Extinction

Sharon met Dwayne at a party, and he called her the next day to ask her on a date. She told him she had a boyfriend and wouldn't go out with him. Dwayne began e-mailing her, asking why she wouldn't go out with him. The first day he sent 3 e-mails, and the next day he sent 5. Sharon answered the first 3 of the e-mails, then decided to stop answering. Dwayne sent her 10 e-mails on the third day and another 10 on the fourth day. On the fifth day, he sent 12 e-mails.

Sharon was tempted to reply, to tell Dwayne to stop bothering her, but she resisted. On the sixth day, he sent 8 e-mails, and on the seventh day he sent 5. He sent 2 e-mails on the eighth day and 2 on the ninth day and one last e-mail on the tenth day. Sharon never heard from Dwayne again after that.

Objectives

After completing this chapter, you should be able to do the following:

- Give an example of an extinction procedure used to decrease the strength of a behavior.
- Determine whether a given stimulus serves as a positive reinforcer for a specific response.
- Identify the positive reinforcers for desired and undesired behaviors, given a case example.
- Describe the effect of extinction on the rate of a target response.
- Describe how spontaneous recovery can be addressed in an intervention plan.
Decreasing Response Strength

In Chapter 2, we described how positive reinforcement can be used to increase the strength of a response. This chapter is concerned with how the strength of a response is decreased by the application of a procedure called extinction, an example of which is given in Case Example 2 (see p. 34). Like positive reinforcement, extinction alters the consequences of a behavior. By systematically withholding the positively reinforcing consequences of a behavior, we can decrease its frequency.

The extinction procedure consists of withholding the positive reinforcer each time the target response is performed. The contingency between the response and the positive reinforcer is discontinued. The extinction effect is a decrease in the rate of the response to zero or to a prespecified rate. A response that decreases to zero has been extinguished and has a low probability of occurring again under similar conditions. The extinction procedure is shown in diagram form as follows:

```
Extinction Diagram
  R ———> S^r+
  Response is not followed by the positive reinforcer for the response
```

Effect: Response decreases in strength to zero or a prespecified rate.

The slash through the arrow in the above diagram indicates that the positive reinforcer ($S^r+$) is withheld (discontinued or no longer presented) until the response (R) decreases in strength to the designated rate.

The effect of the extinction procedure is that the target response decreases in strength to (a) zero or a prespecified rate or (b) its baseline rate or baseline level—that is, the rate prior to intervention. For example, in Chapter 2, we determined that the baseline rate of Donna's exercising was one time per day. When Donna received stars contingent on her exercising, the rate increased to an average of five times per day. The positive reinforcement diagram for Donna's exercising is as follows:

```
Positive Reinforcement Diagram for Exercising
  R ———> S^r+
  Exercising is followed by stars on a chart
```

Effect: Donna's exercising increased in rate over its baseline.

After 3 weeks of this program, Donna's mother ran out of stars and stopped giving them to her. The rate of Donna's exercising decreased to its baseline rate of one time per day. In diagram form, this extinction procedure can be depicted as follows:
This example demonstrates the effect of extinction in decreasing the rate of exercising.

In another example, Kara's walking on the treadmill increased when she played a video game for every 15 minutes of walking. When the video game was broken for a week, Kara's walking on the treadmill decreased to its baseline level of 5 minutes two times that week. The week the game was broken demonstrates the effect of extinction on Kara's walking on the treadmill.

Following are examples of extinction and its effect applied to some behaviors:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Extinction</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kara walks on a treadmill</td>
<td>Video game broken</td>
<td>Rate of walking on treadmill decreases</td>
</tr>
<tr>
<td>Sally giggles in class</td>
<td>Other students withhold laughter</td>
<td>Rate of giggling decreases</td>
</tr>
<tr>
<td>Carla screams about putting toys away</td>
<td>Mother stops putting toys away and ignores screaming</td>
<td>Rate of Carla's screaming decreases</td>
</tr>
<tr>
<td>Jordy whines for more TV</td>
<td>Father withholds attention and ignores whining</td>
<td>Rate of Jordy's whining decreases</td>
</tr>
<tr>
<td>Jack bangs his head against the wall</td>
<td>Teacher withholds attention</td>
<td>Rate of head banging decreases</td>
</tr>
<tr>
<td>Bella makes appropriate conversation in a group</td>
<td>Social worker withholds praise</td>
<td>Rate of appropriate conversation decreases</td>
</tr>
</tbody>
</table>

Extinction Diagram for Exercising

```
R   \( \not \) \rightarrow S^+
```

Exercising is not followed by stars on a chart

**Effect:** Donna's exercising decreased to its baseline rate.

Single-Subject Evaluation Designs

Single-subject evaluation designs are also called single-case experimental designs or single-system research designs (SSRDs). The basic evaluation design is the AB design, where A refers to the baseline and B refers to the intervention. The only two requirements for this design are (a) the collection of baseline measures and (b) the collection of data after an intervention has been introduced. In Case Example 2, the baseline rate of Bella's speaking on topic in the group averaged zero times per group meeting. After the introduction of positive reinforcement in the form of praise by the social worker and group members, the rate of her speaking on topic increased to an average of five times per group meeting.
CASE EXAMPLE 2

Developing Appropriate Conversation

Bella and Cliff were older adults with memory impairment in a group conducted at a senior center. In social situations, they often asked questions and made comments that were unrelated to the topic being discussed. For example, when several group members were discussing a recent film, Cliff asked the person speaking if he was going grocery shopping that afternoon. The baseline rate of Bella’s speaking on topic was zero. In addition, Bella and Cliff were frequently observed talking continuously for 5 minutes or more without pausing for responses from others. These speech patterns resulted in their being ridiculed and excluded from conversations held by other group members.

The social worker devised a conversational exercise for the six members of a group in which Bella and Cliff participated. The social worker began the exercise by making a statement and then asking each of the group members to add a statement to her introduction. Each new statement was required to bear logical connection to the preceding statement. For example, the social worker began speaking about how to cook dinner for oneself. At first, Bella and Cliff both added inappropriate statements, such as “You should see my grandson. He is so smart,” or “You know, when I was selling cars in New York I always was the top salesman of the month.” On these occasions, they were stopped by the social worker or group members, who asked them to make appropriate statements and complimented or praised them for doing so. Group members prompted Bella and Cliff, offering hints and suggestions for correct statements.

As they practiced this exercise on subsequent occasions, both Bella and Cliff made fewer inappropriate remarks and increasingly more appropriate ones. The rate of Bella’s speaking on topic increased to five times per group meeting after six group sessions. The frequency of Bella’s and Cliff’s appropriate remarks during conversations outside the group was also observed to increase. Staff members and relatives reinforced Bella’s and Cliff’s appropriate speech.

Figure 3.1 is a graph of Bella’s speaking on topic. We can readily observe the change in behavior from A to B; the data indicate an improvement after the intervention was introduced. The AB design, however, does not allow us to state empirically that the intervention “caused” the behavior change. We cannot rule out other factors that may have been responsible for the observed change, such as a new drug that improved Bella’s concentration.

Another design, ABAB, is more rigorous in controlling for factors influencing behavior change. The first A (A1) is the baseline condition. The first B (B1) refers to the intervention. The second A (A2) refers to a return or reversal to the baseline condition—that is, the intervention is removed. The second B (B2) refers to reinstatement of the intervention. The ABAB design, also called a reversal design, is used to evaluate the effectiveness of an intervention in producing behavior change. The behavior will reverse as the phases are altered if the reinforcer is effective in producing the behavior change. The baseline and intervention phases are alternated
to demonstrate that the intervention was responsible for the behavior change. ABAB designs have a built-in replication feature.

In Figure 3.2, A₁ is the baseline rate of Bella’s speaking on topic in the group. B₁ refers to her response rate after positive reinforcement was delivered contingent on her speaking on topic. The rate of Bella’s speaking on topic increased. A₂ is a return to baseline conditions when a new staff member took over the group and no longer praised Bella for speaking on topic. This resulted in extinction of Bella’s speaking on topic, which returned to its baseline rate. B₂ refers to reinstatement of positive reinforcement contingent on her speaking on topic when the original social worker returned. The rate of Bella’s speaking on topic again increased. These data demonstrate the effectiveness of praise by the social worker as a positive reinforcer for Bella’s speaking on topic in the group. Because the social worker’s praise was the positive reinforcer, withholding that praise decreased Bella’s speaking on topic. Restoring praise by the social worker, therefore, was effective in reinstating Bella’s appropriate speech.

Applying Extinction to Decrease Undesired Behaviors

Behavioral practitioners do not always have the opportunity to develop a behavior, extinguish it, and reinstate it. Often, we are asked simply to eliminate or decrease an undesired behavior to a desired, prespecified rate—for example, Sally’s excessive giggling in class. In this situation, we must determine the reinforcing consequences for Sally’s giggling.
We follow three basic steps in applying extinction to decrease a response. The first step is to observe what happens when Sally giggles in class to identify the positive reinforcer for giggling. We observe that other students laugh when Sally giggles, which could indicate that their laughter is a positive reinforcer for her giggling.

Second, we count the number of times Sally giggles during a given time period to determine her rate of giggling. We decide to count each occurrence of giggling as a separate giggling response if it lasts 1 to 5 seconds. Averaging baseline data, we find that Sally giggles an average of six times an hour.

Third, we remove the consequences of her giggling in class. We instruct the other students to continue working, to turn their faces away from Sally, and to remain silent when she giggles. If our initial observation that the students’ laughter positively reinforced Sally’s giggling is accurate, removing this positive reinforcer should result in a decrease in giggling. If the children’s laughter is not a positive reinforcer for Sally’s giggling, its removal will have little or no effect on her rate of giggling.

In Figure 3.3, A₁ is the baseline rate of Sally’s giggling and B₁ is the intervention, extinction. During B₁, the rate of Sally’s giggling initially increased and then gradually decreased to zero. A₂ is a return to the baseline condition—that is, removal of the intervention and allowing positive reinforcement for giggling. During A₂, the rate of Sally’s giggling increased toward the baseline rate of A₁. B₂ refers to reinstatement of the intervention. During B₂, Sally’s giggling again decreased to zero.
These data show that the removal of the positive reinforcer, the children’s laughter, was effective in decreasing Sally’s giggling.

The following steps will enable you to determine whether a given stimulus serves as a positive reinforcer for a specific response:

1. Determine the baseline rate of the response.
2. Identify the potential positive reinforcer for the response.
3. Withhold the stimulus that you have identified as the potential positive reinforcer for the response.
4. Measure the rate of the response. If it decreases (even after an initial increase), it is likely that the stimulus you identified is the positive reinforcer for the response.
5. If it is important to demonstrate that the stimulus is in fact the positive reinforcer, reinstate the stimulus following the response.
6. Measure the rate of the response. If it increases again, the stimulus has served as the positive reinforcer for the response.

The following shows the steps you could use to determine whether the students’ laughter is the positive reinforcer for Sally’s giggling. The steps are listed on the left, and the examples of Sally’s giggling are listed on the right:

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**Figure 3.3** Graph of Sally’s Giggling in Class

These data show that the removal of the positive reinforcer, the children’s laughter, was effective in decreasing Sally’s giggling.

The following steps will enable you to determine whether a given stimulus serves as a positive reinforcer for a specific response:

1. Determine the baseline rate of the response.
2. Identify the potential positive reinforcer for the response.
3. Withhold the stimulus that you have identified as the potential positive reinforcer for the response.
4. Measure the rate of the response. If it decreases (even after an initial increase), it is likely that the stimulus you identified is the positive reinforcer for the response.
5. If it is important to demonstrate that the stimulus is in fact the positive reinforcer, reinstate the stimulus following the response.
6. Measure the rate of the response. If it increases again, the stimulus has served as the positive reinforcer for the response.

The following shows the steps you could use to determine whether the students’ laughter is the positive reinforcer for Sally’s giggling. The steps are listed on the left, and the examples of Sally’s giggling are listed on the right:
1. Determine the baseline rate of the target response.  
   1. Sally giggled six times per hour.

2. Identify the potential positive reinforcer for the target response.  
   2. The students’ laughter followed Sally’s giggling, indicating it could be the positive reinforcer for her giggling.

3. Withhold the stimulus that you have identified as the potential positive reinforcer for the response.  
   3. The teacher told the students to turn away from Sally and remain silent when she giggled.

4. Measure the rate of the response.  
   4. Sally’s giggling increased at first to ten times per hour and then decreased to zero times per hour.

5. Reinstate the stimulus following the response.  
   5. The students laughed when Sally giggled (as instructed by the teacher).

6. Measure the rate of the response.  
   6. Sally giggled six times per hour.

The procedure described above demonstrated that the students’ laughter was probably the positive reinforcer for Sally’s giggling. To extinguish Sally’s giggling again, the teacher would tell the other students to turn away from Sally and remain silent when she giggled.

In practice, AB designs are the most common. ABAB designs are more appropriate for research programs that require careful testing of treatment effects. The ABAB design in this case demonstrated that the students’ laughter, not some other event, was controlling Sally’s giggling. Because Sally’s giggling is an undesired behavior, however, it would be inappropriate to reinstate giggling by asking the students to reinforce it.

**CASE EXAMPLE 3**

**Decreasing Tantrum Behaviors**

In a parent training group, Carla’s mother, Juanita, told the social worker that almost every time she told 5-year-old Carla to put her toys away, Carla screamed. The baseline duration of Carla’s screaming averaged 5.5 minutes per episode. Juanita would attempt to placate Carla by promising to buy her new clothes and by putting the toys away herself.

The social worker suspected that Juanita was positively reinforcing Carla’s screaming by putting the toys away and promising to buy Carla new clothes. She showed Juanita how to use extinction to decrease Carla’s screaming. The procedure involved withholding the positive reinforcers for Carla’s screaming.

The social worker instructed Juanita to stop making promises, stop putting away the toys, and walk away from Carla when she screamed about
putting away her toys. She told Juanita that Carla’s screaming might get worse before it got better but that if she held firm, Carla’s screaming would gradually decrease. Juanita carried out these instructions and the duration of Carla’s screaming gradually decreased, after an increase on the second day of extinction. By the sixth day of the extinction intervention, Carla no longer screamed when told to put her toys away.

The social worker also instructed Juanita to praise Carla and give her tangible reinforcers, such as gum or cookies, when she put her toys away. Juanita followed these instructions, and Carla began putting her toys away more frequently.

Figure 3.4 is a graph showing extinction of Carla’s screaming when she was asked to put her toys away. To obtain baseline data, the social worker told Juanita to record how long Carla screamed when asked to put her toys away for 2 days before beginning the extinction intervention. Carla screamed for 5 minutes the first day and 6 minutes the second day. On the first day Juanita implemented the extinction intervention, Carla screamed for 5 minutes. She screamed for 9 minutes on the second day, 5 minutes on the third day, 3 minutes on the fourth day, and 1 minute on the fifth day; Carla did not scream when asked to put her toys away on the sixth and seventh days.

![Graph of Extinction of Carla's Screaming](image)

**Figure 3.4** Graph of Extinction of Carla’s Screaming

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**Ethical Considerations**

The use of some single-subject designs raises the ethical issues of reinstating positive reinforcement for undesired behaviors (e.g., Sally’s giggling) and removing positive reinforcement for desired behaviors (e.g., Bella’s speaking on topic in group meetings). In practice, undesired behaviors, especially those that are harmful to the
individual or others, should not be reinstated after extinction to demonstrate
effectiveness of the procedure. Similarly, behaviors that are beneficial to the
individual or others should not be extinguished.

It might be appropriate to remove and reinstate reinforcement using an ABAB
design in a carefully controlled research study that attempts to develop new
knowledge about the effects of certain stimuli on behavior, determine the effects
of novel interventions, or assess the effects of interventions on different behaviors.
In such research studies, the informed consent of the individuals involved, or their
legally responsible significant others, should always be obtained. The researchers
should clearly state the rationale of the studies, indicating the benefit for the
individuals or future clients. Other evaluative approaches, often used in research
studies, do not involve returning to baseline conditions. Multiple-baseline designs,
for example, do not require reversal to baseline (see Chapter 13). Other experi-
mental designs that do not involve reversal to baseline include changing criterion,
simultaneous treatment, and multielement designs. Detailed treatments and exam-
plest of these alternative designs can be found elsewhere (e.g., Bloom, Fischer, &
Orme, 2003; Royse, 1995).

Effects of Extinction

In extinction, the target response may not disappear immediately. In fact, the initial
effect of extinction is often a response burst or sharp increase in the strength of the
target behavior. For example, during the first 3 days that students ignored Sally’s
giggling, her average hourly rate of giggling increased from 6 to 10 times per hour
(see Figure 3.3). Disruptive or “emotional” responses, such as kicking, hitting,
or complaining, might also be observed. For example, when you put money in a
vending machine for a soft drink and nothing comes out, you might hit or kick
the machine, especially if you have been positively reinforced previously for such
behavior by getting the desired item or your money back from the machine.
Similarly, the first day Bella did not receive praise for speaking on topic, she might
have complained or mumbled under her breath. If reinforcement is continuously
withheld, however, the target behavior will gradually decrease until it reaches
its baseline or a prespecified rate. Our measure for effective reduction of Sally’s
giggling would be the teacher’s estimate of a reasonable rate for that behavior in
appropriate circumstances. Extinction, therefore, is judged to be effective when the
target behavior decreases to a prespecified rate.

Many behaviors are reinforced by social consequences such as attention,
praise, recognition, conversation, and expressions of interest or concern from
other individuals. The withholding of such social reinforcers to extinguish
undesired behavior might include turning away from the individual, avoiding
eye contact, and refraining from conversation. In withholding social reinforce-
ment, it is important to avoid scowling, grimacing, or exhibiting other facial
or verbal behaviors that could unintentionally reinforce the response to be
extinguished.
Consistency and Control of Reinforcement

Two practical difficulties might be encountered in implementing an extinction procedure: (a) ensuring that reinforcement is consistently withheld for undesired behaviors and (b) preventing delivery of reinforcement by others for undesired behaviors. In applying extinction, it is necessary to consistently withhold the reinforcer for the response. The pressure to “give in” or reinstate the reinforcer must be resisted, especially during the period of increased responding or disruptive behavior that can occur at the beginning of extinction. Reinstating the reinforcer for the undesired response makes the response more difficult to extinguish in the future.

For example, the social worker told Juanita (see Case Example 3, p. 38) to extinguish Carla’s screaming by ignoring her and walking away when Carla screamed about putting her toys away. The social worker also warned Juanita that Carla’s screaming might increase in intensity when the extinction intervention first began, and that Carla might kick the furniture or throw her toys around the room. If Juanita were to respond by putting Carla’s toys away and promising to buy her clothes as before, Juanita would reinstate the positive reinforcers for the undesired behavior, making it more difficult to extinguish.

In the example at the beginning of this chapter, Sharon extinguished Dwayne’s e-mailing behavior when she stopped answering his e-mails. Before his e-mailing extinguished, however, Dwayne’s rate of e-mailing Sharon increased. Although Sharon was tempted to answer Dwayne’s e-mails, she continued to withhold her response. If she had given in to the temptation, she would have reinforced Dwayne’s e-mailing, thereby making it more difficult to extinguish.

The second major difficulty in implementing an extinction program is that of preventing the delivery of reinforcement by others for the undesired behavior. When we are not in control of the individual’s reinforcing environment, someone else could reinforce the behavior that we are attempting to extinguish. For example, Carla’s grandmother might put Carla’s toys away when she screams, making the response more difficult to extinguish. Such unauthorized reinforcement for undesired behavior has been referred to as “bootleg reinforcement” (Ayllon & Michael, 1959).

Positive Reinforcement of Appropriate Behaviors

As we have shown above, extinction is used to decrease the strength of a response. For example, Donna’s exercising decreased when her mother stopped giving her stars, Kara’s walking on the treadmill decreased when she stopped playing the video game after walking on the treadmill, Sally’s giggling decreased when her classmates stopped laughing, and Bella’s speaking on topic decreased when she no longer was praised by the social worker. In each of these cases, the target response decreased when the positive reinforcer was withheld. When we extinguish an undesired behavior, however, it may also be important to positively reinforce appropriate behaviors in the problematic situation. When we extinguish Sally’s giggling, therefore, we also positively reinforce appropriate classroom behaviors, such as reading
quietly, talking at appropriate times to other students and to the teacher, reading aloud for the class, and answering the teacher’s questions. Sally can be positively reinforced for these responses by teacher attention, praise, points, or extra privileges. Similarly, when extinguishing Carla’s screaming, Juanita was instructed to positively reinforce appropriate behaviors Carla performs, such as reading a book, playing with her dolls, or helping her mother put groceries away.

**Spontaneous Recovery**

A feature of extinction that is important to the behavioral practitioner is *spontaneous recovery*. After a behavior has been extinguished, it might recur even though it has not been reinforced for some time. The behavior could recur when the individual is in a situation similar to the one in which the behavior was originally reinforced. Individuals conducting the extinction procedure are instructed to continue to withhold the reinforcer if the response recurs.

For example, at bedtime 3-year-old Jordy whined for more television time, and his father usually gave in. Jordy’s bedtime got later and later, and it became difficult to wake him in the morning. Jordy’s parents tried to get him to bed earlier, but Jordy always got his way. To extinguish Jordy’s whining, his father was instructed to turn off the TV at the same time every night, to tell Jordy there would be no more TV that evening, and to ignore his whining. At first, Jordy’s whining increased in intensity (volume), frequency, and duration, and he threw his toys on the floor. Jordy’s father continued to turn off the TV at Jordy’s bedtime each night, and Jordy’s whining began to decrease in frequency, duration, and intensity. On the seventh night, when his father turned off the TV, Jordy went immediately to his room and prepared for bed. Jordy’s mother turned off the TV at his bedtime, and Jordy stopped whining at bedtime. One evening the following week, Jordy’s mother turned off the TV at his bedtime. Jordy whined, but the TV remained off. This incident of spontaneous recovery of Jordy’s whining was handled effectively—that is, Jordy’s mother reinstated the extinction procedure.

In anticipation of the possible spontaneous recovery of Jordy’s whining, Jordy’s parents were instructed to remain firm in turning off the TV at bedtime. They were also told to inform anyone else who would be responsible for turning off the TV at Jordy’s bedtime to ignore his whining should it occur.

In implementing the extinction procedure, we identify all individuals who have control over the availability or delivery of positive reinforcement for the target behavior in the person’s environment. These individuals are instructed to follow the extinction procedure consistently. In Jordy’s situation, both his mother and father, as well as babysitters and relatives, were instructed to turn off the TV and leave it off at the designated time so that Jordy’s whining would not be positively reinforced.

During the course of extinction, Jordy’s parents were instructed to positively reinforce Jordy’s appropriate behaviors at bedtime. Such behaviors included picking out his clothes for the next day, asking for a story, kissing his parents good night, and saying good night to his parents.
Summary

1. Extinction is a procedure for decreasing response strength or the likelihood that a response will be performed again under similar conditions.

2. The extinction procedure consists of withholding the positive reinforcer for a response until the response decreases to a prespecified rate or to its baseline rate. The contingency between a response and a positive reinforcer is terminated. The positive reinforcer is withheld each time the response is performed.

3. Positive reinforcement involves the presentation of a positive reinforcer contingent on performance of a response; extinction involves withholding the positive reinforcer contingent on performance of a response.

4. The extinction procedure can be used to determine whether a stimulus has served as a positive reinforcer for a specific response.

5. To extinguish a response, one must determine (a) response strength, (b) the positive reinforcer for the response, and (c) whether withholding the positive reinforcer results in a decrease in response strength.

6. The AB and ABAB experimental designs are used in the evaluation of case studies. Ethical concerns with the ABAB design include reinstating positive reinforcement for undesired behaviors and removing positive reinforcement for desired behaviors.

7. The initial effect of extinction may be a response burst or sharp increase in the strength of a target response, along with disruptive or “emotional” responses.

8. Lack of consistency in withholding positive reinforcement and the inability to prevent delivery of positive reinforcement by others (“bootleg reinforcement”) are two practical difficulties encountered in implementing an extinction procedure.

9. When a target behavior is extinguished, it may also be important to positively reinforce appropriate behaviors in the problematic situation.

10. The possible spontaneous recovery of an extinguished response can be anticipated and a plan can be arranged for continued extinction of the response.

Suggested Activities

1. Divide the class into groups of three. In each group, appoint one person to be the “client,” one to be the “therapist,” and the third to be the observer. The therapist will provide positive reinforcement in the form of eye contact, head nodding, and saying, “mm hmm,” when the client begins to speak about any topic. This will continue for 2 minutes, at which time the therapist will no longer provide the positive reinforcement. Instead, the therapist will look away, remain silent, and even turn his or her body away from the client. The
observer records the results, including the frequency and duration of the client’s speaking about the selected topic, rate of speaking about other topics, and other behaviors.

2. Repeat activity 1 with each group member in a different role.

References and Resources


