

# Quick Reference Guide: Differential Reinforcement

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**What is Differential Reinforcement (DR)?** Differential reinforcement is a widely used procedure that utilizes both reinforcement and extinction to suppress undesirable behavior (Iwata & Pace, 1990). It is an operant procedure used to increase the occurrence of desirable behavior while simultaneously decreasing undesirable behavior (Vladescu & Kodak, 2010).

Why?	Where?	Who?
<p><u>Differential Reinforcement: A Least Intrusive Intervention</u> – Iwata &amp; Pace (1990) consider DR as one of the least intrusive behavioral interventions due to:</p> <ul style="list-style-type: none"> <li>-DR does <u>not</u> involve extended interruption of ongoing activities (e.g., time-out)</li> <li>-DR does <u>not</u> involve contingent removal of positive reinforcers (e.g. response cost)</li> <li>-DR does <u>not</u> involve the presentation of aversive stimuli (e.g., punishment).</li> </ul>	<p><u>Broad Application</u> – DR has been utilized to decrease a wide range of problem behaviors such as: talking back, cursing, off-task, out of seat, noncompliance, talking out, turning in messy papers, physical aggression, self-injurious behavior, inappropriate use of materials (Cooper, 2007).</p> <p>-DR when combined with effective reinforcement schedules have shown to increase skill acquisition in early intervention programs (Vladescu &amp; Kodak, 2010).</p>	<p>Teachers, therapists, and parents have a long history of utilizing DR interventions in education, treatment, and everyday social interactions (Cooper, 2007).</p> <p style="text-align: center;"><b>How do I utilize Differential Reinforcement?</b></p> <p><i>- Each form of DR is accompanied by specific guidelines (e.g. DRO = select reinforcers that are powerful and can be delivered consistently (Cooper, 2007)) in order to provide effective treatment.</i></p> <p><i>-Further research beyond this document is recommended in regards to the advantages/disadvantages and utilization of DR with other ABA procedures.</i></p>

## Differential Reinforcement Procedures (derived from Mayer et. al, 2014)

Procedure	Definition	Implementation/Usage:	Example
<b>Differential Reinforcement of High Rates of Responding (DRH)</b>	DRH- reinforcement delivered for emitted behaviors at or above a pre-established rate.	<ol style="list-style-type: none"> <li>1. Identify behavior that individual displays too infrequently.</li> <li>2. Reinforce behavior at or above pre-established rate.</li> </ol> <p><u>Used for:</u> increasing rate of appropriate behavior or fluency.</p>	Student raises hand average of 3 times per day. Target amount of hand raises is 5 per day. Strategies to increase hand raising put in place. Teacher reinforces 5 or more hand raises per day.
<b>Differential Reinforcement of Incompatible Behavior (DRI)</b>	DRI – a sub-class of DRA, with a further restriction: the alternative behavior cannot be emitted simultaneously with the unwanted behavior.	<ol style="list-style-type: none"> <li>1. Identify acceptable incompatible behavior(s) with the target behavior you are attempting to decrease or replace.</li> <li>2. Reinforce the occurrence of that incompatible behavior while placing target behavior on extinction.</li> </ol> <p><u>Used for:</u> decreasing self-injurious behavior.</p>	Student shouts out in class (teacher ignores). Student does not talk (teacher reinforces).
<b>Differential Reinforcement of Low Rates of Responding (DRL)</b>	DRL- a behavior is reinforced only if it occurs following a specific period of time during which it did not occur, or since the last time it occurred.	<ol style="list-style-type: none"> <li>1. Use optimal contingencies and base sizes of intervals on previous performance patterns.</li> <li>2. Increase size of interval gradually for effective shaping.</li> </ol> <p><u>Used for:</u> Reduce not eliminate acceptable behaviors occurring at excessive rates.</p>	Student excessively raises his hand once per minute. Established acceptable rate is once per 5 minutes. Reinforced only for hand raises every 5 minutes. All others ignored.
<b>Differential Reinforcement of Other Behavior (DRO)</b>	DRO (a.k.a. differential reinforcement of zero occurrences, omission training.). Reinforcement is contingent upon the absence of the challenging behavior.	<ol style="list-style-type: none"> <li>1. There are 2 types of DRO procedures: <u>Interval (fixed/whole/variable):</u> reinforcement provided following interval of time which the challenging behavior did not occur (if challenging behavior occurs – timer is reset). <u>Momentary (fixed/variable):</u> reinforcement if behavior did not occur at conclusion of interval.</li> </ol> <p><u>Used for:</u> reducing inappropriate behavior.</p>	<u>Example (interval):</u> Timer set for 2 minutes. Student reinforced for any behavior other than shouting upon conclusion of the 2 minute interval.
<b>Differential Reinforcement of Alternative Behavior (DRA)</b>	DRA – involves reinforcing any alternative(s) to the unwanted behavior, while treating or withholding reinforcement from the unwanted behavior.	<ol style="list-style-type: none"> <li>1. Identify stimuli of reinforcing value for client.</li> <li>2. Identify acceptable alternative behavior that yields a similar consequence.</li> <li>3. Reinforce the occurrence of that alternative behavior.</li> </ol> <p><u>Used for:</u> typically to reinforce a functionally equivalent yet different behavior.</p>	Student shouts out for attention (teacher ignores). Student raises hand (teacher reinforces).
<b>Differential Reinforcement of Diminishing Rates of Responding (DRD)</b>	DRD- reinforcement is delivered when the number of responses in a specified period of time is less than, or equal to the prescribed limit.	<ol style="list-style-type: none"> <li>1. Identify target amount of behavior occurrences in time.</li> <li>2. Reinforce equal or less of target behaviors.</li> </ol> <p><u>Used for:</u> decrease behavior that occurs to frequently.</p>	Student excessively raises his hand 20 times per 30 minute periods. Established acceptable rate is 10. Teacher reinforces 10 or less hands raises and ignores rest.

### References

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