
Schedules of Reinforcement...

planning reinforcement to improve behavior

This Intervention Tip Sheet has been developed to assist teachers and parents in providing the best possible educational opportunities to students with emotional and behavioral disorders. This Tip Sheet was published by the Institute on Community Integration, College of Education, University of Minnesota, Minneapolis and was authored by Kareen Smith of the Institute.

Introduction

A schedule of reinforcement refers to a deliberate plan which determines when and how often reinforcement is given to a student for appropriate behavior. The different schedules of reinforcement are outlined here, along with when and how they are most successfully used and with what kinds of behaviors the schedules are recommended.

What is continuous reinforcement?

When a target behavior is reinforced each and every time it is exhibited, this is referred to as continuous reinforcement.

This schedule should be used when teaching a student a new behavior not previously part of the student's repertoire and is especially useful with young students because it is very systematic. It is very effective in establishing an association between the target behavior and the reinforcement.

While continuous reinforcement will create an association between behavior and reinforcement, it will not produce long-term changes in behavior. If only continuous reinforcement is used, once it is withdrawn, the desired behavior will also cease. Also, if used too long, a student may learn to manipulate the intervention by behaving appropriately only when reinforcement is desired. Once an association has been established, it is time to change to one of the following schedules.

What are ratio reinforcement schedules?

When a target behavior is reinforced after a number of occurrences, this is referred to as a ratio reinforcement schedule.

This schedule is useful after having established a contingency between the reinforcement and appropriate behavior with the continuous reinforcement schedule. It is also a good option when continuous reinforcement would be too cumbersome.

There are two types of ratio reinforcement, each with its own benefits. Fixed ratio reinforcement is delivered after a given number of occurrences. Examples of fixed ratio reinforcement are reinforcing a child after every fifth math sheet is completed or after every third time a child exhibits sharing behavior.

Fixed ratio reinforcement is useful in establishing a contingency between behavior and reinforcement, when used consistently, because it is systematic. It is also often preferred by teachers to continuous reinforcement if attempting to establish the exhibition of an appropriate behavior which the student already understands to be desirable as it can be much more easily managed. However, research has shown that once a fixed ratio reinforcement schedule is terminated, the gains in positive behavior will also deteriorate if the behavior does not continue to be reinforced with some other schedule. Furthermore, a student can learn to manipulate this schedule if he or she figures out how often reinforcement is received. For these reasons, it is recommended that a fixed ratio schedule not be used for very long.

A variable ratio reinforcement schedule involves delivering reinforcement after an approximate number of times the target behavior is exhibited. Reinforcement might be delivered on average after every fifth math sheet is completed but could range in delivery from every third to every eighth sheet. This schedule is useful for

beginning maintenance of a reasonable well-established behavior and can be used when fading out a fixed ratio schedule. Since it is less systematic or consistent than either continuous or fixed ratio reinforcement variable reinforcement is not good for teaching a new behavior.

What are interval reinforcement schedules?

When a target behavior is reinforced after a period of time, this is referred to as an interval reinforcement schedule.

This schedule is useful for behaviors which can be measured in terms of their duration, for example, in-seat behavior, on-task behavior, etc.

As with ratio reinforcement, there are two types of interval reinforcement. The first type is fixed interval reinforcement, which designates a specific interval of time, after which reinforcement is delivered contingent on appropriate behavior. Delivering reinforcement after every five minutes of on-task behavior would be an example of fixed interval reinforcement. This is a very systematic and consistent schedule which is excellent for strengthening a behavior. However, as with fixed ratio reinforcement, if reinforcement is simply stopped research shows that the gains made in behavior will also deteriorate. Variable interval reinforcement is like variable ratio reinforcement in that reinforcement is delivered after an average length of time. This schedule is effective for already established behaviors and can be used when fading out a fixed interval schedule.

How do I choose a reinforcement schedule?

Recommendations have been given about which types of behaviors tend to be best reinforced with which types of schedules. It is likely that you will find ways to modify these to make them most effective and easily delivered within your classroom and with particular students. What is most important, however, is that you consciously decide which type of schedule to use and if it seems not to be having an effect, reevaluate it or your functional analysis.

Choosing the wrong type of reinforcement schedule can be detrimental to improving behavior. For example, a student who already possesses a desired behavior in his or her repertoire but simply does not choose to exhibit it will not benefit from continuous reinforcement. He or she may, in fact, learn that manipulating you is possible by refusing to exhibit the behavior unless it is known that you will deliver the desired reinforcement. For such reasons, it is very important that choosing a schedule of reinforcement be an integral aspect of your behavior intervention plan.

Final Note...

It is imperative that the reinforcement delivered is appropriate for each individual student. If what is delivered to the student as reinforcement is not preferred by him or her, none of these schedules will work. If you are having problems with schedules of reinforcement, you may want to reevaluate the reinforcement itself. For information on selecting appropriate reinforcers, please see the tip sheet entitled "Positive Reinforcement."

References

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