Approaches to Learning and Teaching

Four Theories of Learning

**Operant Learning and Applied Behavior Analysis**

# Cognitive Behavior Modification

# Sociocultural Theory of Cognitive Development

# Information Processing and Schema Theories

1. Operant Learning and Applied Behavior Analysis --Operant learning and applied behavior analysis focuses on identifying observable behaviors and manipulating the antecedents and consequences to change behavior. This theory believes behavior is learned. Operant Learning can be addressed by manipulating antecedents, increasing desirable behaviors through consequences, and by decreasing undesirable behaviors through consequences.

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| Manipulating Antecedents | Increasing Desirable Behaviors Through Consequences | Decreasing Undesirable Behaviors through Consequences |
| Changing the instructional content | Reinforcement | Extinction |
| Classroom rules | Secondary Reinforcers | Differential Reinforcement |
| Classroom schedule | Shaping | Punishment |
| Room arrangement | Premack Principle | Timeout |
| Peer interactions | Group Contingencies |  |
|  | Contingency Contracting |  |

* 1. Manipulating Antecedents

### An antecedent is an environmental or stimulus that precedes a behavior and influences the probability that it will occur in the future. Antecedents influence desirable and undesirable behaviors. It is relatively easy for teachers to manipulate antecedents. Teachers can manipulate antecedents by:

### Changing the instructional content

### Classroom rules

### Classroom schedule

### Room arrangement

### Peer interactions

### By changing these factors, learning can be increased and changing these factors may minimize behavior.

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| Antecedents | Behavior | Consequences |
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* 1. Increasing Desirable Behaviors Through Consequences

### According to operant conditioning, behavior is controlled by the consequences that follow. Thus to increase behavior we can manipulate the consequences that follow the behavior. For a behavior to be maintained or increased the following principals must be applied:

* + 1. The behavior must already be in the student’s repertoire. If you want to increase or maintain a social or academic behavior, you must first be sure the student knows how to perform the target behavior.
		2. A consequence must follow the precise behavior you want to change and be linked to it through language.
		3. A reinforcer is whatever follows a behavior and maintains or increases the rate of the behavior
		4. To be most powerful, reinforcement should occur following the behavior.

**Reinforcement**

**Secondary Reinforcers**

#### Shaping

**Premack Principle**

**Group Contingencies**

**Contingency Contracting**

### Reinforcement is the most significant means to increase desirable behavior. There are two types of reinforcement: positive and negative. Positive reinforcement is the presence of a stimulus to increase responding. Positive reinforcement increases responding by following the target behavior with activities, objects, food, and social rewards. The success of reinforcement depends on the selection of reinforcers. A reinforcement menu is recommended. When using reinforcers begin with intrinsic reinforcers, such as listening to music, coloring etc., and move to more tangible reinforcers as necessary.

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| Abstract, Intrinsic Concrete, Tangible | Consequence Level | Examples |
| Positive Physical Contact | Hugs, pats, proximity |
| Food | Milk, raisins, crackers, gum |
| Toys | Balloons, marbles, kite, clay |
| School Implements | Eraser, ruler, notepad, pencil |
| Privileges | Free time, errands, computers, eat lunch with teacher |
| Praise | Positive comments, grades, certificates |
| Internal self reinforcement | “I did well”, “My work is complete” |

### Negative Reinforcement is the removal of a stimulus to increase responding. Negative reinforcement means taking away something unpleasant contingent on the performance of a specific behavior. A common use in school is the completion of work assignments to avoid staying after school. Students often use negative reinforcement with adults as in the child who throws a temper tantrum until he or she gets what they want.

### Secondary Reinforcers are previously neutral behaviors that are paired with a reinforcer and therefore takes on reinforcing properties of its own. Thus if a teacher always calls a student up to the desk prior to rewarding, then being called to the teachers desk becomes a secondary reinforcer. Praise and attention are often secondary reinforcers.

### Token Reinforcers are systems in which a symbol is given contingent on designated behavior. Tokens have very little value in themselves, but can be exchanged for valuable things or privileges. These systems may be very simple or very complex.

### Shaping is when a behavior that more closely approximates the target response is reinforced. An example would be to begin rewarding a student for skip counting by 2’s. When this has been mastered the student is no longer rewarded for skip counting but for responding to a problem and applying the skip counting to the problem 6 X 2.

### The Premack Principle is a strategy where we pair a frequently occurring activity to another activity that we hope to increase in frequency. If a student likes to read for pleasure, we may team completing his spelling as a contingency for free time to read. Another example may be that a student likes to listen to music on his Walkman, and we set up a contingency with him to go for 30 minutes without demonstrating an undesirable behavior, he will get five minutes of free time to listen to his Walkman.

### Group Contingencies are when a group of individuals are reinforced or loses reinforcement based upon the performance of an individual.

### Contingency Contracting is an agreement between two or more people that specifies their behavior and consequences. The contract should specify who is doing what, when, under what conditions and for what consequences.

### Decreasing Undesirable Behavior Through Consequences

### Extinction

### Differential Reinforcement

### Punishment

### Timeout

**Extinction** is the removal of reinforcement following the behavior. This is an effective means but is often slow. An example would be a teacher who wants to extinguish a student’s behavior of shouting out and determines that telling the student to raise his hand is reinforcing the shouting. The teacher removes the reinforcer by stating for the students to raise their hand and ignores the students shouting out. During extinction the rate or intensity of the behavior increases before decreasing. Remember the following factors:

* Ignoring can only be effective when the behavior is being reinforced by the teacher’s attention.
* If the teacher attempts to eliminate a behavior through ignoring, the behavior must be ignored every time it occurs.
* Ignoring will not be effective if other reinforcers, such as the attention of classmates are maintaining the behavior.

# Differential Reinforcement involves strengthening one set of responses in contrast to another. It is an effective procedure for developing a positive behavior management plan. The advantage is that positive consequences are used to reduce the strength of the undesirable behavior. There are several forms of differential reinforcers:

* **Differential Reinforcement of Other Rates of Behavior or of Zero Rates of Behavior (DRO)**
* **Differential Reinforcement of Incompatible Behaviors (DRI)**
* **Differential Reinforcement of Lower Rates of Behavior (DRL)**
* **Differential Reinforcement of Communicative Behaviors (DRC)**

**Differential Reinforcement of Zero Rates of Behaviors (DRO)**

DRO means that the student is reinforced for periods of time during which no inappropriate behavior is displayed. For example, if the goal is to reduce fighting, the student may be reinforced for every hour that he or she is not in a fight. Or, if the goal is to reduce cursing in the classroom, the teacher may reinforce the student for every 10 minutes of refraining from cursing. The frequency of the inappropriate behavior before the treatment intervention begins will determine the initial criterion for reinforcement. (During baseline, the teacher counts how much time elapses between instances of the target behavior, the average of all these times becomes the initial criterion.) The time intervals with "zero undesired behavior" will gradually be increased until the student's behavior approximates that of an average peer in a regular classroom setting.

For example, the teacher said Michael fights on an average of three times per 6-hour school day. Therefore, he might be reinforced for every 2 hours (6 divided by 3) that he does not fight. At the end of each 2-hour segment that he does not fight, Michael can give himself a point on his point card. His points can be turned in daily or weekly for classroom rewards.

When using differential reinforcement, it is usually recommended that any instances of the targeted inappropriate behavior be ignored. However, this is not always possible with severe behaviors such as fighting. Punishment for the inappropriate behavior may be necessary if the behavior is dangerous or if it is one that spreads quickly to other students (e.g., running in the school, horseplay, or calling out). However, the teacher should try a DRO procedure before considering punishment. DRO can work well with verbal aggression (e.g., name calling, threats), talking back, destruction of property, and tantrums.

**Differential Reinforcement of Incompatible Behaviors (DRI)**

With this strategy, the teacher reinforces a specific student behavior (e.g., following directions) that is impossible for the student to perform at the same time as the behavior targeted for reduction (e.g., noncompliance). For instance, if a teacher wishes to reduce name-calling behavior, then calling people by their appropriate names would be systematically reinforced. The student cannot both call people by their appropriate names and name call at the same time. Thus, as calling people by their correct name increases in frequency, name-calling behavior automatically becomes less frequent. As another example, if a teacher wishes to reduce talking, it would be wise to heavily reinforce instances when the student's mouth is closed. The two behaviors (mouth closed and talking) are incompatible.

The behaviors chosen (the one targeted for reduction and the alternate behavior) should cover 90% to 100% of the possible alternative behaviors (Donnellan, LaVigna, Negri-Shoultz, & Fassbender, 1988). This means that the child will have no other choices for behavior. For example, the child is either off task, quiet or talking, in seat or out of seat, on task. There are few other choices. It would not work well to reinforce "hands-to-self" behavior in order to decrease off-task behavior. The student can keep hands to self and sleep, which would be off task, and still be eligible for reinforcement. Likewise, it would not work well to reinforce task completion to decrease noncompliance. The student could finish the task but not follow the teacher's directions in doing so (noncompliance); the task could be handed in late or done in pencil instead of pen. The student would still be eligible for reinforcement even though the noncompliance was not reduced. If the student can be doing what is asked while still engaging in the undesirable behavior, another incompatible behavior should be chosen for reinforcement. Table 1 provides some examples of appropriate incompatible behaviors.

**Table 1**

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| **Positive Incompatible Alternatives for Common Classroom Behavior Problems** |
| **UNDESIRED BEHAVIOR** | **POSITIVE INCOMPATIBLE ALTERNATIVE** |
| Talking back | Positive response such as "Yes Sir" or "OK" or "I understand"; or acceptable questions such as "May I ask you a question about that?" or "May I tell you my side?" |
| Cursing | Acceptable exclamations such as "Darn," "Shucks." |
| Being off-task | Any on-task behavior: looking at book, writing, looking at teacher, etc. |
| Being out of seat | Sitting in seat (bottom on chair, with body in upright position). |
| Noncompliance | Following directions within \_\_\_ seconds (time limit will depend upon age of student); following directions by second time direction is given. |
| Talking out | Raising hand and waiting to be called on. |
| Turning in messy papers | No marks other than answers; no more than \_\_\_\_ erasures; no more than three folds or creases. |
| Hitting, pinching, kicking, pushing/shoving | Using verbal expression of anger; pounding fist into hand; sitting or standing next to other students without touching them. |
| Tardiness | Being in seat when bell rings (or by desired time). |
| Self-injurious or self-stimulatory behaviors | Sitting with hands on desk or in lap; hands not touching any part of body; head up and not touching anything (desk, shoulder, etc.) |
| Inappropriate use of materials | Holding/using materials appropriately (e.g., writing only on appropriate paper, etc.) |

**Differential Reinforcement of Lower Rates of Behavior (DRL)**

For behaviors that do not need to be reduced quickly or reduced to zero occurrence (e.g., calling out for help), or for behaviors that are strong habits (e.g., talk-outs, burping, teeth grinding, self-stimulation), DRL may be the technique of choice. A teacher using this strategy would reinforce progressively lower rates of a behavior. For instance, if a teacher can tolerate some call-outs, then she can reinforce the student for progressively reducing the number of times that she calls out without permission. Or if a teacher wants to reduce teeth grinding, but does not need this to change immediately, he could reinforce the student for grinding his teeth no more than four times during a specific time period. When the student is successful at this level, reinforcement would next be contingent upon grinding teeth no more than three times. This criterion would gradually be lowered until the behavior is at an acceptable level.

Determining the average frequency or duration of the behavior before starting the procedure sets the initial criterion for reinforcement. If a student talks out on an average of four times per period, then setting the initial reinforcement criterion at four or less would be appropriate. The criterion for reinforcement is gradually lowered by reasonable intervals until an acceptable level of behavior is achieved. By allowing the student to change a habitual behavior gradually, rather than expecting immediate cessation, DRL helps ensure success as the student progresses toward the target level. Dangerous behaviors or contagious behaviors would not be appropriate for reduction with a DRL technique.

**Differential Reinforcement of Communicative Behaviors (DRC)**

Recent literature (Sasso & Riemers, 1988) has proposed that some students may be acting inappropriately in order to communicate something. An analysis of aggressive and noncompliant behavior may reveal that the student is simply attempting to say, "Stop, I don't want to do it," or "I don't like you, " or "I don't know the answer," or "I'm frustrated." Many students have not learned how to say these things directly. If this is the case, then teaching an appropriate alternative method for the student to communicate those thoughts and feelings will result in a reduction of the aggressive and noncompliant behavior.

The teacher's task is to analyze the student's inappropriate behavior and attempt to find communicative intent in it. If the teacher suspects communicative intent, then an appropriate communication strategy needs to be determined. For example, how should students communicate anger? Students with good language skills may learn to write about the anger or say "Being pushed makes me angry." Lower-functioning students may need to draw a picture of the emotion or use words or sign language. If the teacher demonstrates an alternative style of communication and heavily reinforces the student when appropriate communication is used, aggressive and noncompliant behaviors that have communicative intent should be reduced.

**Advantages of Differential Reinforcement**

Differential reinforcement has many advantages. Among them are the following:

1. If the differential reinforcement system reduces the inappropriate behavior, the teacher can avoid punishment and its side effects. Most teachers are not effective punishers. They do not punish consistently, unemotionally, or contingently. Moreover, many students in special education have built up resistance to commonly available punishers such as scolding, being sent to the office, or corporal punishment. They require a much stronger punisher that may not be available to school personnel. Use of differential reinforcement can also help the teacher forestall the rage, avoidance, and anger reactions that often accompany the delivery of punishment.
2. Differential reinforcement is a powerful intervention strategy that will effectively reduce the majority of inappropriate behaviors without the concurrent use of punishment. Punishment should be used only after differential reinforcement techniques alone have been found to be inadequate. This may be true in the case of aggressive, dangerous, destructive, self-injurious, or extremely disruptive behaviors which, because of their severity, need to be extinguished immediately.
3. Use of differential reinforcement will help ensure that the teacher is teaching prosocial behavior because the teacher must specify a positive goal, assess the student's current skill level relevant to that goal, provide direct instruction in deficient skill areas, and give the student feedback (e.g., reinforcement) regarding progress toward the goal.
4. Differential reinforcement can be conducted in a variety of settings by a variety of people, thus adding to effective generalization.
5. Differential reinforcement allows the teacher to display and demonstrate prosocial behavior (e.g., praising someone's efforts and giving rewards) as opposed to antisocial behavior (e.g., hurting someone).
6. Once a behavior is targeted for reinforcement, individualized education program (IEP) goals and objectives are easily written in positive terms.
7. Differential reinforcement tends to enhance the student-teacher relationship by setting up positive interactions between the target student and the teacher. It creates a situation in which the teacher delivers positive instead of (or in addition to) negative consequences.

**Steps for Implementation**

The following steps are recommended for classroom implementation.

* **Identify the behavior to be reduced or eliminated.** This is generally the easiest step. However, a word of caution: Do not try to change every undesired behavior that a student exhibits. Start with the behavior this is most intolerable in the school setting or the behavior that is causing the most problems for the student.
* **Identify positive alternatives to the undesired behavior.** What would you like for the student to do instead? Provide the student with an alternative behavior that can be reinforced. For example, if the student is talking out without permission, reinforce only when he or she raises a hand to speak; if the student is frequently aggressive, reinforce during the times when he or she is not aggressive. If a student calls out frequently provide reinforcement for calling out less often. If a student acts out feelings, model an appropriate way to communicate feelings.
* **Select a system of differential reinforcement.** Use DRL for behaviors that can be reduced gradually; DRO for behaviors that need to be reduced to zero levels; DRI to teach a specific positive behavior as an alternative to the undesirable behavior; and DRC when the goal is to increase functional communication skills. Table 2 lists recommended differential reinforcement systems for common behavior problems.

## Table 2

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| **Positive Incompatible Alternatives for Common Classroom Behavior Problems** |
| **PROBLEM BEHAVIOR** | **DIFFERENTIAL REINFORCEMENT TECHNIQUE** |
| Talking back | Reinforce each 15- or 30-minute or 1-hour period with no talking back (DRO). Or reinforce each time that the student responds to the teacher without talking back (DRI). |
| Causing property damage | For each day that no property is damaged, reinforce the student and/or the class (DRO) |
| Cursing | Reinforce each 15- or 30-minute or 1-hour period with no cursing (DRO). Reinforce use of appropriate adjectives and exclamations (DRC). |
| Being off task | Reinforce each 5-, 10-, 15-, or 30-minute period of continuous on-task behavior (DRI). |
| Failing to complete tasks | Reinforce each task that is completed, half-completed, or started (DRI). |
| Tardiness | Reinforce each day or period that the student is on time (DRI). |
| Being out of seat | Reinforce 5-, 10-, 15-, or 30-minute periods of continuous in-seat behavior (DRI). |
| Fighting | Reinforce the student each time he or she interacts appropriately with another student (DRI). Or reinforce the student each hour that he or she does not tease, pinch, etc. (DRO). |

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| Noncompliance | Reinforce the student for each direction that he or she follows with 5 seconds (DRI). The schedule can be thinned to every 3 directions followed, 8, 10, etc. |
| Talking out | Reinforce the student each time that he or she raises a hand and waits to be called on (DRI). Thin the schedule to 3, 5,10 times, etc. Or reinforce progressively less talking out (DRL). |

* **Set up a reinforcement system.** Pick reinforcers appropriate for the student's age and grade level. The reinforcers can be tangible reinforcers of privileges. Use school-related (natural) reinforcers whenever possible. Social reinforcers (smiles, praise, etc.) should always be used in conjunction with other reinforcers so that other reinforcers can be faded eventually. Survey the students, watch them, or ask other teachers and parents for appropriate reinforcer ideas. Make a list of at least 10 possible reinforcers.

Token reinforcement systems are a convenient way to reinforce systematically in the classroom. Checkmarks, stars, stamps, stickers, or initials can be exchanged for the reinforcers on the list. Tokens make it possible to give heavy reinforcement initially without disrupting lessons and without the danger of satiation. For more information on token systems see Alberto and Troutman (1986); Ayllon and Azrin (1968); Kazdin (1977); Polloway and Polloway (1979); and Stainback, Payne, Stainback, and Payne (1973).

* **Set a success criterion.** Determine the **final** criterion for the desired behavior. For example, how long must the student stay seated? How many tasks must the student complete each day? How long must the student display no teasing? The success criterion will vary according to the age and developmental level of the child, the setting in which the child must operate, and the behavior. One way to decide on a reasonable criterion is to determine how much or how long the same behavior is exhibited by an average student of the same age in a relevant setting. For example, if most students stay in their seats for an average of 40 minutes continuously, then do not stop the reinforcement strategy until this criterion is met by the student and the behavior is exhibited at this level over a substantial period of time. Be specific about setting a success criterion. It should not be decided haphazardly, but should be based on what the student needs to display to be successful in the mainstream setting. Begin by reinforcing small increments or short periods of time, and gradually lengthen these time periods or increase the amount of behavior required for reinforcement.
* **Evaluate results.** Count both the inappropriate student behavior and the alternative behavior that had been reinforced. Simply saying that the student is acting "better" does not provide the information necessary for further planning. If either behavior is not progressing in the desired direction, check the intervention for problems.
* **Potential Problems**

The following are possible reasons why the differential reinforcement system is not working. Check these items before and during your intervention.

1. The target behavior has not been specified or assessed well. Pick one behavior at first and count it. Also, analyze it for communicative intent.
2. The reinforcers are not as rewarding to the student and/or are less powerful than the reinforcers the student is receiving for inappropriate behavior (e.g., teacher or peer attention, avoiding tasks, etc.)
3. The reinforcers are not delivered often enough for the student to recognize the value of exhibiting the desired behavior, or they are delivered so often that they cause satiation.
4. The reinforcers are not delivered consistently and contingently. Do not just give reinforcers when you feel like it, or stop the strategy because it "takes too much time." If the strategy is working, do not stop it until the success criterion is met.
5. The alternate behavior is not one that is achievable by the student. If the student does not know how to perform the behavior, then it should be taught using direct instruction and prompting.
6. The reinforcement schedule is thinned too slowly. Fade prompts and thin the reinforcement schedule as the student is successful at each stage. The goal is to eventually get to the point where an intermittent schedule of naturally occurring reinforcers will maintain unprompted behavior.
7. Generalization of the behavior in other settings has not been specifically addressed. Generalization should be taught before instruction is stopped. (See Alberto & Troutman, 1986, or Morgan & Jenson, 1988, for methods of generalization training.)
8. Instruction in new, appropriate behaviors is not continued. When the student has mastered one new appropriate behavior, teach another one. In this way, the student's access to reinforcers is increased. Furthermore, as the student masters more appropriate behaviors, fewer inappropriate behaviors will be displayed.

**Summary**

Differential reinforcement is a positive, relatively easy, and effective method of reducing inappropriate behavior by reinforcing positive alternative to the undesired behavior. It requires a shift from concentration on what the student **needs to stop** to focusing on what the student **needs to do** instead. Differential reinforcement may be used alone, or, if necessary, in conjunction with punishment if the undesired behavior is extremely violent, dangerous, self-injurious, or destructive.

Differential reinforcement, like any other good behavior management system, places certain requirements on teachers if it is to work. The teacher must be consistent in delivering the reinforcers for the targeted desired behavior. It often is not easy to maintain this level of consistency, and it requires a high degree of commitment on the part of the teacher. However, the rewards resulting from this commitment are great. Time spent administering a system of differential reinforcement is probably less than that which is already being expended in dealing with inappropriate behavior, and the returns are far greater. It not only reduces inappropriate behavior, it teaches and reinforces appropriate behavior. Differential reinforcement is well worth the time and effort it involves.

# Response Cost is a procedure in which a specified amount of reinforcer is removed following each occurrence of the target behavior. Withdrawal of favored activities and tangible reinforcers are common response strategies for young children. For example, a child may not be allowed to play during free time because of aggression to toward peers. Response cost is an aversive procedure and should be used carefully.

**Punishment** is the opposite of reinforcement. It follows a behavior with a consequence that decreases the strength of the behavior or reduces the likelihood the behavior will continue to occur. Some of the arguments against punishment are:

1. Punishment is ineffective in the long run.
2. Punishment often causes undesirable emotional side effects such as fear, aggression, and resentment.
3. Punishment provides little information to the person as what to do, teaching the individual what not to do.
4. The person who administers the punishment is often associated with it and also becomes the aversive.
5. Punishment frequently does not generalize across settings; it needs to be readministered.
6. Fear of punishments often leads to escape behavior.

Punishment should only be used behaviors are harmful to the student or others. The student should be told ahead of time what the consequence for exhibiting the behavior would be. When the undesirable behavior occurs, the punishment should be delivered as soon as possible.

**Time-out** occurs when the student is removed from the opportunity to receive any reinforcement. Time-out is frequently used inappropriately.

# EFFECTIVE USE OF TIME-OUT

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**Note:**

The following guidelines are presented to help teachers, educators and other practitioners implement time-out procedures appropriately and effectively. These guidelines are not a comprehensive or a complete explanation of how to use time-out in a given setting. Those who are attempting to implement time-out procedures for the first time should have supervision and consultation by professionals with expertise in behavioral intervention procedures, and who have knowledge of the research literature regarding time-out.

Time-out involves removing a student from all sources of positive reinforcement (events or situations that the student experiences as rewarding, such as attention from peers or the teacher, participation in an interesting activity), as a consequence of a specified undesired behavior. Time-out is only one option along a continuum of interventions supporting behavior change. Most teachers think that time-out involves placing the student in an isolated setting (a time-out area or room) for a period of time. Actually, time-out may be implemented on several alternative levels, ranging from the student taking time-out at his or her desk (contingent observation time-out) to removing the student to a separate area. Time-out is a relatively aversive and intrusive behavior reduction procedure, because it involves the removal of reinforcement and it interrupts the pupil's instructional program. However, its use may be required when the student's behavior impedes his or her learning or that of others. Behavior problems will not be positively affected by use of time-out unless it is used in the context of an appropriate program (e.g., teaching replacement behaviors, high rates of teacher reinforcement for appropriate student behavior, etc.). The age of the student is also a key factor in any decision to use time-out. Professionals must consider whether time-out is appropriate for children and youth at both ends of the age continuum (3 - 21). Other strategies or interventions may be more effective for these individuals in supporting appropriate behavior

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## Objectives

You should establish a set of procedures for using time-out in your classroom including:

1. A set of classroom rules that are clearly posted.
2. Procedures for teaching and practicing compliance with these rules until all students can state the rules and demonstrate what compliance with each rule looks like (e.g., respect others).
3. Strategies for systematically and frequently rewarding students for knowing and following the rules (e.g., praise).
4. A hierarchy of planned consequences for misbehavior that all students acknowledge and understand, with time-out as one of several alternatives for consequenting misbehavior.
5. A range of time-out locations that are suited to your classroom, your pupils, and your personal classroom management plan.
6. A set of personal guidelines for deciding when to use time-out and what level of time-out to employ.
7. Written procedures for applying time-out, including:
* A warning signal, if appropriate.
* What you say to pupils when giving them a time-out.
* Decision rules regarding which level of time-out to impose, and when to go from one level to another.
* Due process procedures for obtaining administrative and parental consent to use seclusion time-out, if applicable.
* Specification of the duration of each time-out, how duration is monitored, and decision rules for varying the duration of time-out.
* Specification of desired student behavior in time-out.
* Procedures for releasing pupils from time-out.
* A data sheet for recording instances of time-out.
* Decision rules for evaluating the effectiveness of time-out with individual students.
* Alternative interventions when it is concluded that time-out is not effective in a given instance, or in general.
* Procedures for teaching students to take time-outs appropriately.

**A professional with expertise in behavioral interventions should supervise your application of these procedures across three periodic classroom observations, using the Timeout Evaluation Checklist** (see Appendix A)**.**

##

## What factors are involved in using timeout?

1. A **warning signal** indicating that time-out is imminent if the pupil doesn't alter his/her behavior.
2. A brief **verbalized explanation** of why the student is being given a time-out if the student did not alter behavior after warning signal was given.
3. Provide **instruction** (see Appendix B) to the student in taking time-out.
4. The **location** in which time-out is taken
* **Contingent observation** - requires the student to remain in a position to observe the group without participating or receiving reinforcement for a specified period
* **Exclusionary** - denies access to reinforcement by removing a student from an ongoing activity
* **Seclusionary** - removes the student from the instructional setting as a means of denying access to reinforcement
1. The **duration** of time-out
* Brief (e.g., 1-5 minutes) timeouts are as effective as longer timeouts if the student hasn't been exposed to long timeouts first.
* Durations longer than 15 minutes should not be employed.
* A **nonverbal signal** indicating the beginning and end of time-out may be used if students have been taught to respond to it.
1. Requirements for **release from time-out**.
* Completion of the specified duration of time-out.
* Appropriate behavior during time-out.
* End of 15 minute maximum duration of time-out (implement alternate intervention if timeout has not been effective at this point).

##

## How should timeout be implemented?

1. Identify the predictable antecedents and consequences of undesired behavior.
2. Conduct a **functional assessment** to identify the function of the target (undesired) behavior (see <http://www.air-dc.org/cecp/fba/problembehavior2/main2.htm> for guidance with regard to conducting a functional behavior assessment).
* Behavior has two functions: to obtains something the student wants (e.g., teacher or peer attention), or to escape or avoid something he doesn't want (e.g., undesired task)
* If time-out serves either of these functions, it will not have the desired effect on behavior (e.g., If the student is able to escape an undesired academic activity by going to timeout, behavior resulting in timeout will continue. Time-out also will not be effective if it provides an opportunity to engage in behavior that is self-reinforcing such as self-stimulation).

**Note: In addition to a time-out contingency, a plan should be in place to support desired replacement behaviors** [see Appendix D for differential reinforcement examples and <http://www.air-dc.org/cecp/fba/problembehavior3/main3.htm> with regard to designing Behavior Intervention Plans).

1. Specify **in advance** the behaviors that will result in time-out.
2. Use less **intrusive behavior reduction procedures** first (i.e., differential reinforcement [see Appendix D], extinction, verbal aversives, response cost).
3. These less intrusive procedures should have been **documented as ineffective before time-out is used**.
4. Develop a **written statement** of how time-out is to be implemented.
5. If **seclusionary time-out** is used, the following requirements should be met:
* The time-out room should be at least 6' x 6' or larger and based upon the age and size of the student.
* The room should be properly lighted and ventilated.
* The room should be free of objects and fixtures with which the student could harm himself.
* A staff person should be able to see and hear the student in time-out **at all times**.
* The area should **never be locked**.
* Use of a fully enclosed area limits staff observation and access to student.
* Confinement in a small area may lead to an escalation of student behavior.
* At no time shall a student be placed in a locked area alone.
1. Keep **written records** (see Appendix C) of each occasion when time-out is used including:
* Student's name
* Episode resulting in time-out
* Time of entry into and release from time-out
* The location of time-out (contingent observation, exclusion, or seclusionary)
* The student's behavior in time-out
1. Always **differentially reinforce** desired student behavior in time-in environment (classroom or instructional setting). (See Appendix D)
2. **Evaluate procedures** (see Appendix A) if timeout duration exceeds 15 minutes.
3. Evaluate the effectiveness of the procedures if time-out is not having the desired impact on student behavior (collect and chart data on the frequency of the target behavior).

**Note: If time-out does not prove to be an acceptable or effective intervention the Admissions and Release Committee (ARC) shall determine what interventions are to be used to address the behavior(s) of concern. A Functional Behavioral Assessment (FBA) may be necessary, if not already undertaken, to improve upon or development of a Behavior Intervention Plan (BIP)**

(see <http://www.air-dc.org/cecp/fba/problembehavior2/main2.htm> for guidance with regard to conducting a FBA and

 <http://www.air-dc.org/cecp/fba/problembehavior3/main3.htm> for guidance with regard to the design of behavior intervention plans)**.**

##

## How may timeout be abused?

1. Time-out is overused due to lack of appropriate, proactive, instructional program.
2. The **time-in environment** (Classroom or instructional setting) is not sufficiently reinforcing (see Appendix D).
* Should give **four times** as much positive reinforcement as reductive consequences.
* Should have a systematic behavior intervention plan for teaching and reinforcing a replacement behavior that serves the same function as the undesired behavior.
1. Time-out is **applied inappropriately**.
* Time-out is the only, or nearly the only, behavior reduction procedure used.
* Time-out is applied too late---when the student is out of control.
* Teacher escalates student behavior by attending to the student (e.g., lecturing) when the student is in time-out.
1. The **teacher does not enforce time-out contingencies**.
* Student is able to avoid time-out by arguing or refusing to take time-out.
* Teacher is unable to direct physically mature students to use time-out if they refuse (Consider age appropriateness).
* Teacher is inconsistent in following through with time-out after warning (i.e., Using time-out after three (3) warnings
* Solution is to teach students to take time-out: (see Appendix B).
* Use systematic teaching procedures (e.g., Model, role play/practice and feedback).
* Hold timeout training sessions at other occasions than when time-out is needed: reinforce successive approximations.
* If the teacher is unable or unwilling to enforce time-out, he/she should consider alternate behavior reduction procedures.
1. The effectiveness of **time-out is not evaluated**
* Use the Time-out Record (see Appendix C) to monitor the use and results of time-out. If time-out is used excessively (for example, 3 or more times a day for several consecutive days with a single student) the effectiveness of time-out needs to be evaluated and the individual behavior intervention plan for that student needs to be adjusted.

##

## RECOMMENDED READINGS

Gast, D. L., and Nelson, C. M. (1977). Legal and ethical considerations for the use of timeout in special education settings. Journal of Special Education, 11, 457-467.

Nelson, C. M., and Rutherford, R. B., Jr. (1983). Timeout revisited: Guidelines for its use in special education. Exceptional Education Quarterly, 3, 56-67.

Rutherford, R. B., Jr., and Nelson, C. M. (1982). Analysis of the response-contingent timeout literature with behaviorally disordered students in classroom settings. In R. B. Rutherford, Jr. (Ed.). Severe behavior disorders of children and youth (Vol. 5). Reston, Virginia: Council for Children with Behavioral Disorders.

Twyman, J. S., Johnson, H. Buie, J. D., and Nelson, C. M. (1994). The use of a warning procedure to signal a more intrusive timeout contingency. Behavioral Disorders, 19, 243-253.

**Peer Confrontation System** is a system where teacher and students identify behavior problems in the group and the teacher asks the students in the group to respond to students that are having behavior problems in a specified way.

# Stages of Learning

One way that operant learning can be applied is through stages of learning.

**STAGES OF LEARNING**

**Entry level Stage** -used in planning instruction

**Acquisition Stage**- this stage focuses on helping the student perform the skill accurately

 Initial acquisition- priming tactics are suggested (physical guidance, shaping, demonstration, modeling, match-to-sample tasks, cueing, prompting, programming tactics, backward and forward chaining, and errorless learning)

 Advanced acquisition -refinement tactics are suggested(feedback, specific directions, error drill, reward for mastery and response cost)

**Proficiency Stage** - learner attempts to learn the skill at a rather automatic level (quickly and accurately) (modeling, teacher expectations, drills, positive reinforcement, manipulation of reinforcement schedules)

**Maintenance Stage** - maintain a high level of performance once direct instruction or reinforcement has been withdrawn.\* (overlearning, intermittent schedules of reinforcement, social reinforcement, and intrinsic reinforcement)

**Generalization Stage** - the learner performs the skill in different times and situations

 1. Antecedent generalization -this level involves changing negative student attitudes that might eventually affect generalization behaviors.

 2. Concurrent generalization- this level involves learning the skill well enough for generalization to occur.

 3. Subsequent generalization - this level involves applying the skill to various situations, contexts, and settings.

 4. Independent generalization - this level involves the student using self-instruction to mediate generalization.

 (a) teach responses in the natural environment,

 (b) vary the training models using different teachers and stimuli,

 (c) gradually loosen control of environmental factors while teaching the student by varying instructions, stimuli, and reinforcers,

 (d) conceal reinforcement contingencies when possible by using delay reinforcement,

 (e) use stimuli in training that are found in the natural environment with peer tutors,

 (f) teach the learner to self-monitor behavior with self-recording or self-reinforcement, and (g) reinforce correct responding in a variety of settings.)

**Adaption Stage** - the learner applies a previously learned skill in a new area of application without benefit of direct instruction or guidance. (discovery methods of learning)

\* student with learning problems encounter much difficulty at this stage because it requires retention of the skill, practice is not always adequate and other tactics are necessary for these students.

1. **Cognitive Behavior Modification**—Cognitive Behavior Modification (CBM) integrates components of operant, social, and learning theories and assumes that thinking process can be changed. This approach involves an analysis of the task as well as an analysis of the thinking process involved in performing the tasks. It also includes a training regimen of modeling, self-instructional techniques, and evaluation of performance. Five common steps of CBM include:
	1. Strategy Steps
	2. Modeling
	3. Self-Regulation
	4. Verbalization
	5. Reflective Thinking

**Strategy Steps** is a series of steps that a student is to work through in solving a problem or completing a task. These steps are based on a task analysis of the cognitive and observable behaviors necessary to complete the task.

**Modeling** is when students are asked not only to watch observable behaviors as the instructor performs the task, but also to listen to the instructor’s self-talk. In this way the instructor is modeling both observable behaviors and the unobservable thinking process associated with those behaviors.

**Self-Regulation** refers to the learner monitoring his or her own thinking and actions through language mediation. Using self-regulation students act as their own teachers. Students are expected to take active roles in the learning process and to be responsible for their own learning. Students are to taught to monitor their learning, change or modify strategies when difficulties arise, evaluate their performance, and in some cases provide self-reinforcement.

**Verbalization** is typically a component of self- instruction or self-regulating with overt verbalization being faded to convert verbalization. This self-talk is modeled by the teacher as he or she performs the task. The teacher begins with task in the students are already proficient. After the student becomes familiar with self-talk you move to target tasks. Students can develop and use cue cards to help them remember the steps they need to talk through.

**Reflective Thinking** requires students to take time to think about what they are doing. This is commonly known as stop and think time. Self-questioning techniques are also a part of this approach.

# Sociocultural Theory of Cognitive Development –Sociocultural Theory of Cognitive Development assumes that learning is socially constructed and as a social activity is highly influenced by the fund of knowledge that learners bring to the situation. Knowledge is constructed in these social activities. It is related to CBM in that it highlights the importance of modeling and the use of language to facilitate learning.

**Scaffolded Instruction** is related to the theory that the teacher is the expert who encourages the learner by providing temporary and adjustable supports as the learner develops new skills, strategies and knowledge. These supports are removed when no longer needed, they are removed.

# Information Processing and Schema Theories –Information process and schema involves one of several cognitive theories which attempt to analyze how sensory input is perceived, transformed, reduced, elaborated, stored, retrieved and used.

**Sensing** makes use of the senses for obtaining knowledge. A sensory store holds all incoming information for approximately one second while we attend to and perceive it. The information fades if we do no attend to it quickly.

**Attention** is a wide range of skills which includes:

Selective attention is the capacity to focus awareness on selected incoming stimuli. This is relevant to the process of learning to read. Attention can only be allocated to a few cognitive processes at a time. The more proficient you are at a process the more efficient we become at the process.

**Perception** is the process of recognizing a raw physical pattern in sensory store as representing something meaningful. Feature analysis, context and the simultaneous use of feature analysis and context with prior knowledge are steps in improving perception.

**Working Memory** can be though of as activated memory since it represents information that is easily accessible. Working memory has limited capacity. Working memory can be contrasted with long term memory.

1. Working or short –term memory is activated memory.
2. Working memory has a limited capacity. (7 +-2)
3. The more we cluster or group information into larger related concepts, the more information we can keep in working memory.
4. If we do not actively work with the information in working memory, it will fade quickly (in about 15 seconds)
5. We can use various strategies to keep information active in working memory. (visual images, rehearsal of information)
6. Information in working memory is rapidly replaced by incoming information.
7. Information not transferred to long-term memory can not be retrieved.
8. Information that is stored in long term memory is sometimes retrievable. How the information is organized in long-term memory affects how easily it can be retrieved.
9. Information from long-term memory is transferred to working memory. Then you can use that information.

**Long-term Memory and Schema**

**Schema** is organized structure of stereotypic knowledge. They are higher order cognitive structures that assist in understanding and recalling events and information. Within or across schema information is organized to promote understanding and retrieval. Memory that deals with concepts and semantic networks are referred to as semantic memory. In contrast visual and other sensory images of events in one’s life are referred to as episodic memory.

**Metacognition** is an awareness of what skills, strategies, and resources are needed to perform a cognitive task. The ability to use self-regulatory strategies to monitor the thinking process and to undertake fix-up strategies when processing is not going smoothly.

**Teaching implications**

Modify your teaching and learning environment to facilitate directing a students attention to the relevant stimuli and perception of the incoming information.

Plan strategies and cues that help information to facilitate working memory and assists with storage and organization of the information.

1. Provide cues to students so they might be guided to the relevant tasks or salient features of the task
2. Have students study the critical feature differences between stimuli when trying to perceive differences.
3. Have the student use the context to aid in perception.
4. Facilitate the activation of schemas and provide labeled experiences.
5. Teach students to use specific memory strategies.
6. Use organization techniques to assist students in organizing their long-term memories.
7. Teach students to be flexible thinkers and to solve problems, thereby encouraging them to use schema functioning.

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| **Positive Incompatible Alternatives for Common Classroom Behavior Problems** |
| **UNDESIRED BEHAVIOR** | **POSITIVE INCOMPATIBLE ALTERNATIVE** |
| Talking back | Positive response such as "Yes Sir" or "OK" or "I understand"; or acceptable questions such as "May I ask you a question about that?" or "May I tell you my side?" |
| Cursing | Acceptable exclamations such as "Darn," "Shucks." |
| Being off-task | Any on-task behavior: looking at book, writing, looking at teacher, etc. |
| Being out of seat | Sitting in seat (bottom on chair, with body in upright position). |
| Noncompliance | Following directions within \_\_\_ seconds (time limit will depend upon age of student); following directions by second time direction is given. |
| Talking out | Raising hand and waiting to be called on. |
| Turning in messy papers | No marks other than answers; no more than \_\_\_\_ erasures; no more than three folds or creases. |
| Hitting, pinching, kicking, pushing/shoving | Using verbal expression of anger; pounding fist into hand; sitting or standing next to other students without touching them. |
| Tardiness | Being in seat when bell rings (or by desired time). |
| Self-injurious or self-stimulatory behaviors | Sitting with hands on desk or in lap; hands not touching any part of body; head up and not touching anything (desk, shoulder, etc.) |
| Inappropriate use of materials | Holding/using materials appropriately (e.g., writing only on appropriate paper, etc.) |

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| **Positive Incompatible Alternatives for Common Classroom Behavior Problems** |
| **PROBLEM BEHAVIOR** | **DIFFERENTIAL REINFORCEMENT TECHNIQUE** |
| Talking back | Reinforce each 15- or 30-minute or 1-hour period with no talking back (DRO). Or reinforce each time that the student responds to the teacher without talking back (DRI). |
| Causing property damage | For each day that no property is damaged, reinforce the student and/or the class (DRO) |
| Cursing | Reinforce each 15- or 30-minute or 1-hour period with no cursing (DRO). Reinforce use of appropriate adjectives and exclamations (DRC). |
| Being off task | Reinforce each 5-, 10-, 15-, or 30-minute period of continuous on-task behavior (DRI). |
| Failing to complete tasks | Reinforce each task that is completed, half-completed, or started (DRI). |
| Tardiness | Reinforce each day or period that the student is on time (DRI). |
| Being out of seat | Reinforce 5-, 10-, 15-, or 30-minute periods of continuous in-seat behavior (DRI). |
| Fighting | Reinforce the student each time he or she interacts appropriately with another student (DRI). Or reinforce the student each hour that he or she does not tease, pinch, etc. (DRO). |

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| Noncompliance | Reinforce the student for each direction that he or she follows with 5 seconds (DRI). The schedule can be thinned to every 3 directions followed, 8, 10, etc. |
| Talking out | Reinforce the student each time that he or she raises a hand and waits to be called on (DRI). Thin the schedule to 3, 5,10 times, etc. Or reinforce progressively less talking out (DRL). |