# ABA in the Classroom

## Schedules of Reinforcement

When utilizing positive reinforcement, the type of reinforcer used, as well as the presentation schedule or schedule of reinforcement (when and how to reinforce) can impact the strength of a student response. A schedule of reinforcement outlines how often reinforcement is provided for appropriate behaviour. The specific schedule used is dependent on the behaviour and situation in which the behaviour is being utilized. In the classroom, continuous reinforcement may not be easily implemented and the better option may be a specific ratio, or interval schedule. In other situations, one may begin with a continuous reinforcement schedule to teach a specific skill and then switch to a ratio or interval schedule once the skill has been learned.

The goal of utilizing reinforcement is to increase the likelihood that the behaviour will occur again in the future,; therefore, consideration needs to be taken into account as to what best meets the needs of the student. Choosing the wrong type of reinforcement schedule can be detrimental to improving behaviour.
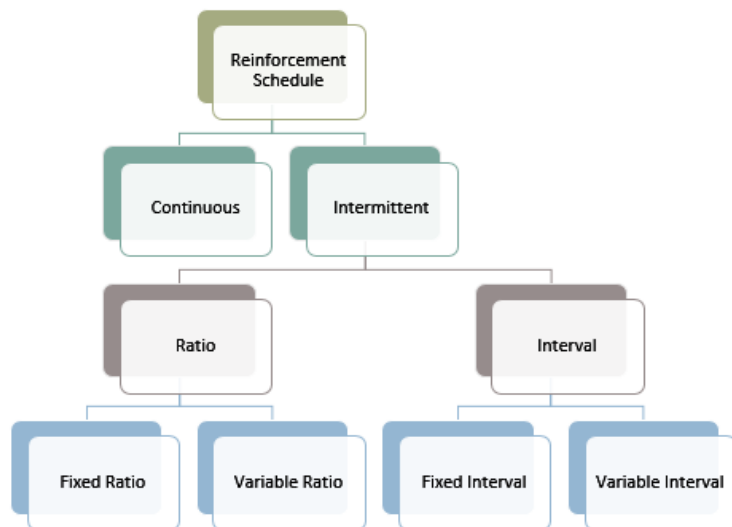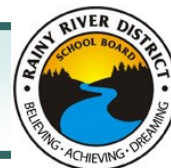


### Continuous Reinforcement (CRF)

Continuous reinforcement (CRF) is the delivery of a reinforcer on a continuous basis. Reinforcement is provided each time the student exhibits a specific behaviour. It provides the student with a high "thick" ratio of reinforcement, establishes an association between behaviour and reinforcement, and also has a positive effect on the student's rate of responding. Continuous rates of reinforcement are most effective during the early stages of any reinforcement program and are best used when students are learning new skills/behaviours. To support the maintenance of a skill once it has been learned, an intermittent schedule should be introduced. A withdrawal of continuous reinforcement without the implementation of an intermittent schedule can result in a rapid decrease of the target skill/behaviour.

### Intermittent Reinforcement

Intermittent, also referred to as partial reinforcement, follows some but not all responses of a specific behaviour. New skills/behaviours are acquired more slowly using an intermittent reinforcement versus continuous reinforcement; however, intermittent schedules do support the maintenance of positive behaviours over time, prevents satiation of reinforcement, teaches delayed gratification, and behaviours are less likely to decrease once reinforcement is removed. Intermittent schedules can be categorized into a ratio or an interval schedule at a fixed or variable rate (please see reverse). A ratio schedule requires that a completion of a number of responses occur before reinforcement is received, where as an interval schedule requires the occurrence of at least one correct response after a set period of time before reinforcement is received.

"The way positive reinforcement is carried out is more important than the amount."

~ *B.F. Skinner*

Fixed Ratio (FR) Schedule:

A fixed number of responses must occur before reinforcement is provided. A fixed ratio of one (FR-1), in which reinforcement is delivered after each response, is the same as continuous reinforcement; a fixed ratio of three (FR-3) would require three responses to occur prior to delivering reinforcement. Using a fixed ratio is helpful in establishing a contingency between behaviour and reinforcement; however, it is not uncommon for a student to stop responding for a period of time after reinforcement is delivered, known as post-reinforcement pause. To minimize post-reinforcement pause, a variable ratio schedule can be effective.

Variable Ratio (VR) Schedule:

With variable ratio (VR) scheduling, an average of a specified number of responses must be completed prior to receiving reinforcement. For example, a student with a VR-5 would be reinforced on the average of every five correct response, such as on the eighth, third, fourth, and sixth response on subsequent opportunities. The unpredictability of the reinforcement maintains student motivation to respond and at a more even rate.

Fixed Interval (FI) Schedule:

Under a fixed interval (FI) reinforcement schedule, reinforcement would be delivered for the first correct response following the elapse of a specified time limit All correct responses displayed prior to the time limit elapsing would not be reinforced. With a fixed interval schedule, responses tend to occur at a lower rate compared with those on ratio schedules. The length of the time interval can also effect the rate at which a student responds. Shorter time intervals result in a greater rate of response versus lengthier intervals. This is because the student quickly learns that any responses made during the time interval is not reinforced so they increase their production of responses near the end of the interval time.

Variable Interval (VI) Schedule:

Variable interval (VI) reinforces a response after an average length of time has elapsed. Much like variable ratio, the unpredictability increases student motivation and produces a more even rate of reinforcement as the student cannot predict when the time interval will elapse.

*The use of a MotivAider® can be a useful tool to support with consistent implementation of both fixed and variable interval reinforcement schedules.*

## Thinning of Reinforcement

In the school environment, a reinforcement system should be viewed as a temporary structure used to improve student skills/behaviour. As skills/positive behaviours increase, reinforcement schedules should be thinned.

Thinning of reinforcement involves a graduallincrease in the amount of appropriate responses required for reinforcement. Reinforcement should move from a thick reinforcement schedule (continuous) to a thinner reinforcement schedule (variable), and should be completed in a systematic manner to avoid ratio strain.

Ratio strain can occur if the reinforcement schedule was thinned too quickly and the amount of requests required to earn reinforcement is too large. This results in the student not earning reinforcement often enough to maintain appropriate responses.

**References:**

Alberto, P.A., & Troutman, A.C. (2009). *Applied behavior analysis for teachers*. 8th ed. Upper Saddle River, New Jersey: Pearson Education.

Kerr, M.M., & Nelson, C.M. (2006). *Strategies for addressing behavior problems in the classroom*. 5th ed. Upper Saddle River, New Jersey: Pearson Education.