



# Transfer of Learning: Best Practices In The Classroom

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# INTRODUCTION

According to Calais (2006), humans constantly perceive and interpret new things in light of their past experiences. This behavior forms the basis of *transfer of learning*, which is defined as the application and generalization of knowledge and skills acquired in one context towards other contexts and settings.

The learning transfer process is crucial not just to educational attainment but to success in work and everyday life. The ability to transpose learning between settings forms the basis of reasoning in common scenarios, as well as everyday successes in science, invention, and technology.

The transfer of learning process is especially important in K-12 settings. Camp (2012) notes that learning in public education systems in the United States is arranged in

successive order, such that skills and information acquired at one level are then assumed to be transferred to more complex skills at a higher level. Camp also emphasizes that individual concepts or grade-level-expectations based on state standards are designed this way. As a result, the learning system is based on the belief that, "... students will transfer learning from one problem to another within a course, from one year in school to another, between school and home, and from school to the workplace" (Camp, 2012).

This paper examines existing research on the transfer of learning process, emphasizing the factors that determine its success. Based on this analysis, several programmatic and policy opportunities to enhance these factors and improve the transfer process are explored.



## ELEMENTS OF THE LEARNING TRANSFER PROCESS

Researchers have determined that effective transfer of learning is contingent on several factors. For instance, Dixon (2012) highlights a number of elements, including the learner's understanding of the problem; the amount of time available for learning; the amount of deliberate practice performed; the learner's motivation; the framing or representation of the problem; the conditions in which the learning transfer is to take place; and the learner's own metacognition, i.e., the awareness and understanding of his/her thought processes. Dixon also notes that the success of the learning transfer process is also dependent on the type of transfer taking place. The process can be either near transfer—

which occurs when students apply their knowledge and skills in situations and contexts that are very similar to those in which the learning occurred— or far transfer— when a skill is performed in a context that is very different from the context in which the skill was learned. The latter form of transfer is more difficult since learners must consciously analyze the situation and recall the relevant rules or concepts required to apply their knowledge and skills in the given situation. As a result, opportunities for far transfer in problem solving within schools are understandably not as regular as the opportunities for near transfer (Dixon 2012).

Given this context, a successful transfer of learning can be ensured by addressing one or more of the aforementioned factors, such as the amount of deliberate practice; the framing or representation of the problem; and learner motivation.

## THE TEST EFFECT

Increasing the amount of deliberate practice— such as reciting the multiplication table, for instance— is a common strategy in improving learning. One area that can be leveraged in such situations lies in incorporating the *testing effect* into the process. According to Rohrer, Taylor, and Sholar (2010), transfer performance is considerably improved when the period of time committed to studying information includes at least one test. The authors go on to note that there have been few studies assessing the effects of tests on learning by children, yet nearly all have found positive effects of tests. For instance, studies on reading as a learning process concluded that the activity by itself was not as effective when compared to a combination of reading and recitation (though the effect disappeared for students younger than 8 years of age).

More recent research observed testing effects with children in the classroom and concluded that review questions improved eighth-grade students' recall of material that they had learned in their U.S. history course (Rohrer, Taylor, and Sholar, 2010).

Butler (2012) provides additional evidence of the effectiveness of testing in improving the learning transfer process. The author conducted four experiments examined how repeated testing and repeated studying affected retention and transfer of facts and concepts. Participants studied pre-selected prose passages and then either repeatedly restudied or took tests on the material. They were then given a final test that had either 1) the same questions; 2) new inferential questions within the same knowledge domain; or 3) new inferential questions from different knowledge domains. The study found that repeated testing, when compared to repeated studying, produced greater retention and transfer on the final test. Under condition #3, results showed that, when compared to repeated studying