

Chapter 6

Reducing Inappropriate Emotional Behavior: A Behavioral Approach

Introduction

In addition to operant learning, applied behavior analysis uses respondent learning to treat emotional problems in children (Ammerman & Hersen, 1993; Sarafino, 1996). Applied behavior analysts believe respondent learning is the best model for explaining and changing emotional behavior. They consider affective responses to be reflexive, physiological responses. Thus, in respondent learning, you learn not a new response but to respond with an existing response to a new stimulus. To explain emotional behavior, these psychologists use both the respondent and operant models. Respondent learning explains how a new stimulus elicits an existing response. Operant learning helps explain maintenance of the response (through operant overlap) without the presence of the original eliciting stimulus. Since we have covered operant principles in Chapters Three and Four, we will focus primarily on respondent principles in this chapter. If you would like a more thorough discussion of this topic, Morris and Kratochwill (1998) and Ziegler (1995) discuss both respondent and operant techniques used in treating children's fears and phobias. A recent review of research on the treatment of phobias and anxiety in children found support for the use of respondent based procedures such as desensitization (Ollendick and King, 1998).

Behavioral theory views the respondent learning model as the most appropriate learning model for understanding emotional responses and for designing interventions for problems with an emotional basis. The reason for this is that emotional responses are based in the *autonomic nervous system* (ANS) and respondent learning addresses how we learn automatic or *reflex responses*. Unlike *instrumental* or voluntary responses that are emitted, reflex responses are *elicited* from us involuntarily. For example, one does not choose to be angry or happy though one might appear to be angry or happy without actually feeling so by pretending. The feeling of anger or happiness is elicited from us by our experiences rather than by a decision to be angry or happy. A student who is high on the N trait, discussed in Chapter One, is more susceptible to respondent conditioning and especially if also low on the E trait than are other students.

A simple model of emotional development will help us to understand the behavioral conception of emotional responses and their relationship to the ANS and respondent learning. There are many more sophisticated models of emotional development than the *differentiation* model, first proposed by Bridges (1932), but it will be sufficient for the current purpose. The differentiation model proposes that each of us is born with two dichotomous emotional responses. Let's simply refer to one as negative and the other as positive. These two "hardwired" responses are then differentiated into the array of emotional labels that we come to use over the course of development. As differentiation progresses during development, we learn to label our negative and positive emotional responses differently according to the circumstances producing the response and the intensity and duration of the response produced. Thus, a negative response in one case may be

labeled as anger and in another fear or a positive response in one case labeled love and in another joy. On a physical level, there is no qualitative difference between anger and fear only a difference in how one interprets the physical state relative to the context in which it occurs.

Differentiation occurs through respondent learning in which there is an association formed between an eliciting event, some new stimulus, and an emotional response. Damasio (1994) has pointed out the importance of this process for normal functioning. Organisms are primarily attentive to and responsive to events in the environment with which they have affective associations to some degree. When neurological damage impairs access to or the ability to form affective associations reasoning and decision making are disrupted. Thus, not only is there a differentiation of these two responses into a socially based classification system of emotional constructions but association of these constructs with a vast array of environmental stimuli.

The Respondent Model

Respondent learning is based on the work of Pavlov. Respondent behavior is an involuntary response elicited by some class of stimuli. They are called either *unconditioned* or *conditioned* stimuli. An unconditioned stimulus (US) is called *prepotent*. This means you do not have to learn to respond to it, e.g., heat. A conditioned stimulus (CS) is a stimulus you have learned to respond to, e.g., a gun. Your response to a US is an unconditioned response (UR). Your response to a CS is a conditioned response (CR). A stimulus or response may be either positive or negative. This is shown with notation by a plus (+) or minus (-) sign, e.g., UR⁻.

A CS is learned by stimulus pairing. A formerly neutral stimulus (C)S paired with a potent US or CS acquires some of the eliciting properties of the US or CS by association. If the eliciting stimulus is a US, the process is called *primary* conditioning. If the eliciting stimulus is a CS, the process is called *secondary*, or higher order, conditioning. There is a diagram of this process in Figure 6.1. The CR produced will not have exactly the same properties as the UR, but it will be similar. If the eliciting stimulus is mild, the conditioning takes repeated trials. If the eliciting stimulus is intense, the conditioning may occur in a few or even one trial. Intense eliciting stimuli produce a pattern of anatomic and physiological responses. The pattern includes increased heart rate, increased blood pressure, sweating, and muscle tension. The resulting CR is called a *conditioned emotional response* (CEr).

Figure 6.2 is a diagram, with labels, illustrating the conditioning process in a school setting. In the figure, the eliciting stimulus is a US⁻ labeled "paddling." The associated UR⁻ is labeled "pain, fear, and escape behavior." The (C)S, which will become a CS⁻ by pairing or association with the US⁻, is labeled "teacher." The CR⁻ developed by this process is labeled "anxiety and avoidance behavior." The CS⁻ will have the power to elicit the CR⁻ even when the US⁻ is not present. Now, the *operant overlap* referred to earlier becomes important. If the CS⁻ is eliciting a CR⁻, the conditions for negative reinforcement are present. Avoidance behavior in the child, e.g., cutting class reduces or eliminates the CR⁻ (anxiety). The result is negative reinforcement of avoidance behavior. You will recall negative

Respondent Conditioning (Learning) Model

A. Primary Conditioning

1. US----->UR
|
(C)S
2. CS----->CR

B. Secondary Conditioning

1. CSa----->CRa
|
(C)Sb
2. CSb----->CRb

Figure 6.1. A diagram of the respondent learning model. Part (A) illustrates conditioning involving a prepotent stimulus as the initial stimulus. Part (B) illustrates conditioning involving a conditioned stimulus as the initial stimulus.

A. Primary Conditioning

1. US⁻ ----->UR⁻
 (padding) (pain, fear, & escape behavior)
 |
 (C)S⁻
 (teacher)

2. CS⁻ ----->CR⁻
 (teacher) (anxiety, & avoidance behavior)

B. Secondary Conditioning

1. CSa⁻ ----->Cra⁻
 (teacher) (anxiety, & avoidance behavior)
 |
 (C)Sb⁻
 (school)

2. CSb⁻ ----->Crb⁻
 (school) (anxiety, & avoidance behavior)

Figure 6.2. A labeled example of respondent learning as it might occur in an educational setting.

reinforcement maintains or strengthens the behavior it follows. Thus, the operant overlap will maintain the avoidance behavior even though the US⁻ does not reoccur and the CS⁻ is seldom if ever encountered.

We also need to discuss respondent generalization. In Figure 6.2, we labeled the CS⁻ "teacher." However, other stimuli were present. We can consider the entire classroom and even the school as a complex of associated stimuli. The teacher is simply the most immediate association. There may actually be several pairings, and they may be diverse. For example, punishment can occur in different locations, at different times, and involve different teachers. Under these conditions, the CS⁻ will become generalized. That is, it will come to represent a complex of associated stimuli. When this happens, the CR⁻ is elicited by a variety of stimuli and the avoidance response becomes pervasive. The result will be what we sometimes call school phobia (a CER⁻).

Some Cognitive and Social Factors

Finally, a few words about the role of cognition in emotional problems. Sometimes the state of negative emotional arousal that leads to problem behavior is in large part a product of cognitive rather than environmental factors. This may result from *misinterpretation* of an event due to faulty reasoning processes, irrational thinking or irrational beliefs, e.g., magical thinking where two unrelated events are connected such as wishing someone was dead, finding out they died and thinking the wish killed them. Such faulty reasoning might then lead to feelings of guilt, depression or even more dire effects. This kind of process is fairly common in emotionally disturbed students. Problems rooted in faulty reasoning processes can best be addressed through strategies like those discussed in Chapter Nine.

Another cognitive process that may lead to emotional arousal is *cognitive self-arousal*. In cognitive self-arousal a student dwells on memories of some emotion laden event until the memories produce a state of emotional arousal, e.g., repeatedly "replaying" memories of an argument that took place earlier. Once in an emotionally charged state (anger), almost anything may serve as a trigger for emotional behavior, e.g., someone accidentally brushes against an aroused student producing a violent response. This process may be behind many inexplicable classroom outbursts. Problems rooted in negative self-arousal can best be addressed through strategies like those discussed in Chapter Nine.

A third process is called *cognitive anticipation*. In cognitive anticipation, a student cognitively creates a situation that is expected to occur in the near future and becomes emotionally aroused by this image, e.g., anticipating going to a class, later in the day, where the student expects to be bullied by a classmate. Cognitive anticipation can also play a role in respondent generalization when a negative stimulus is imagined in forms or settings other than the original. A student who has become aroused by cognitive anticipation may engage in problem behavior that is likely to result in avoidance of the anticipated situation, e.g., engaging in disruptive behavior, just before the anticipated situation, in order to get sent to the office and thereby avoid the situation. In this

example, the conditions for operant overlap are present. If the disruptive behavior results in successfully avoiding the anticipated situation, the student's cognitively generated emotional arousal (anxiety) will be reduced. Reduction of the anxiety will negatively reinforce the disruptive behavior. You then have operant overlap. That is, a problem in which both respondent and operant processes are at work.

Another possibility with operant overlap is positive reinforcement. This may occur through sympathetic responses to the child by significant adults. It may also occur as a result of appetitive stimuli associated with the avoidance behavior. For example, in school phobia the child may not only avoid the CS⁻ (school) but have access to various reinforcers like TV, toys, etc. at home. If the child is older and is out in the community, when avoiding school, the list of possible reinforcers is almost endless. In situations where positive reinforcers are maintaining the avoidance behavior, you must identify these reinforcers and ensure they are not available during your intervention. Preventing positive reinforcement will put the operant component of the avoidance response on operant extinction. We discussed extinction in Chapter Three.

A critical component in dealing with problems involving cognitive anticipation is analysis of the appropriateness of the response to the anticipated event. If it appears appropriate, something needs to be done to alter the aversive properties of the anticipated event. In some cases, the negative response to the anticipated event may be things that are happening in the situation related to the event, e.g., a student being bullied by a student in another setting in which your student participates. This requires an intervention that goes beyond working directly with your student. This may involve broader discipline issues such as those discussed in Chapter Two. In other cases, the negative response may involve deficits in skills needed by a student to adequately cope with the situation, e.g., a student who lacks the academic skills to be successful in the problem setting or lacks the social skills needed to be successful in the situation. Problems of the latter type will require an intervention to correct social deficits in a student that are contributing to his or her sense of social anxiety. Problems of this sort can be addressed with strategies discussed in Chapters Seven and Eight.

Finally, many of the negative emotional responses seen in students is rooted in social anxiety. Frequently social anxiety is related to social inadequacies or social ineptitude. In such cases, a major focus of an intervention should be to identify social deficits in a student that are contributing to his or her sense of social incompetence. Problems of this sort can be addressed with strategies discussed in Chapters Seven and Eight.

Assessment

Whenever you are going to assess a negative emotion, e.g., fear in a student, you should consider several things before proceeding:

1. Is the student's fear normal? Many normal children experience fear during development.

2. You should consider the student's age. There are age differences in the kinds of stimuli children fear and the frequency of normal fears declines with increasing age.
3. You must consider the seriousness of the fear. Usually, our concern is only for clinical fear or serious anxiety. Normal fear is usually a response to a rational stimulus. That is, a fear response to a stimulus we can understand and that is adaptive. Clinical fear or anxiety is usually elicited by an irrational stimulus or no identifiable stimulus and is a persistent and long lasting response without any adaptive function. For example, we can understand why one is anxious around a dog even if we aren't. It is more difficult to understand why one is anxious around a mailbox. One is rational and the other is irrational.
4. The most critical test is the degree of impairment caused by an anxiety response. We can't say an anxiety response is an emotional disorder until it has become serious enough to interfere with normal functioning. When the response is dysfunctional and pervasive or when it is highly dysfunctional in an important area of life, it is serious enough to call an emotional disorder.

Checklists and Rating Scales

Most self-report measures are checklists or rating scales. Students either put a check beside the items that apply to themselves or rate the intensity of their response to the items. In rating scales, a bipolar scale with three to five intensity levels is typical. The scale may use numeric indicators of intensity, e.g., one is very low and five is very high. It may label levels of intensity with descriptive words or phrases like "not at all, somewhat, and extremely." Sometimes a combination of numerals and labels are used. Rating scales may focus on specific fears, e.g., answering in class or teasing. Or, the rating scale may focus on specific symptoms associated with emotional problems, e.g., dizziness or shaking. Cautela, Cautela and Esonis (1983) provide a number of informal scales with scoring guides.

One problem with using self-report measures is young children may not have sufficient reading or language skills to read the items or understand a numeric scale. You can handle a lack of adequate reading skill by reading the items and asking for oral responses. For children who may not understand a numeric scale, you can use colors or pictures of faces to indicate intensity. Another problem with self-report measures is they don't have good reliability and validity. If possible, you should only use them in combination with observational measures. You may, however, have to rely them in treatment to assess a student's subjective experience of an emotional state and when an intervention is purely cognitive. In cognitive treatments, it isn't possible to get an overt behavioral response to the actual emotional stimulus. You must use caution in interpreting self-report data because of reliability and validity problems associated with this type of assessment.

Observation Scales

These scales are similar to self-report measures. The major difference is they obtain data from an informant rather than from a student. The informant completes the scale on a student based on his or her past experience with the student. An improvement on this approach is to use an observer who completes the scale on the student using observations of current behavior. While this approach also has limitations, it will yield better data than measures that depend on long-term recall.

Observational Recording

You obtain the best data by observing and recording overt behavior. This approach has the additional advantage of individualizing assessment for the problem behavior. We will not go into great detail about observational recording. You should review the material in Chapters Three and Four on observational recording if you need additional information.

The first thing you do is select a behavior for observation directly related to the emotional problem. Various symptomatic behaviors associated with an emotional problem are used for observational recording. For example, a student suffers from dysfunctional public-speaking anxiety with speech dysfluencies. Here, you can use the student's speech dysfluencies as the assessment behavior. After you select an appropriate behavior for assessment, you must operationally define the behavior. Next, you must decide what recording procedure to use for the behavior. With a behavior like dysfluent speech, you would use event recording. You could give the student a script of fixed length and record the number of dysfluencies during recitation. If part of the student's speech problem is hesitations, you might also record the number of words spoken per minute and the number of dysfluencies.

One of the most commonly used behaviors for assessing anxiety problems is approach behavior. With approach behavior, you need to record two dimensions of a student's behavior. First, you need to record the distance, usually in feet, of the approach response. This assumes you are using free approach rather than controlled approach for responding. In the former case the student is free to end the approach response at will. In the latter case you ask the student to move to a specified approach distance. Second, you need to use duration recording, usually in minutes and seconds, to measure how long the student can maintain the approach distance without anxiety.

If you use controlled approach, you need a record of duration for each trial at each specified approach distance. To avoid extending the length of trials beyond a useful duration, you need to set a time criterion for ending a trial. Let's assume you have determined there is no reason to extend a trial beyond ten minutes. That is, if the student can maintain the approach distance for ten minutes, it can be maintained indefinitely. For example, you ask a student to move to a predetermined approach distance and it's maintained for ten minutes. You have reached your time criterion and would end the trial. When your consistency criterion for this distance is attained, you are ready to move to the next approach distance.

You also need to decide whether to assess under natural conditions or to use *controlled*

presentations. Controlled presentations are commonly used for assessment of emotional behavior. They are frequently used because the natural environment may not provide sufficient assessment opportunities. There may also be too many confounding variables in the natural environment. With controlled presentations you set-up and control the conditions under which you do the assessment. This allows you to choose the times for assessment. It also helps you control confounding variables that might interfere with the assessment.

If feasible, you should establish reliability for your assessment procedure by having two observers record the behavior. You then compare the records of the two observers to determine how closely they agree. You will find a more detailed discussion of how this is done in any good textbook on behavior modification. You can evaluate the validity of your assessment procedure by having your assessment behavior and operational definition evaluated by others who are familiar with the student's problem.

You should collect assessment data before treatment is begun to establish a baseline. You should also collect data during treatment. You use the treatment data to monitor the effect of the treatment. You also compare the baseline and treatment data to evaluate the treatment. The data collected should be visually displayed and continuously updated during assessment on a graph. Figure 6.3 is a simple example of graphed data.

Emotional Self-Management

Introduction

There are often times when students become emotionally aroused in a negative way (upset). The initial emotional reaction in a difficult situation may be an impulse to respond inappropriately. The ability to self-manage emotional arousal in such situations can help a student inhibit the impulse to respond reactively to a situation. Reactive responses, motivated by negative emotional arousal, are often inappropriate or at least not the best response possible. *Emotional self-management* helps a student inhibit an impulse to respond reactively. This permits a calm appraisal of the circumstances and the use of a deliberate response.

Teaching Common Indicators

You can teach emotional self-management (ESM) to students either individually or in a group. The first step in teaching ESM is to help students identify some common indicators of negative emotional arousal. Students can generate many of these indicators themselves during a group discussion on the topic. Begin by suggesting an example or two of the type of indicators sought. After getting the discussion started, list the suggestions on the chalkboard for future reference. If key indicators are omitted, draw these out by questions and hints. Two principle areas that you might want to explore with your students are cues for anger and cues for anxiety. Cues or indicators can include both internal states and behavioral manifestations of emotional arousal. An illustration of a

Graphic Representation

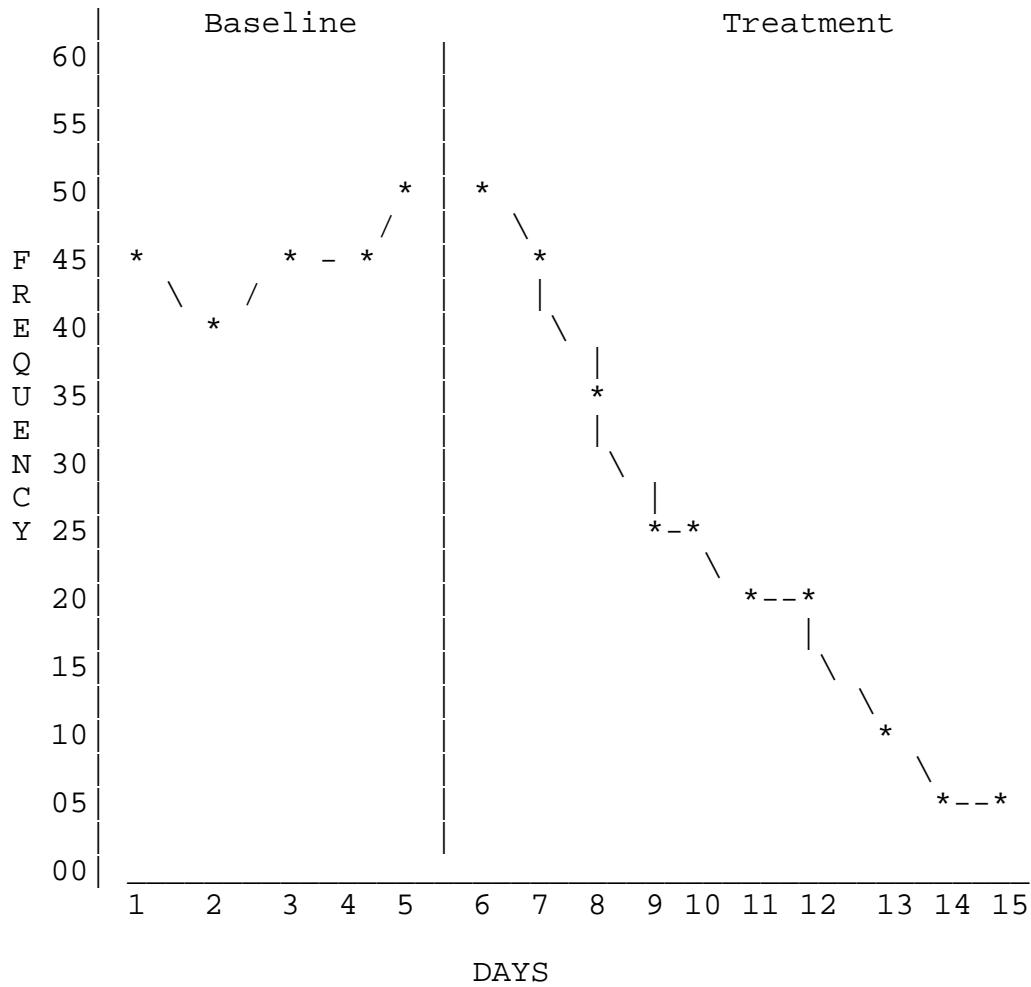


Figure 6.3. A simple graph, without treatment phases, representing the number of speech dysfluencies in a student's verbalization of a series of 200 word presentations.

few indicators that might result from such a discussion follow.

- | (Angry) | (Anxious) |
|----------------------|------------------------------|
| 1. Clenched teeth. | 6. Feeling jittery or jumpy. |
| 2. Racing heart. | 7. Queasy stomach. |
| 3. Rapid breathing. | 8. Shaking hands or legs. |
| 4. Churning stomach. | 9. Feeling helpless. |
| 5. Nasty thoughts. | 10. Can't breathe. |
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First, students must be able to recognize when they are in a state of negative emotional arousal. Next, they need to learn a strategy for controlling the state. One strategy is to use a self-induced *neutralizing* response. A neutralizing response is antagonistic or incompatible with negative feelings. Probably the most widely used neutralizing response is relaxation. You can teach students any of several self-relaxation techniques.

Self-relaxation Techniques

The first technique is *positive self-arousal*. Use of positive mental imagery is an easy way to teach this skill to children. The image selected is by individual student choice. The image should be one that is very familiar to the student, so it is easily recalled or imagined. When first learning this technique, it is helpful for a student to close his or her eyes and sub-vocally describe the image. The end goal is to learn to induce relaxation with the eyes open and without sub-vocal description.

Before beginning the training, each student should take out a piece of paper. Tell the students to think of a scene they have seen frequently and that makes them feel good. Tell the students to write down a title for this scene such as "Grandma's Backyard." Next, have the students write down several short descriptive sentences about the scene. If necessary, read and discuss these notes with each student before they use them. Here is an example of a scene title and a set of descriptive sentences:

- Title: *Grandma's Backyard*
- Description: It's a clear sunny day.
 I'm sitting in the tree swing.
 I'm under a large, shady tree.
 I can feel a nice, cool breeze.
 I can smell grandma's flowers.

Begin the training process with students sitting at their desks. Tell the students to follow these steps:

1. Close their eyes.
2. Think about the scene they described on paper.
3. Repeat, silently, to themselves the descriptive statements they wrote down about the scene.

Tell the students to do the following:

1. Hold the image in mind.
2. Keep their eyes closed.
3. Keep repeating the descriptive sentences until they feel very good.
4. Raise their right hand when they feel very good.

When the students report consistently successful induction of relaxation this way, practice with the eyes open. Continue to use sub-vocalization during this phase of training. After a student reports consistent success, practice positive self-arousal using the mental image without either closed eyes or sub-vocal description. Finally, practice positive self-arousal while standing up instead of sitting. Training will take several sessions during each phase. Once a student can consistently induce relaxation in this manner, he or she has the desired response.

The second technique is *regulated breathing*. In this technique, a pattern of slow, deep and paced breathing induces relaxation. Teach students how to do diaphragm breathing. This means using the diaphragm to pull and push air into and out of the lungs. This assures deep breaths and a rich supply of oxygen. One indicator of diaphragm involvement is that the stomach expands when inhaling and contracts when exhaling. Each breath cycle should completely fill the lungs with air and completely empty the lungs of air. Inhaling and exhaling, however, should not be to the point of strain. Tell students to inhale and exhale through the nostrils, not through the mouth. Mouth breathing may be necessary, at times, if a student has congestion that is blocking the nasal passages. Finally, teach the students to count, silently, to themselves while breathing. They should slowly say the number one while inhaling and the number two while exhaling.

Pairing the breathing exercise with the one-two count will set up the count as a cue for relaxation. Students who become proficient at inducing relaxation with this technique will find it helpful. In a difficult situation, they can regulate breathing using the one-two count and rapidly induce a more relaxed state. Teach this technique to students while they are sitting in a comfortable position. Once students learn the basic technique, they should practice it while standing and even walking.

The third technique is *progressive muscle relaxation*. The first step is to teach a basic tense-relax procedure. This is often done using either the left or right arm. It is usually begun with

the students seated in a comfortable position. Use chairs rather than desks when you teach this. You should show the procedure to the students as you tell them how to do it. The basic process is to hold out one arm and then deliberately tense the muscles in the arm. A good first step is to make a tight fist and then tighten the muscles in the forearm and upper arm. Tell the students that once their arm is tense to let the muscles sag. Tell the students to say quietly to themselves, the word R-E-L-A-X, as they let their muscles sag.

After the students learn the basic process, teach the rest of the procedure. Initially, they should practice the procedure with their eyes closed. The process begins by having the students perform the tense-relax procedure with the face and neck. Then progressively move to the upper torso, lower torso, arms, and finally the legs. In the beginning, cue the procedure by verbally directing the process. That is, say what body area is the focus for the moment, give the direction to tense and the direction to R-E-L-A-X. When students can induce a state of full-body, muscle relaxation, let them practice without prompts. Finally, have the students practice with their eyes open.

Once again, pair the tense-relax procedure with the silently spoken word R-E-L-A-X to set up this word as a cue for muscle relaxation. The first goal is to induce relaxation while seated with open eyes using the cue word. Next, the students should practice using the cue word to induce relaxation while standing or even walking. Finally, since all three techniques are compatible with one another, you can teach students to use them in combination.

Here is a final suggestion for the use of these relaxation techniques. Set up a quiet table somewhere in the classroom. When a student feels upset, allow the student to initiate a *time-out from aversiveness* (TOFA). The TOFA can also be teacher prescribed. Instead of a student deciding to go to the quiet table, you tell the student to go to the quiet table. Once at the quiet table, the student puts his or her head down on the table and uses a relaxation technique until calmed down. Once the student is calm, he or she returns to their unfinished task. TOFA can be used to combat the effects of cognitive self-arousal and cognitive anticipation once a student understands how she is negatively arousing herself and has mastered one or more of the self-relaxation techniques.

Planned Individualized Interventions

Introduction

Hatzenbuehler and Schroeder (1978) suggest that the selection of an intervention technique depends upon the *severity* of a child's problem. They suggest that if a child has a severe disorder you should not use a technique that requires direct participation with the emotion eliciting stimulus. They define a severe problem as one in which the child will not have any voluntary involvement with the emotion stimulus. The suggestion for mild to moderate disorders is to use a technique that requires direct involvement with the emotion stimulus. You can modify most of the techniques discussed below so they are appropriate for either severity level. When direct involvement is required, we will

say the technique is done *behaviorally* or *in vivo*. When there is no direct involvement, we will say that the technique is done either *representationally* (with pictures) or *cognitively* (in imagination). Either a *graduated extinction* or a *desensitization* procedure will usually take care of most problems unless the avoidance is so powerful you cannot conduct the procedure. If this is the case, specialized techniques using tranquilizers are employed. These techniques must be done by or with medical personnel because they use drugs.

Another consideration in selecting a technique is the ethicalness of the procedure. Some techniques are ethically questionable when used with children. You should avoid any technique potentially dangerous to a child. Two techniques particularly inappropriate for children are *flooding* and *implosion* therapy. Both techniques are classified as *forced extinction* procedures. They require maximizing negative emotion under conditions where avoidance or escape are not possible. These techniques are too threatening to use with children. You should also consider the effectiveness and efficiency of a technique before selecting it.

Respondent Extinction

Recall from our earlier discussion of respondent principles, a CS⁻ acquires its potency by association with some US⁻ or another CS⁻. Repeatedly present the CS⁻ without the original US⁻ or potent CS⁻, and it gradually loses its ability to elicit a CR⁻. Respondent extinction uses this phenomenon. You present the CS⁻ repeatedly without the original eliciting stimulus until it loses its potency. Assuming, of course, that there is no operant overlap to complicate the situation. Respondent extinction probably occurs to everyone at some time under natural conditions. When used as a planned intervention, it is done systematically and progressively and is called *graduated extinction*.

Graduated extinction is usually done behaviorally but can be done representationally (pictures) or cognitively (using verbal description to produce images) with the CS⁻ attenuated, i.e., reduced in potency. You can attenuate the CS⁻ by adjusting the proximity of the CS⁻ to the child or by removing various stimuli associated with the CS⁻. For example, let's suppose you were going to work with a child that had serious anxiety associated with public speaking, e.g., speaking before a class. You would set-up a graduated set of stimulus conditions similar to those in Figure 6.4. As you can see, the graduated set of stimulus conditions reduces the potency of the CS⁻ by removing stimulus features. The sequence begins with an empty classroom and gradually progresses to a normal classroom condition.

The first step in the graduated sequence is a set of conditions the child can tolerate with only minor discomfort. You ask the child to speak under that condition until comfortable with it. You need to set a criterion for telling when to end each condition and move on to the next. For example, you might set the criterion as at least three consecutive sessions of ten minutes each with no anxiety evident or reported by the child. When you reach the criterion under the first condition, you move to the second condition and remain under that condition until you reach the criterion again. The

process continues in this fashion until you reach the criterion under the last stimulus condition.

Earlier in our discussion of assessment, we mentioned using both observational and self-report measures of emotion. In a case like the one just described, you might want to use both types of assessment. You would operationally define anxiety with observable behaviors like speech dysfluencies for an observational measure. You would also combine this with a self-report measure, using a rating scale, to measure the level of experienced anxiety. The latter measure would be useful for avoiding a shift to the next most potent level of the CS⁻ too quickly. In other words, the child may still experience some residual anxiety even after the observable signs are no longer present.

When you use graduated extinction with a child, be sure you do three things:

1. You must be patient. Be certain you allow enough exposure under each condition before going on to the next condition. It is better to err by giving more exposure than needed than to err by not giving enough exposure to extinguish the eliciting stimulus.
2. You need to be supportive. Provide the child, at each step, with positive feedback about progress toward the treatment goal.
3. Be alert for possible problems. If the child exhibits too much emotion or has difficulty in making the transition from one step to the next, reconsider the sequence. You may need a finer gradation of conditions than you have or you may need to revise your criteria for changing conditions.

A variation on graduated extinction combines it with *participant modeling*. In this procedure, you proceed in much the same manner as described above. However, each session begins with a modeling presentation of a child comfortably engaging the negative stimulus under the conditions in the current step in the graduated sequence. After a child observes the model, you ask the child to imitate the model's behavior. Modeling can be either live (behavioral) or representational, e.g., on video tape.

You should use the modeling approach with children who have mild to moderate level problems. Keep the child in the modeling condition at each step in the graduated sequence until there is no negative emotion observed or reported while watching the model. When you achieve this objective, the participant component is begun. The child again observes the first step modeled and you ask the child to imitate the model. When there is no negative emotion observed or reported during imitation in the first step, you begin the next step in the graduated sequence. For children with severe problems, you should use symbolic modeling first, e.g., a video tape. This will not be as threatening as live modeling. Next, you would go to live modeling and then to the participation component.

Graduated Extinction Hierarchy

1. Speaking in an empty classroom with the teacher present but shielded from view.
2. Speaking in an empty classroom with the teacher present.
3. Speaking in a classroom with the teacher and a close friend present.
4. Speaking in a classroom with the teacher and several (3-5) friends present.
5. Speaking in a classroom with the teacher and a small (8-11) group of students, including both friends and other peers, present.
6. Speaking under normal classroom conditions.

Figure 6.4. Illustration of an hierarchy of stimulus conditions that might be used for behavioral extinction of public speaking anxiety. The CS⁻ has been attenuated by modifying the characteristics associated with the CS⁻.

Counterconditioning

Earlier we said respondent learning involved learning to make an existing response to a new stimulus. This is the basis for *desensitization* or *counterconditioning*. In counterconditioning, you help a child exhibit a *negative-emotion, antagonistic response*, e.g., relaxation. You then introduce the CS⁻ to the child while the negative-emotion, antagonistic response is present. Over several trials, you establish the negative-emotion, antagonistic response as the response associated with the CS⁻. Of course, when that takes place the CS⁻ has changed into a CS⁺. Thus, you have counterconditioned the stimulus by changing it from a negative stimulus associated with a negative emotional response to a positive stimulus associated with a negative-emotion, antagonistic response, e.g., relaxation.

There are two ways of producing negative-emotion, antagonistic responses. First, you can choose an existing response, e.g., pleasure, that is immediately available through some already potent eliciting stimulus, e.g., food. Here, all you have to do to produce the response is to present stimuli that elicit it. The eliciting stimuli for pleasure from eating would be well liked foods you can present in quantities easy to administer, e.g., small candies. Second, you can choose a response that you must teach before it is used, e.g., relaxation (Cautela & Groden, 1978). Here, you will want to teach a child a relaxation technique easy to use under a variety of conditions (see the earlier discussion of ESM).. Certain cues or stimuli for relaxation are also taught that can quickly elicit the relaxation response, e.g., rhythmic breathing to a numerical count.

Lazarus and Abramovitz (1962) pioneered the use of positive emotional arousal elicited by *emotive imagery* as an anxiety antagonistic response. In their procedure, a child imagined scenes with positive images of heroes or cognitive acts involving him or herself with strong positive affect associated with them. The child used emotive imagery as an alternative to relaxation during counterconditioning. Gershman and Stedman (1971) first demonstrated the use of relaxation elicited by directed muscular activity as an anxiety antagonistic response. In their procedure, they used self-defense exercises as the eliciting stimulus for muscular relaxation during counterconditioning. However, any directed muscular activity would probably work. Finally, Smith (1973) used humor as an antagonistic response to anger in a counterconditioning treatment. In conducting an intervention, it is not unusual to find more than one type of eliciting stimulus used to elicit a negative-emotion antagonistic response, e.g., see Luscre and Center (1996).

Systematic desensitization developed by Wolpe (1958, 1991) is the most common counterconditioning procedure for both adults and children. This procedure is done behaviorally, representationally or cognitively. Your first step in this procedure is to develop a desensitization hierarchy (see Figure 6.5). This hierarchy is a series of graduated steps where each step is a closer approximation to the stimulus conditions eliciting the CR⁻.

You can develop the steps for a sequence in two ways. First, you can use avoidance to construct the approximations. As you may recall, one of the responses associated with a CS⁻ is avoidance. Thus, you can construct the approximations by having each step in the sequence reflect

progressively less avoidance. This is easiest to do when proximity to the CS⁻ is determined by either distance or time, e.g., school phobia or test anxiety (See Figure 6.5).

Second, when the CS⁻ is a complex stimulus, you can use complexity to construct the hierarchy. Most CS⁻s are complex stimuli with several components. Thus, you can construct the approximations by having each step in the sequence reflect progressively more complete approximations to the full CS⁻. You do this by beginning with only one or a few of the stimuli making up the complex stimulus functioning as a CS⁻. You then add additional stimuli from the CS⁻ complex at each new step until you have a complete representation of the CS⁻. This is easiest to do when proximity to the stimulus is determined not by time or distance but by situational stimuli, e.g., public speaking anxiety (See Figure 6.4).

Systematic desensitization is done cognitively, representationally or behaviorally. Sometimes all are used sequentially beginning with cognitive and moving to behavioral. When the procedure is done representationally or cognitively, your first step is to construct a desensitization hierarchy. Second, you select a negative-emotion, antagonistic response, e.g., relaxation. Third, when necessary, you establish the eliciting stimuli for the response selected and rehearse them. Relaxation is one of the possible choices that would require establishing eliciting stimuli where eating would not. Fourth, you must develop a set of visual (representational) or verbal (cognitive) cues that correspond to the steps in the hierarchy. You deliver the cues for any given step to the child either with pictures (representation) or orally (cognitive). Fifth, you set a criterion for moving from one step to the next. For example, the criterion might be three consecutive sessions with no observed or reported negative emotion. Sixth, you must select techniques for assessing emotion during the sessions. As we discussed earlier, these can be observational, self-report, or both. You should probably use a combination of both in most cases.

The easiest way to use self-report is to teach a child to use the following scale:

- a. 0 is no negative emotion.
- b. 1 is low negative emotion (a tolerable level).
- c. 2 is moderate negative emotion (a stressful level).
- d. 3 high negative emotion (an intolerable level).

During desensitization tell the child to lay his or her hand flat with fingers extended. The flat hand position is zero on the scale. Tell the child if negative feelings increase to raise the appropriate number of fingers for the experienced level of negative emotion. You also observe the child during the sessions for overt signs of negative emotion according to your operational definition. Having accomplished all these planning and preparation steps, you are ready to begin the intervention.

You do a behavioral desensitization procedure in almost the identical fashion described for representational and cognitive desensitization. The major exception is the visual or verbal cues for the steps in the hierarchy will not be necessary. These aren't necessary because the actual stimuli for each

Desensitization Hierarchy

1. Reviewing for a test scheduled to be given in a week.
2. Reviewing for a test scheduled to be given in three days.
3. Reviewing for a test scheduled to be given in one day.
4. Sitting in one's homeroom prior to the period in which the test is scheduled.
5. Sitting in the class in which the test is scheduled prior to it beginning.
6. Receiving the test paper.
7. Beginning work on the test items.
8. Encountering a difficult item.

Figure 6.5. An illustration of a desensitization hierarchy that might be used in either cognitive or behavioral desensitization of test anxiety. The CS⁻ has been attenuated by modifying the time separating the student from the most potent anxiety condition.

step will be present. The behavioral procedure is your first choice if a child's problem is mild to moderate in severity. If the problem is severe, your first choice is the cognitive procedure. The cognitive procedure is followed by the representational and behavioral procedures if necessary. Sometimes it may not be practical to use the behavioral procedure even though it is otherwise appropriate. If this is the situation, use either the representational or cognitive procedure.

A few further comments on measurement are in order. When using an observational measure, you should establish a specific criterion for what is a stressful level of negative emotion. You would measure the elapsed time between presentation of the emotion stimulus and the first indication of a stressful level of emotion. When you reach your criterion, the session ends and your measure for the session is the elapsed time recorded. You should also have a preset session length for the sessions. This should be the amount of time you believe necessary for eliciting the emotion. If that amount of time passes without an emotional response to the stimulus presented, the session is terminated. You should also follow similar procedures with a self-report measure.

The simplest approach to evaluation of respondent interventions is to use an evaluation design called the clinical teaching or A-B design. This design begins with a baseline taken under the conditions eliciting the negative emotional response and before treatment has begun. The treatment phases in the design correspond to the steps in the stimulus hierarchy. You enter a new phase in the design each time you meet your criterion for shifting from one step in the hierarchy to the next step. The data collected is recorded on a graph so you can monitor the intervention as you conduct it (see Figure 6.6). The last step in the hierarchy should be the same set of conditions under which you took the baseline. For evaluation you contrast the level of the target behavior in baseline against its level in each phase of treatment. The most critical contrast is between baseline and the last phase of treatment.

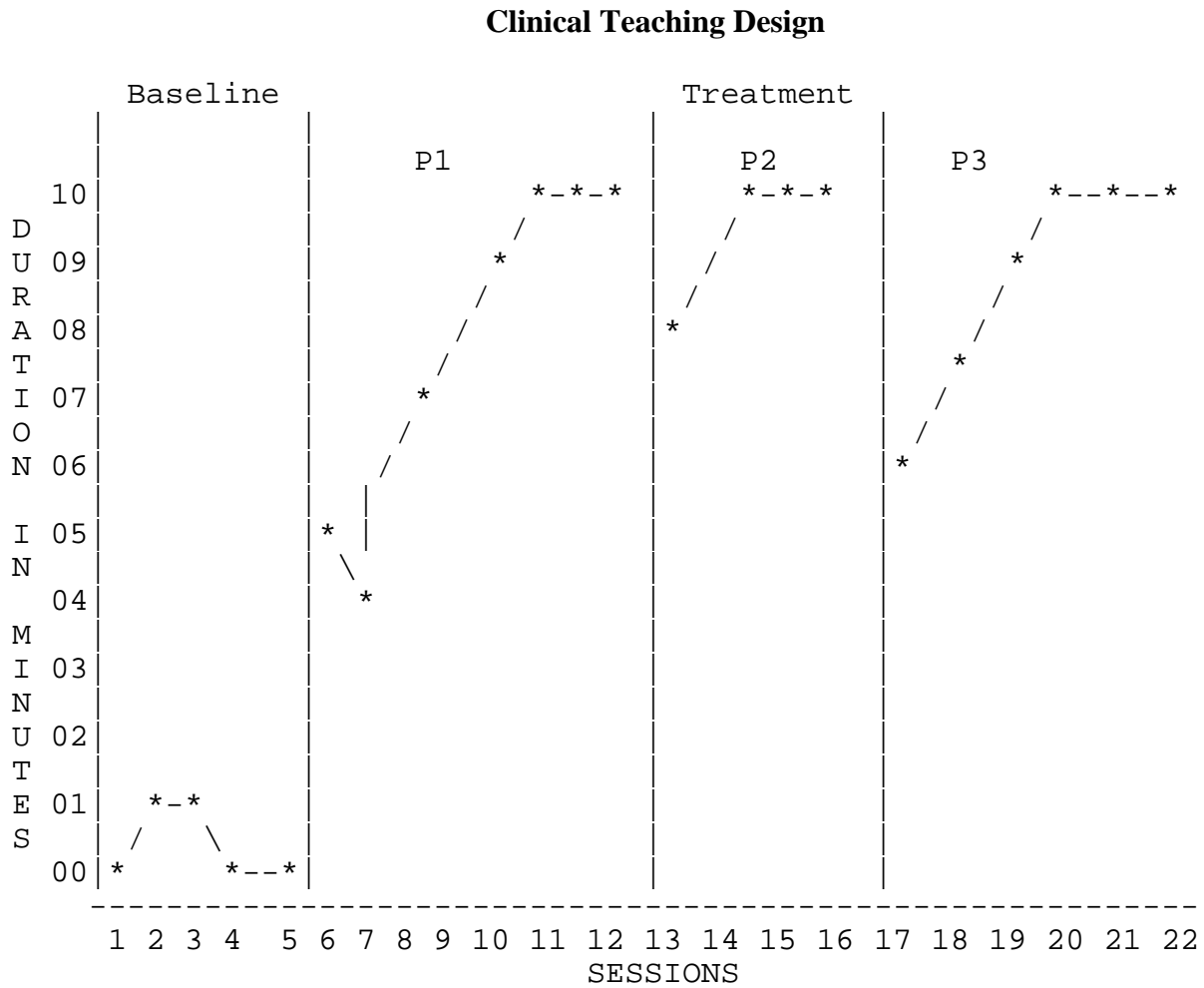


Figure 6.6. An illustration of the clinical teaching design used with a respondent learning based treatment. Duration of exposure to an negative emotional condition, while remaining relaxed, is measured in minutes. Each phase (P) in the treatment represents successive steps in the stimulus hierarchy. The baseline and (P3) would represent data collected under the same stimulus conditions.

Planning Forms with Examples Addendum

The following planning forms and examples are guides to planning individualized behavior therapy interventions. If something is not clear to you about one of the blank forms, careful inspection of the example should clarify the item in question. It is not possible to design a form that will fit every conceivable situation. Therefore, you will at times need to adapt the forms to better fit your intervention. There is a blank form for each type of intervention. These blanks are followed by examples of completed forms.

BT INTERVENTION PLAN I
(Graduated Extinction)

Student: _____ Date: _____

Teacher: _____

1. The problem description:
 - a. Target behavior(s):
 - b. Emotional basis:
 - c. Analysis of emotional basis:
 1. Antecedent for emotion:
 2. Hypothesis about how the antecedent came to elicit a negative emotional response (don't forget to consider cognitive and social factors):
 3. Purpose served by the overt response(s):
 4. How aversive does the antecedent for the emotional response appear to be (Select One):

Mild Moderate Strong

(NOTE: If strong, use a cognitive or representational procedure in the first intervention. If mild or moderate, use a behavioral procedure)

2. Target Behavior(s):
 - a. Behavioral: _____

Operational definition:

- b. Emotional: _____
Operational definition:

- 3. Measurement technique(s) (MT):
 - a. Behavioral: _____
Description of data recording procedures:

 - b. Emotional: _____
Description of data recording procedures:

 - c. Conditions during baseline observations:

 - d. Plan an A-B graph format, with labels, to record data on.
- 4. Intervention using respondent extinction.
 - a. Objective(s) for the measured behavior(s):
 - 1. Behavioral:

 - 2. Emotional:

- b. Extinction procedure.
 - 1. If a behavioral procedure is to be used, describe the eliciting stimuli:

 - 2. If a representational or cognitive procedure is to be used, describe the eliciting stimuli:

 - 3. Type of attenuation to be used:

 - 4. Specify the steps in the extinction hierarchy:

 - 5. State the criteria for moving from one step in the hierarchy to the next:

- c. Session criteria.
 - 1. Session length:

BT INTERVENTION PLAN I: Example
(Graduated Extinction)

Student: Silent Sam

Date: March 6

Teacher: Bonnie Blabber

1. The problem description: Lack of participation in groups.
 - a. Emotional basis: Anxiety
 - b. Analysis of emotional basis:
 1. Antecedent for emotion: Peer group activities.
 2. Hypothesis about how the antecedent came to elicit a negative emotional response (don't forget to consider cognitive and social factors):

Possible ridicule of teasing by peers made about Sam's remarks during previous activities. Sam's apparent lack of conversational skills appears to be a contributing factor in his problem.
 3. Purpose served by the overt response(s):

Avoidance of feelings of humiliation elicited by peers' remarks.
 4. How aversive does the antecedent for the emotional response appear to be (Select One):

Mild **{Moderate}** **Strong**

(NOTE: If strong, use a cognitive or representational procedure in the first intervention. If mild or moderate, use a behavioral procedure)

2. Target Behavior(s):
 - a. Behavioral: Elective Mutism

Operational definition:

In the context of a social group (3+), Elective Mutism, will be defined as Sam emitting no audible speech.

b. Emotional: Social Anxiety

Operational definition:

Social Anxiety will be defined as Sam's subjectively experienced anxiety in social situations and reported by him using a five point rating scale.

3. Measurement technique(s) (MT):

a. Behavioral: Event Recording

Description of data recording procedures:

A tally will be kept on a recording sheet of Sam's response to each opportunity for a verbal event that occurs in a social group. An opportunity for a verbal event will be any question or comment directed at Sam that requires a verbal response, e.g., word, phrase, statement or question. If there is a response a tally mark will be placed under "Yes" and if a response is not made a tally mark will be placed under "No" on the tally sheet. The data will be converted to a percent response value for each session.

b. Emotional: Rating Scale

Description of data recording procedures:

A five point rating scale will be used where 1 = Little or None and 5 = Very high. Sam will be asked to rate his anxiety following each response opportunity. He will indicate his rating by raising the appropriate number of fingers. Each rating will be recorded on a note pad and an average rating for each session will be computed.

c. Conditions during baseline observations:

The student will be observed in normally occurring group activities each day (group activities are scheduled for 30 minute periods) until a baseline is established. The participants and size of the groups will vary.

d. Plan an A-B graph format, with labels, to record data on.

4. Intervention using respondent extinction.
 - a. Objective(s) for the measured behavior(s):
 1. Behavioral:

Sam will emit audible verbal responses to all questions or comments directed at him for five (5) consecutive sessions in groups composed of up to 12 peers.
 2. Emotional:

Sam's anxiety ratings will average 2.0 or less for five (5) consecutive sessions in groups composed of up to 12 peers.
 - b. Extinction procedure.
 1. If a behavioral procedure is to be used, describe the eliciting stimuli:

The eliciting stimuli will be the actual classroom and furnishings along with the teacher and classmates involved in a social group in which questions and comments will be directed at Sam.
 2. If a representational or cognitive procedure is to be used, describe the eliciting stimuli:

NA
 3. Type of attenuation to be used:

Stimulus features.
 4. Specify the steps in the extinction hierarchy:
 - a. 2 friends and teacher
 - b. 2 friends, classmate and teacher
 - c. 1 friend, 2 classmates and teacher
 - d. 3 classmates and teacher
 - e. 5 classmates and teacher
 - f. 8 classmates and teacher
 - g. 12 classmates and teacher

5. State the criteria for moving from one step in the hierarchy to the next:

The student will emit audible verbal responses to all questions or comments directed at him for five(5) consecutive sessions at each step in the hierarchy with an anxiety rating of 2.0 or less before moving to the next step.

- c. Session criteria.

1. Session length: 30 minutes.
2. Criteria for early termination of a session due to excessive distress in the subject:

Overt signs of emotional distress such as crying or five consecutive ratings of 5 on the self-report anxiety scale.

5. Criteria for failure and termination of the intervention:

Failure to move from one step to the next in ten sessions.

6. The alternative to be used if the planned intervention fails:

Counterconditioning.

NOTES: Intervention will begin with step one in the hierarchy and move through the steps already described and following the criteria previously stated. The student will receive a minimum of six questions during each session. The questions will be asked either by the teacher or by another student at the teacher's direction. Questions will be asked approximately every five minutes. If the criteria are met for early termination of a session, Silent Sam will be asked to leave the group and return to his desk to write Concurrent with this intervention will be instruction in social skills (conversational skills) and an intervention for operant overlap (DRO-I) focused on reinforcement of verbalizations in a group context.

BT INTERVENTION PLAN II
(Counterconditioning)

Student: _____

Date: _____

Teacher: _____

1. The problem description:
 - a. Target behavior(s):
 - b. Emotional basis:
 - c. Analysis of emotional basis:
 1. Antecedent for emotion:
 2. Hypothesis about how the antecedent came to elicit a negative emotional response (don't forget to consider cognitive and social factors):
 3. Purpose served by the overt response(s):
 4. How aversive does the antecedent for the emotional response appear to be (Select One):

Mild Moderate Strong

(NOTE: If strong, use a cognitive or representational procedure in the first intervention. If mild or moderate, use a behavioral procedure)

2. Target Behavior(s):
 - a. Behavioral:

Operational definition:

b. Emotional:

Operational definition:

3. Measurement technique(s) (MT):

a. Behavioral:

Description of data recording procedures:

b. Emotional:

Description of data recording procedures:

c. Conditions during baseline observations:

d. Plan an A-B graph format, with labels, to record data on.

4. Intervention using counterconditioning.

a. Objective(s) for the measured behavior(s):

1. Behavioral:

2. Emotional:
 - b. Counterconditioning procedure to be used.
 1. If a behavioral procedure is to be used, describe the eliciting stimuli:

 2. If a representational or cognitive procedure is to be used, describe the eliciting stimuli:

 3. The negative-emotion, antagonistic response to be used.
 - a. Stimulus to elicit the response:

 - b. Response to be elicited:

 - c. If the response to be used must be established, describe the procedures to be used:

4. Type of attenuation to be used:
 5. Specify the steps in the counterconditioning hierarchy:
 6. State the criteria for moving from one step in the hierarchy to the next:
- c. Session criteria.
1. Session length:
 2. Criteria for early termination of a session due to excessive distress in the subject:
5. Criteria for failure and termination of the intervention:
 6. The alternative to be used if the planned intervention fails:

NOTES:

BT INTERVENTION PLAN II: Example
(Counterconditioning)

Student: Tizzy Tense

Date: November 9

Teacher: Icky Ice

1. The problem description: Soiling clothing at school
 - a. Target behavior(s): Avoidance of bathrooms
 - b. Emotional basis: Anxiety
 - c. Analysis of emotional basis:
 1. Antecedent for emotion: Bathrooms
 2. Hypothesis about how the antecedent came to elicit a negative emotional response (don't forget to consider cognitive and social factors):

Possibility that bathrooms have been the site for punishment. Parents or other care takers may need to be consulted and advised about this possibility.
 3. Purpose served by the overt response(s):

Reduction of anxiety elicited by antecedent associated with pain.
 4. How aversive does the antecedent for the emotional response appear to be (Select One):

Mild Moderate {Strong}

(NOTE: If strong, use a cognitive or representational procedure in the first intervention. If mild or moderate, use a behavioral procedure)

2. Target Behavior(s).
 - a. Behavioral: NA

Operational definition: NA

b. Emotional: Anxiety

Working definition:

Subjectively experience anxiety as reported by Tizzy.

3. Measurement technique(s) (MT):

a. Behavioral: NA

Description of data recording procedures: NA

b. Emotional: Self-report scale

Description of data recording procedures:

Anxiety will be measured using a five-point scale where 1 is little or none and 5 is very high. Self-report will use the fingers and thumb of one hand.

c. Conditions during baseline observations:

Tizzy Tense will be presented with 15 pictures of various household objects in which a sequence of five bathroom related pictures are interspersed. She will be asked to rate her anxiety at the presentation of each picture with the question, "How many fingers?"

d. Plan an A-B graph format, with labels, to record data on.

4. Intervention using counterconditioning.

a. Objective(s) for the measured behavior(s):

1. Behavioral:

NA

2. Emotional:

The student will be able to look at a set of pictures with all five bathroom

pictures included for five seconds and with a mean anxiety rating of less than three, for five consecutive sessions.

- b. Counterconditioning procedure to be used.
 1. If a behavioral procedure is to be used, describe the eliciting stimuli:

NA
 2. If a representational or cognitive procedure is to be used, describe the eliciting stimuli:

Ten pictures of household scenes taken from a language development kit. Five sequenced bathroom pictures will also be selected. One new bathroom picture will be added to the set at each step.
 3. The negative-emotion antagonistic response to be used.
 - a. Stimulus to elicit the response:

Peanuts
 - b. Response to be elicited:

Pleasure from eating
 - c. If the response to be used must be established, describe the procedures to be used:
 4. Type of attenuation to be used:

Stimulus features
 5. Specify the steps in the counterconditioning hierarchy:
 - a. Picture of a closed bathroom door with a label on the door that says "Girls."
 - b. Picture of an open bathroom doorway with the label visible on the door and a tile floor leading into the room.
 - c. Picture of a wash basin, shower and commode in bathroom.
 - d. Picture of a girl standing in a bathroom doorway with a wash basin, shower and commode visible.

6. State the criteria for moving from one step in the hierarchy to the next:

The student will be able to look at each bathroom picture in a set for five seconds and with a mean anxiety rating of less than three, for five consecutive sessions, before moving to the next step.

- c. Session criteria.

1. Session length:

5 Minutes

2. Criteria for early termination of a session due to excessive distress in the subject:

Three consecutive anxiety ratings of five (5).

5. Criteria for failure and termination of the intervention:

Failure to move from one step to the next after ten sessions.

6. The alternative to be used if the planned intervention fails:

Cognitive counterconditioning

NOTES: Following a consultation with Tizzy's parents, Tizzy will be given two intervention sessions per day, one in the morning and one in the afternoon. She will be presented one picture at a time from the working set for that session. Appropriate responses to all household pictures will be followed by social praise. When a bathroom picture is presented, the presentation will be accompanied by one of her favorite treats, peanuts. As the picture is presented a peanut will be placed in her mouth and at the same time she will be asked, "What is it?" She will get another peanut every 2 seconds until the next prompt is delivered. At each new prompt, she will get another peanut and then another peanut after 2 seconds and so on until she makes an appropriate response or the criteria for early termination of a session are reached. If she gives an appropriate response, the session will continue. If there are other bathroom pictures in the set, the same procedure just described will be followed. If the session meets the early termination criteria, the next scheduled session will follow the procedure just described. If the representational intervention is successful, a new intervention will be planned using the behavioral mode.

Activities

1. From your experience, identify a student behavior in which you think one of the three cognitive factors in emotional behavior might have played a role. Describe the behavior, what cognitive factor(s) you think were involved and why.
2. Develop a set of mental image descriptions for a positive self-arousal scene of your choice. Practice using it, following the guidelines, in the text.
3. Practice the use of regulated breathing, following the guidelines in the text, to relax yourself.
4. Practice the use of progressive muscle relaxation, following the guidelines in the text, to relax yourself.
5. Select an emotion based problem behavior and develop an operational definition of it and work out the measurement procedures you would use for an intervention plan.
6. Develop an intervention hierarchy for the antecedents to the problem behavior selected in (1) above.
7. Describe the differences in how you would proceed with the intervention for the problem selected above depending on whether you used graduated extinction or counterconditioning.
8. Develop a formal intervention plan for the problem selected above. Use the planning format provided in the chapter.
9. Assume that the problem you are working with has not only a respondent basis but also involves operant overlap. How will you plan for this in the intervention you described in (4).

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