



## ZERO-SUM TRAINING

### What is the practical impact of ineffective training methods?

In many structured learning situations, a preset, limited amount of time is available for practice. A high school gym teacher may devote two weeks to gymnastics skills. A college skills practicum may be one hour per day, three days per week, over a six-week period. A course in standard first aid training may take place over 16 hours on one weekend. In all of these examples, the task of the instructor (or someone who facilitates the learning process) is to maximize the amount learned in the limited amount of time that has been set aside for training. To do this, the instructor must carefully organize how the time is spent to achieve the most learning. So, how does one evaluate the relative effectiveness of training under these rigid time constraints?

A concept that is useful to consider in these situations is zero-sum training. The term comes from the concept of zero-sum games, such as chess. In the game of chess, each player begins with 16 pieces, and each player captures some of the other's pieces as the game progresses. A player cannot gain a piece without the other player losing a piece. The total number of pieces captured by one player will always equal the number of pieces that have been surrendered by the other player. In other words, the number of the pieces captured (+) plus the number surrendered (–) will always sum to zero.

The time spent in a specific activity becomes critically important in a time-limited skills training course for the same reason that chess is a zero-sum game. Comparing two methods of training, the less effective method has two disadvantages: (1) it is less productive than the other method in terms of its impact on learning, and (2) it uses up time that could have been spent engaged in the other, more effective method of training. Zero-sum training is simply the concept that every minute engaged in an ineffective method of practice is equal to a minute that could have been spent in a more effective method of practice. Quite simply, the ineffective method of practice is doubly ineffective because it wastes one hour of the learner's time, reducing by one hour the amount of time that could have been spent in more effective practice.

Those who accept the challenge of teaching any activity with limited time allocations for training should be aware of the zero-sum concept. As will be discussed in chapter 9, research suggests quite clearly that some training methods and strategies pay off in better learning than others do. According

to the zero-sum concept, then, it is doubly important that facilitators ensure that their practice methods and techniques are as theoretically and practically sound as possible to establish an effective learning environment.

### ***SELF-DIRECTED LEARNING ACTIVITIES***

1. Explain the zero-sum training concept in your own words.
2. Explain why the zero-sum training concept is most appropriate for situations in which practice time is limited.
3. Why does the zero-sum training concept not apply to someone who has unlimited time to devote to training?

### ***SUGGESTED READINGS***

Schmidt, R.A., & Lee, T.D. (2011). Motor learning concepts and research methods. In *Motor control and learning: A behavioral emphasis* (5th ed., pp. 327-346). Champaign, IL: Human Kinetics.

Zero sum. (2010, October 5). In *Wikipedia*. Retrieved from <http://en.wikipedia.org/wiki/zero-sum>.