to briefly consider his understanding of facts. *EPE* suggests the state of knowing a fact occurs when a learner reacts correctly to a situation (110). Facts, as depicted in the book, are a type of reaction separate from the type of which thinking belongs, classified as *intellectual reactions*. Intellectual reactions described techniques such as reasoning and judging, along with thinking. This distinction between Thorndike's separation of thinking and facts into different types of reactions is important when understanding his definition of thinking, that being thinking is the manipulation of facts (131).

*EPE* highlights 3 requirements for what Thorndike calls purposeful thinking (categorized as such includes reflection, creative imagination, reasoning, and problem solving) (130). The first requirement deals with the learner being aware of the facts in a given situation. Knowing facts is an essential piece to thinking as thinking's definition is the manipulation of facts. Without facts, according to this label, there cannot be thinking. The third requirement deals with the management of thinking. This notion is further elaborated (132) by discussing the need for "seeing" pertinent facts and using the organization of these reactions to solve problems (classified as a type of purposeful thinking in this section).

The reason for mentioning the first and third requirements before the second is because the second requirement is described as being innate while the other two are discussed as being influenced by school while the second, which deals with intellectual capacity, is fixed and unmoved by school.

Like the process of knowing a fact, which is described as a somewhat rigorous process in that to know a fact, one must react over many situations, thinking is described as developing through the learner's increase in knowledge (131). The difference between the two, knowing a fact and thinking, is that facts consist of reacting to a situation while thinking can be thought of as a reaction to reactions. Various organizations and manipulations of reactions (if reactions are correct, you could also substitute the term fact for reaction) is itself a reaction to different situations.

Like knowing a fact, *EPE* notes that thinking is not done without the presence of an unfulfilled want. For example, following the guidelines set forth earlier in the discussion of satisfaction and annoyance, a problem situation may be considered a situation in which there is a want to resolve or want to decrease annoyance. Influences such as severity may also play a role in how the individual thinks (reacts). For example, a problem concerning topics and influences of little relevance to an individual may not elicit great readiness to act upon fulfilling a satisfaction. Previous concomitant reactions may have informed this instance and influenced the individual's interest or motivation. Conversely, a problem with great implications and relevance to an individual may elicit a high level of readiness to react or organize reactions (think). As the problem is resolved, this level of readiness may diminish and with it, the want to think.

**In your view, how successful is Thorndike's theory in accounting for different kinds of "higher order" intellectual skills that schools and teachers try to teach, such as "critical thinking," "reasoning," and "argument"? In considering this question, think about different complex intellectual skills you care about, describe one or two, and then assess how well Thorndike's theory accounts for how we learn those skills.**

When considering higher order intellectual skills, I am drawn to the process of evaluating sources of information as a means of building knowledge, especially given the technological mediums of which are so prevalent in learning today. The explanation of *intellectual reactions* such as thinking, reasoning, and though not explicitly stated, evaluation (I would argue but ultimately can only speculate Thorndike would place this term in this category of reactions) in *EPE* would not adequately explain how the process of evaluation would function in *today's* educative contexts.

The first argument for this notion is that the nature of knowledge is not static rather continually changing. Thorndike's discussion of purposeful thinking, which includes higher level intellectual skills such as evaluation, rests upon a requirement to be aware of facts within a situation. This requirement has not changed in that evaluation does indeed dictate facts of which to reference in a situation. The issue with the explanation as discussed in *EPE* is that brightness or the innate ability to recognize commonality is no longer seen as static, nor is knowledge evaluated under the same circumstances it was during the writing of *EPE*. Information today is presented across interconnected mediums of varying degrees of similarity and difference. If information is a building block of facts, then a change in the way information is presented changes the situations in which facts reside, altering the criteria of correctly reacting to a situation. *EPE* describes knowing a fact as reacting correctly to a situation (many situations in order to establish knowledge of essential elements), but information as presented by mediums such as random access media do not rely nor dictate the seeking of commonality among information in order to develop fact, rather the emphasis is placed on expansion and continual inquiry as to how a fact is *not* reducible to essential elements. As a result, evaluation of



information according to Thorndike's theoretical framework does not fit well with the nature of knowing, today.

With that said, Thorndike's discussion of transfer and emphasis on exposure to many situations does fit well into frameworks of cognitivism that would rise in later years. Unlike *Behaviorism*, Thorndike's *EPE* acknowledged processes such as thinking, and while *EPE* relied heavily on the notion of environmental determinism, discussions of transfer allude to future discussions proposed by cognitive psychologists such as Piaget, particularly concerning the concepts of assimilation and accommodation. In short, *EPE* is a piece heavily influenced by the behaviorist perspective, but some of the concepts and discussions surrounding learning share nuances of theories later favored by theorists during the cognitive revolution.

References

Thorndike, E. L. (1929). *Elementary principles of education*. New York: The Macmillan Company.