Chapter 6
Implementation-Based Case Studies from Adolescence to Adulthood

Abstract The current chapter explores the implementation of applied behavior analysis (ABA)-based interventions through the adolescent, adult, and senior stages of life. Throughout this chapter, technical considerations such as the selection of evidence-based behavior-change tactics, objective measurement systems, reliable interobserver agreement methods, and valid procedural integrity checks are highlighted. At the same time, the cases presented prompt readers to reflect on decisions often faced by behavior analysts such as the prioritization of behaviors identified for change, the extent to which programs should balance skill development with behavior reduction tactics, and when and how to utilize punishment procedures within ethical guidelines. This chapter also guides readers to consider the importance of involving adolescents, young adults, adults, and seniors in each stage of the behavior intervention implementation process. The value, benefits, challenges, and limitations of engagement in the planning, implementation, and evaluation stages of behavior programs are critically explored. Further, important ethical and clinical considerations, particularly for individuals with developmental disabilities or cognitive impairments, are highlighted throughout the cases presented. In this chapter, entitled "Implementation-Based Case Studies from Adolescence to Adulthood," technical, professional, and ethical considerations surrounding the implementation of ABA-based behavior-change programs are explored through five case scenarios in home, school, clinical, and community settings.

CASE: iii-I6

Right, Wrong, or Different?
Setting: School   Age-Group: Adolescence

LEARNING OBJECTIVE:

- Critically assess the quality of behavior measurement.

TASK LIST LINKS:

- **Measurement**

    – (A-01) Measure frequency (i.e., count).
    – (A-06) Measure percent of occurrence.
    – (A-07) Measure trials to criterion.
    – (A-08) Assess and interpret interobserver agreement.
    – (A-09) Evaluate the accuracy and reliability of measurement procedures.
    – (A-10) Design, plot, and interpret data using equal-interval graphs.
    – (A-12) Design and implement continuous measurement procedures (e.g., event recording).

- **Fundamental Elements of Behavior Change**

    – (D-02) Use appropriate parameters and schedules of reinforcement.
    – (D-21) Use differential reinforcement (e.g., DRO, DRA, DRI, DRL, DRH).

- **Measurement**

    – (H-03) Select a data display that effectively communicates relevant quantitative relations.
    – (H-04) Evaluate changes in level, trend, and variability.

- **Intervention**

    – (J-01) State intervention goals in observable and measurable terms.
    – (J-02) Identify potential interventions based on assessment results and the best available scientific evidence.
    – (J-04) Select intervention strategies based on client preferences.
    – (J-10) When a behavior is to be decreased, select an acceptable alternative behavior to be established or increased.

- **Implementation, Management, and Supervision**

    – (K-03) Design and use competency-based training for persons who are responsible for carrying out behavioral assessment and behavior-change procedures.
    – (K-04) Design and use effective performance monitoring and reinforcement systems.
    – (K-05) Design and use systems for monitoring procedural integrity.

- (K-06) Provide supervision for behavior-change agents.
- (K-07) Evaluate the effectiveness of the behavioral program.

KEY TERMS:

- **Differential Reinforcement of Other Behavior**

  - Differential Reinforcement of Other Behavior occurs when reinforcement is delivered when a target behavior does not occur for a specified period of time (Simonsen et al. 2008).

- **Interobserver Agreement**

  - Interobserver agreement or reliability is the extent to which two or more individuals independently report the same values when observing the same behavioral event. In applied behavior analysis research and practice, high rate of agreement between independent observers is an indicator of quality measurement (Mudford et al. 2009).

- **Reinforcer**

  - A reinforcer is a consequence that follows a behavior that increases the future frequency of that behavior (Azrin et al. 2006).

- **Schedule of Reinforcement**

  - A schedule of reinforcement is a protocol that outlines how often reinforcement is delivered in relation to occurrences of target behaviors (Rasmussen and O'Neill 2006).

Right, Wrong, or Different?

The day began with the usual events. From inside the classroom, Mr. Helio could hear the seemingly far-flung sounds of 12-year-old Edgar—Gar—approaching the school's propped-open double doors to the outside. Not only was Gar identifiable by his growling talk and his high-pitched, almost hysterical giggle, but also by his nearly endless stream of profanity. Brief moments later, Gar burst through the classroom door itself, surrounded closely by his usual gang of adolescent boys and girls, tumbling to the floor and laughing as they tossed their knapsack, lunch bags, and boots aside to head to the class's "clubhouse." In the corner of the class sectioned off by two low bookcases and two well-worn couches, Gar's group sat, slouched, and laid out on the floor. As usual, Mr. Helio greeted each student and allowed them their transition time before the bell rang. He did his best to ignore the swearing—totally unacceptable in a school environment—but made sure that he headed over to the general vicinity of the disruptive group when the profanity got too loud, motioning with both of hands in what he thought was a pretty universal

hands-down motion. Even though the profanity was just as bad as usual, Mr. Helio felt optimistic about how the day might go, he was hoping for better than usual!

Yesterday, Mr. Helio and the paraprofessional who spends most mornings in his classroom due to the high levels of disruptive behavior (which seemed to swirl in a vortex around Gar) met with the district's behavior consultant. Following a week of observations, a functional behavior assessment, and a meeting with their principal and Gar's foster parents, the consultant had sat them both down and asked them to complete an incredibly detailed list that she called a "preference survey" to figure out things Gar really likes and to rate each one as a potential reinforcer. She had told them both that she understands they know their student well, but that this form would help them to recall any ideas that might otherwise be missed. Next, she had explained to them what "frequency of behavior" meant, and gave them each a data sheet to complete for each period of the day. The definition of the target problem behavior had been defined at the top of the sheet as: "the audible utterance of any words considered to be profanity in the school setting." Mr. Helio and the paraprofessional agreed that they would each count and record the number of incidences of Gar's profanity each morning during each of the four periods of academic classes. "Apart from the actual collection of data," she had further explained "you are going to be implementing Differential Reinforcement of Other Behavior (DRO). Since the function of Gar's problem behavior is socially-mediated attention, your job is to give him lots of attention, praise, and these tokens for extra free time when he is doing anything —except swearing. If you have to give him any attention at all when he swearing—or right after—use as few words as possible, turn your body away, and don't make eye contact. Since he likes attention so much, any attention you give him at that point will actually make him swear more." Following a lengthy but productive discussion, they all departed for home, anticipating the events of the next classroom day.

Mr. Helio smiled widely as the paraprofessional entered the room—happily the same one he met with yesterday—and quickly gathered up their clipboards, data sheets, and pencils. In addition, he taped some pieces of masking tape onto the leg of his pants in order to easily count the frequency of the data quickly and wherever he was in the classroom, and the paraprofessional opened her relevant cell phone app. The cell phone app was the way that the paraprofessional collected data that worked for her! They were ready to go for their first day of data collection—and DRO!

Monday through Thursday (Friday was part of a long weekend) consisted of the two educators busily implementing DRO and collecting frequency data on Gar. Every time Mr. Helio heard profanity from him, he wrote a tally mark on his piece of masking tape on his leg and provided no attention or as little as possible. Each time the paraprofessional heard him swear, she clicked a tally mark on her cell phone app and gave him no attention or as little as possible. Each transferred the total number of tally marks to their separate data collection sheet at some point at the end of the period. The same paraprofessional was available all week, and neither Mr. Helio nor the paraprofessional missed filling in any of the information onto the data collection sheets. At the end of the short week, they were pretty pleased with themselves, scanned, and emailed off their data collection sheets as required by the consultant, and went home early as a special reward.

The following Monday, they met again with the behavioral consultant, with their neat stacks of four carefully penciled data collection sheets in tow. They sat at the behavior consultant's roundtable, anticipating some helpful feedback—and they were not disappointed! However, what she said was a little different than what they expected. On a legal-sized sheet of white paper, she presented a graph to them.

"This section," she said, "is my baseline observations. Remember that week where I was at the back of the classroom, observing every morning? You can see here that the frequency of profanity each morning is quite high, but it is also stable and level: it's about the same every day." "Now, this data path or line, with the triangles, is yours"—she pointed to the paraprofessional—"and the one with the circles is yours"—she pointed to Mr. Helio. "You can see the one line with the triangles is quite high. It's even higher than mine, by quite a bit. You can see that the other one is quite low. It's lower than mine, by quite a bit. It's good that both of them seem to be on a downwards path, which means the behavior is decreasing over time, but it doesn't tell us if our plan is working. What we want to see is what we call interobserver agreement (IOA), where the two of you collect data separately in the same situation, we want that data to tell us the same thing, and then, we will know if the behavior is truly decreasing! But right now, we are not really sure if much change is happening in the direction we want to see."

After another prolonged discussion, it became clear that the paraprofessional was counting each separate swear word as a separate tally mark, and the teacher was counting each time when she could hear Gar swearing as a tally mark, no matter how many times he said swear words together. Together, they rewrote their definition of profanity, and recreated a data plan for next week. Neither of the educators was right—nor wrong—just different.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Interobserver agreement also has different words to describe the same concept. What other terms are used to describe this concept?

(Q2) From the case study, determine from the graph provided, what may be happening with the DRO procedure with regard to the reinforcement of other behaviors, not taking into the account the difference between educators? How may the behavior data differ if it was DRA or DRI procedures?

Processes

(Q3) Using the graph in Fig. 6.1 that the behavior consultant presented to the team, describe the level, trend, and variability from baseline to intervention.

(Q4) Based on the first-week difference in frequency of behaviors, it was clear that the operational definition of the behavior was not agreed upon to each individual and thus led to differences in the two professionals' count. Write an operational
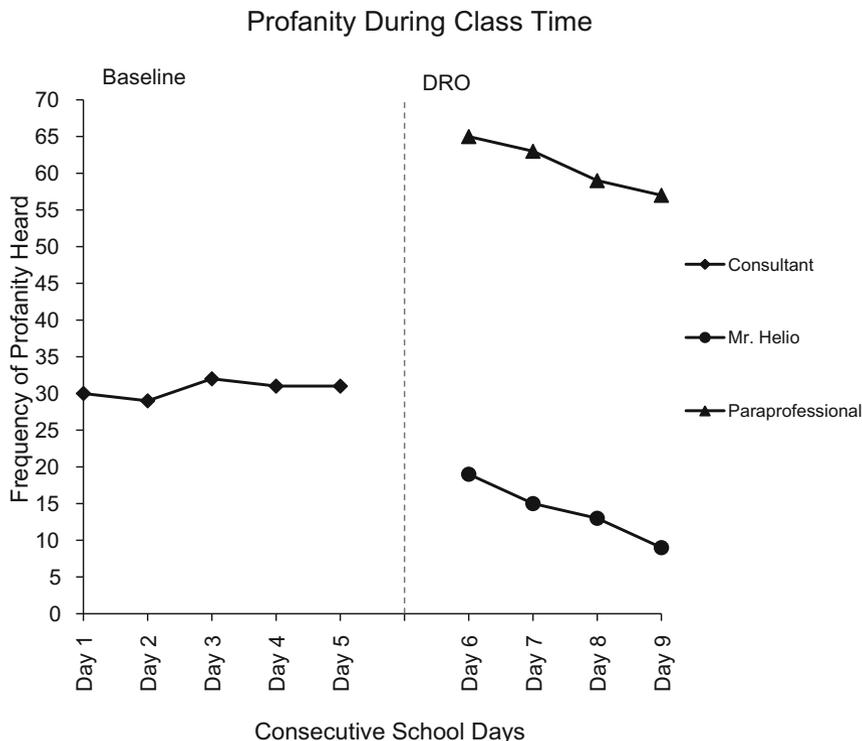
Fig. 6.1 Gar's profanity during his four-period school day

definition of the profanity that is clear for both parties. What else could be done before collecting data in the real environment to ensure both Mr. Helio and the paraprofessional are counting similar behaviors?

Practice

(Q5) Below are the IOA data from the paraprofessional and Mr. Helio. Calculate the percentage of interobserver agreement (Table 6.1).

(Q6) The data sheet for the frequency count for each period throughout the day is below. What else does the data tell you besides the difference in frequency counts across observers (Table 6.2)?

(Q7) Since Gars' behavior is reinforced by social attention, what other reinforcers could be used? What social reinforcers may be naturally occurring in the environment which may act as a confounding variable?

Table 6.1 Frequency data of Gar's profanity during each period of class time for four days during intervention phase by Mr. Helio and the paraprofessional

Day and period	Mr. Helio	Paraprofessional
Monday—Period 1	5	16
Monday—Period 2	6	17
Monday—Period 3	5	14
Monday—Period 4	3	18
Tuesday—Period 1	1	1
Tuesday—Period 2	8	19
Tuesday—Period 3	3	20
Tuesday—Period 4	3	23
Wednesday—Period 1	4	25
Wednesday—Period 2	4	22
Wednesday—Period 3	3	10
Wednesday—Period 4	2	2
Thursday—Period 1	3	21
Thursday—Period 2	0	0
Thursday—Period 3	3	17
Thursday—Period 4	3	19

Table 6.2 Four days of scatterplot data of Gar's use of profanity during class time at school

Half Hour Intervals	Period	Monday	Tuesday	Wednes-day	Thursday
8:30 -9:00 AM	Period 1				
9:00 -9:30 AM					
9:30 -10:00 AM					
10:00 -10:30 AM	Period 2				
10:30 -11:00 AM					
11:00 -11:30 AM					
11:30 AM -12:30 PM		Lunch Break – No teacher observation			
12:30 -1:00 PM	Period 3				
1:00 -1:30 PM					
1:30 -2:00 PM					
2:30 -3:00 PM	Period 4				
3:00 -3:30 PM					
3:30 -4:00 PM					

Reflection

(Q8) What could you have done differently before implementing the procedure to ensure that the two professionals were collecting data on the same behaviors?
(Q9) Do you think the DRO schedule of reinforcement is the most suitable for Gar when his behavior is attention driven? Would you consider using other schedules of reinforcement such as DRI, DRA, or DRL?[1]

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[1]**see Fig. 3.4 for definitions of each procedure

(Q10) How could you include Gar on this discussion and the design and implementation of his behavior program? What benefits or downfalls do you see with this approach?

Additional Web Links
Differential Reinforcement
http://www.appliedbehavioralstrategies.com/reinforcement-101.html
Interobserver Agreement
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3357100/
Preference Assessments
http://www.asatonline.org/research-treatment/clinical-corner/conducting-preference-assessments-with-individuals-with-autism/

CASE: iii-I7

He Just Needs to Learn a Lesson
Setting: School Age-Group: Adolescence

LEARNING OBJECTIVE:

- Understand the principles of punishment and overcorrection.

TASK LIST LINKS:

- **Behavior-Change Considerations**

    – (C-02) State and plan for the possible unwanted effects of punishment.

- **Fundamental Elements of Behavior Change**

    – (D-15) Identify punishers.
    – (D-16) Use positive and negative punishment.
    – (D-17) Use appropriate parameters and schedules of punishment.
    – (D-18) Use extinction.
    – (D-19) Use combinations of reinforcement with punishment and extinction.

- **Implementation, Management, and Supervision**

- (K-03) Design and use competency-based training for persons who are responsible for carrying out behavioral assessment and behavior-change procedures.
- (K-05) Design and use systems for monitoring procedural integrity.
- (K-06) Provide supervision for behavior-change agents.
- (K-07) Evaluate the effectiveness of the behavioral program.

KEY TERMS:

- **Overcorrection**
  - Overcorrection is a form of punishment in which, following a display of problem behavior, an individual is asked to engage in behaviors that fix the damage caused by the problem behavior (Anderson and Le 2011).

- **Procedural Drift**
  - Procedural drift occurs when those implementing a behavior-change program, begin to stray from the detailed program instructions (Vollmer et al. 2008).

- **Restitutional Overcorrection**
  - Restitutional overcorrection is a form of punishment in which the individual, following a display of problem behavior, must bring the environment to a state better than it was before the problem behavior occurred (McAdams and Knapp 2013).

Jerry Just Needs to Learn a Lesson

MONDAY

"Seriously? Again?" was the principal's immediate reaction when the on-site police officer approached him first thing in the morning. In fact, the officer was waiting by his door as he entered the school at 7:30 AM. Although this was a fairly common site, her heart fell, as she immediately guessed what it was regarding. Yet again, Jerry, their perpetual grade nine student, had been causing a fuss.

Opening her door and taking off her coat, the principal motioned for the officer to sit with her at her consultation table. "Tell me," she said with a concerned sigh and a downturned mouth.

"One of the neighbors found Jerry around 1:00 AM. He was spray-painting 'School Sucks' on the brick wall around the back entrance. As you probably saw, it's still there, and you know as well as I do that there is going to be quite a fuss about it today when the other students see it. I suspect Jerry—if he is even here— will be getting more than one high-five from the others." The officer stood to take care of his other school responsibilities: "I will leave this with you. We haven't been able to find his parents yet—I think his dad works the night shift. I will see you later today, no doubt."

The principal wrote the main points on the sticky note and sent an email for the itinerant behavior specialist assigned to her school and two other high schools, requesting her to switch up her schedule and head into their school this morning. She tapped a red flag onto the email and sent it on its way. Next, she called the maintenance staff to put in a priority request to have the Jerry's handiwork—no doubt

very artistic—scrubbed off the wall. Thirdly, she walked to the back of the school herself to check out the graffiti first-hand, noting happily that which Jerry likes to mistakenly call "street art" was limited (this time) to a small section of the wall.

By the time she was on her way back to the front office area of the school, she was already being paged to meet with the behavior specialist. After a necessarily prolonged conversation, the specialist was dispatched to meet up with Jerry's parents, and the principal was ready to talk to Jerry, who was surprisingly in attendance that day. With the notes for a preliminary program plan in hand, the principal found Jerry outside of an obviously unsuccessful poetry class, leaning against the wall in the school hallway, busily engaged in his handheld game, pretending to ignore her presence. "Jerry," she intoned, "I know you can hear me, I know you can understand me, and I know that you know why I am here." She paused, and Jerry responded with no more than a sarcasm-ridden snort. "I have unfortunately already started our maintenance staff on the thankless job of cleaning up your early-morning mess, but from now on, the agreement is going to be that you clean up whatever mess you make—even if it's here at the school—and in fact you get to clean the whole wall or other area of whatever mess you make. I already have a support from your father in the form of an email that he is in full support of our plans. It would be great if you can keep your vandalism away from the school, or maybe stop it altogether."

She remembers that the behavior specialist spoke about punishment, as that is what the family and the others involved had wanted. She indicated that we would also look at behaviors we wanted to reinforce and increase, besides this behavior we wanted to decrease. She talked about implementing **overcorrection**, since that seemed to be a socially valid approach for the community and was common, especially engaging in **restitutional overcorrection**. Her notes for the behavior specialist were as follows:

TUESDAY
I received a call from home economics class that Jerry drew male genitalia on the cupboards using icing. I asked the teacher to tell Jerry to wash off the icing and also the front of the cupboard.

WEDNESDAY
I received a call from math class that Jerry drew algebraic equations (incorrectly) on the top of his desk with nail polish borrowed from a girl across the aisle. I asked the teacher to tell Jerry to scrape off the nail polish and also clean the inside and outside of the desk with a cloth from the maintenance staff.

THURSDAY
The police officer told me they found more graffiti outside, and they were pretty sure it is Jerry's tag, but nobody caught him doing it. The secretary told me Jerry filled some of staff mailboxes with shredded paper from the recycling bin. I told her to order Jerry to clean it out, also to take the contents of her paper shredder out to the recycling bin and then take the recycling bin out for collection.

FRIDAY
Jerry was absent.

MONDAY
Our music class teacher called me down to the choir room. During class, Jerry snuck into the instrumental music room and snapped all the woodwind reeds in half. I directed Jerry to pick them up and put them in the garbage, and showed him how to fit new ones into the woodwinds. I also showed him how to clean out the mouthpieces from the brass instruments and required him to clean them all before he went back to class.

TUESDAY
Jerry was on a class trip.

WEDNESDAY
I received the news that Jerry spent the whole trip the previous day spreading litter around the environment from his lunch, from garbage bins, from a tissue package in his pocket. When Jerry arrived this morning, I directed him to collect all the classroom and bathroom garbage cans from the whole school and put their contents into the dumpster outside. **NOTE TO SELF:** *Meeting with the behavior specialist, Jerry, and his father tomorrow after school. What are we going to do next? I think he just needs to learn a lesson, but he really doesn't seem to be getting it.*

The behavior therapist received the notes prior to the scheduled meeting and starts to see a pattern. She wonders to herself whether this is a result of **procedural drift**?

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Describe the overcorrection procedures that occurred for each day (Fig. 6.2).
(Q2) In this instance, the behavior specialist implemented punishment procedures. Was this positive or negative punishment? Why?

Processes

(Q3) How would you explain these punishment procedures to the staff that are implementing them? How would you ensure that they are implementing them correctly? What other safeguards do you need to put in place?
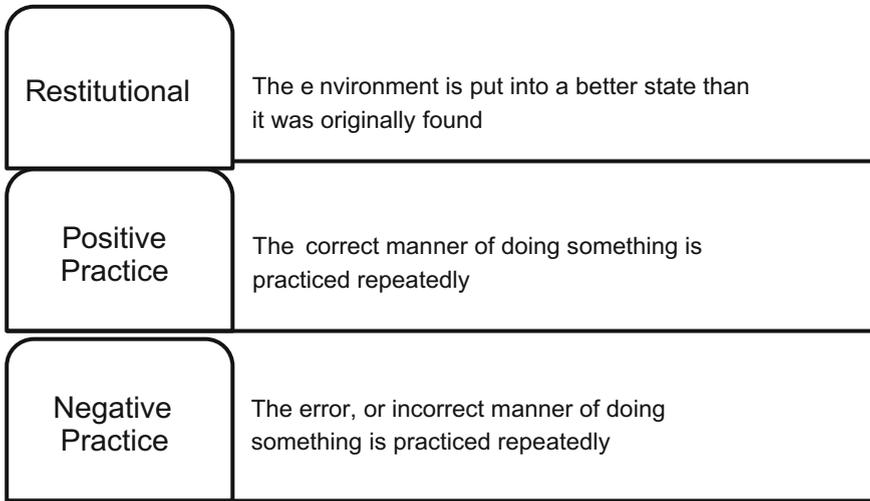**(Q4)** What other data could be collected to record Jerry's behavior? What information would it provide?

Restitutional	The e nvironment is put into a better state than it was originally found
Positive Practice	The correct manner of doing something is practiced repeatedly
Negative Practice	The error, or incorrect manner of doing something is practiced repeatedly

Fig. 6.2 Overcorrection procedures

Practice

(Q5) Using the ABC chart below, indicate the antecedents, behaviors, and consequences for each instance of the behavior that Jerry completed. Tuesday is done for you. What seems to be the possible function(s) of the behavior (Table 6.3)?

(Q6) Culminating the information from the above chart, does the punishment seem to be working? Why or why not?

(Q7) When using a punishment procedure, it is vital to include a reinforcement system. Why is this so? What reinforcement system(s) would you implement with the punishment procedures to ensure that other behaviors are also being increased simultaneously? Why?

Table 6.3 Antecedent–Behavior–Consequence data sheet

Setting	Antecedent	Behavior	Consequence
Home economics	• Jerry had no cake pan • Teacher was supporting another group of students	• Drew male genitalia across a set of cupboards	• Peers laughed and gave him high-fives • Jerry washed the icing off the cupboards and then washed the cupboard doors with soap and water

Reflection

(Q8) Would you have implemented this punishment strategy with Jerry? Do you agree with the behavior analyst? Would you have tried other strategies first? If so, what strategies would you implement?

(Q9) List three potential side effects of punishment and indicate whether you see any of these side effects with Jerry's behavior.

(Q10) Do you see any ethical difficulties with the way that this behavior specialist implemented the punishment procedures according to the Professional and Ethical Compliance Code for Behavior Analysts (2014) (Reference Ethics Box 6.1)?

Ethics Box 6.1

> **Professional and Ethical Compliance Code for Behavior Analysts**
>
> - 4.08 Considerations Regarding Punishment Procedures.
>   (a) Behavior analysts recommend reinforcement rather than punishment whenever possible.
>   (b) If punishment procedures are necessary, behavior analysts always include reinforcement procedures for alternative behavior in the behavior-change program.
>   (c) Before implementing punishment-based procedures, behavior analysts ensure that appropriate steps have been taken to implement reinforcement-based procedures unless the severity of dangerousness of the behavior necessitates immediate use of aversive procedures.
>   (d) Behavior analysts ensure that aversive procedures are accompanied by an increased level of training, supervision, and oversight. Behavior analysts must evaluate the effectiveness of aversive procedures in a timely manner and modify the behavior-change program if it is ineffective. Behavior analysts always include a plan to discontinue the use of aversive procedures when no longer needed.

Additional Web Links
Overcorrection and Positive Practice
http://165.139.150.129/intervention/Overcorrection.pdf
Difficulties with Punishment
http://stophurtingkids.com/wp-content/uploads/2013/05/Views-on-the-Efficacy-and-Ethics-of-Punishment-Results-from-a-National-Survey.pdf
Punishment and Extinction
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1224409/

CASE: iii-I8 Guest Author: Drew MacNamara

"It's just too time-consuming. I'm pretty sure that things are getting better. Is that enough?"
Setting: Community Age-Group: Adult

GUEST CASE: Drew MacNamara

LEARNING OBJECTIVE:

– Implementation of a high-probability request sequence with prompts and a visual schedule.

TASK LIST LINKS:

- **Measurement**

  - (A-01) Measure frequency (i.e., count).
  - (A-02) Measure rate (i.e., count per unit time).
  - (A-03) Measure duration.
  - (A-04) Measure latency.
  - (A-09) Evaluate the accuracy and reliability of measurement procedures.
  - (A-12) Design and implement continuous measurement procedures (e.g., event recording).
  - (A-13) Design and implement discontinuous measurement procedures (e.g., partial and whole interval, and momentary time sampling).

- **Fundamental Elements of Behavior Change**

  - (D-03) Use prompts and prompt fading.
  - (D-07) Conduct task analyses.
  - (D-20) Use response-independent (time-based) schedules of reinforcement (i.e., noncontingent reinforcement).

- **Specific Behavior-Change Procedure**

  - (E-09) Arrange high-probability request sequences.
  - (E-10) Use the Premack principle.

- **Behavior-Change Systems**

  - (F-01) Use self-management strategies.

- **Assessment**

  - (I-07) Design and conduct preference assessments to identify putative reinforcers

KEY TERMS:

- **High-Probability Request Sequence**

  – A behavioral principle based on the concept of momentum, whereby a behavior persists with a change in reinforcement schedule. A series of requests are given that have a high probability of a correct response, followed by a low-probability request to maintain the momentum and increase the likelihood of a correct response to the low-probability request (Houlihan et al. 1994).

- **Premack Principle**

  – The principle that a high-rate behavior can be used to reinforce a low-rate behavior when the reinforcer is contingent upon that behavior. For example, a student may be reinforced for a low-rate behavior of doing homework with an opportunity to go out with friends afterward (Klatt and Morris 2001).

- **Prompt**

  – A cue that guides the learner to engage in expected, or appropriate behavior that is given between the antecedent and discriminative stimulus before the behavior occurs (MacDuff et al. 2001).

- **Reinforcer Survey**

  – A list of potential reinforcers that is given to the individual for self-report or to the caregiver to determine the client's preferences. These preferences are then used as reinforcers. It is well known for its ease and efficiency in administration (Northup 2000).

It's Just Too Time-consuming. I'm Pretty Sure That Things Are Getting Better. Is That Enough?

Friday morning at 7:00 A.M. Tom, a staff person on the day shift, knocks on the door and says," You need to hurry Hadeel. You are going to miss your bus to the college." Hadeel angrily replies, "I know, I know. Stop bugging me." Fifteen minutes goes by and Hadeel still has not appeared to have for breakfast. Tom returns to Hadeel's room and through the door says, "Please hurry Hadeel so you can have your breakfast in time to catch the bus." Hadeel replies, "I'm coming, I'm coming. Just leave me alone!" And so goes another weekday morning.

Hadeel is a 20-year-old woman with an intellectual disability. She is in the process of moving from a supervised residential setting to an assisted living apartment. Hadeel is quite independent with her activities of daily living, and she requires consistent but not intense support to ensure she completes her daily routines. The staff in the residential setting reported that Hadeel is noncompliant to

daily requests. Fatima, a behavior consultant, had put in place an intervention to improve compliance by having the staff **prompt** responding and then provide reinforcement when Hadeel does complete the requested tasks. The residential staff are not consistently completing the data collection procedures, saying it is too time-consuming on top of all the other demands that they face each day.

The behavior consultant called a meeting with a group of residential staff. During the meeting, one staff member Amy, who spends the most time with Hadeel, says that she has noticed that when she follows Hadeel's lead and joins her in an activity that she really enjoys, Hadeel is more likely to follow her directions after the activity. Amy goes on to say," it is almost as if she becomes motivated to do what I ask just so that I will keep spending positive time with her."

Based on this latest information, Fatima is *thinking* there is a **high-probability request sequence** occurring. Fatima decides to conduct a new functional behavior assessment. She asks the staff to record the activities that Hadeel completes in response to a staff request, the activities that she does not start completing in response to a staff request within 3 min of the demand, and, most importantly, the activities that Hadeel enjoys completing on her own or with staff. In addition, Fatima asks Amy, who has a good relationship with Hadeel, to assist Hadeel in completing a **reinforcer survey**. To assist with this data collection, Fatima develops a checklist that contains all the tasks that Hadeel is required to complete. Next to the tasks is an area where staff can place a checkmark if completes willingly or with a protest or refusal. Finally, there is an area where staff members are instructed to record Hadeel's preferred activities. With this checklist, the staff can check off everyday tasks and quickly record preferred tasks resulting in a much less time-consuming data collection process. Fatima will also visit the residence for the first three mornings of the week as mornings seem to be most problematic.

Monday evening at 7:00 P.M. Hadeel and Amy are in the kitchen of the residence just finishing the dishes. Amy says, "Hadeel, do you have some time now? I just wanted to ask you some questions about things that you like to do. Could we go to your room and talk about this?" To assist with the process, Amy has put together a list composed of activities that she has done with Hadeel and she has seen Hadeel enjoy on her own. The activities that Hadeel identifies include cooking with Amy, enjoying a cup of coffee with staff, going to the movies, going for a walk to a nearby park, and playing board games with other residents and staff.

Fatima visits on the next three weekday mornings. She notices that there is only one staff present in the mornings to assist residents and it seems that there is no consistency in the schedule of activities. The other three residents of the home seem to be able to manage their routines independently and get to their activities in the community on time. It seems that Hadeel is the only resident who is struggling. Fatima also notices that the staff seem to be able to reliably record the data using the new system.

Fatima meets with the staff on Friday afternoon to review the results of their investigations. The staff report that indeed it was much easier to record the data using a checklist and they began to take better notes of the activities that Hadeel enjoyed. Fatima also shared her observations with the staff. She noted that the other

three residents seemed to be able to get themselves up and out the door with minimal assistance. On the other hand, Hadeel seemed to require numerous prompts to help her through her routine. Due to the need for so many prompts, there was a little time or opportunity to engage in reinforcing activities with Hadeel.

Fatima had several suggestions for the staff. First of all, she suggested that they sit down with Hadeel to develop a morning schedule with her. Once this schedule that consisted of words and pictures had been developed, it could be posted in Hadeel's room and in other relevant areas of the house. The schedule would consist of the activities that Hadeel needed to complete in the morning (e.g., get out of bed on time, get dressed, have breakfast) and the completion of these activities would be followed by the opportunity to engage in a special activity (e.g., enjoy a cup of coffee with staff before heading out of the house or onto the daily events). Fatima explained that the visual schedule would be a reminder for Hadeel of the things that she needed to complete in the morning and would utilize the **Premack principle** by the completion of the less preferred activities would be followed by the opportunity to engage in a preferred activity. Further, since Hadeel seemed to enjoy activities with others, completion of other less preferred activities across the day could be followed by any of the preferred activities that Hadeel had identified during the reinforcer survey. Fatima suggested that they begin with the morning routine only and then gradually integrate the intervention into other parts of the day. The staff all agreed with the plan and would put it into action the following week.

Amy agreed to work on the weekend before the plan was to be implemented in order to develop the visual schedule with Hadeel and explain the plan to her. Amy enthusiastically agreed that getting up on time, getting dressed, and having breakfast in time to be ready for the bus were certainly worth the cup of coffee with staff. They selected pictures from one of Hadeel's favorite magazines to represent these tasks, including the coffee time, and together they printed the words on the visual schedule. They posted the schedule in three prevalent areas in house. Amy told Hadeel that she would be in on Monday morning to help start the new routine.

Monday morning at 7:00 A.M. Amy knocked on Hadeel's door, "Hadeel, are you up?" "I'm coming, I'm coming," Hadeel angrily replied. "Don't forget your schedule. I will get the coffee ready," responded Amy. Thirty minutes later Hadeel appeared. She was dressed and ready for breakfast. And together, Hadeel and Amy enjoyed a cup of coffee. The next few mornings went fairly smoothly with only one occurrence of Hadeel missing her bus. By the next week, Hadeel was getting through her morning routine with only the use of the visual schedule. Staff then started to implement the strategy across Hadeel's day. After a month went by, the morning routine was no longer an issue and compliance with other requests has increased significantly.

At a month-end staff meeting, Fatima reviews the progress made. The staff report their concerns about Hadeel's compliance and that she and the other residents and staff are spending a lot of social positive time together. Fatima outlined that the data have been collected much more consistently and praised the staff for the effective implementation of the strategy. The staff commented that the use of a checklist was much more efficient and gave them time to attend to Hadeel and the other residents and to, more importantly, effectively implement the procedure.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Based on the definition of the Premack principle, indicate these components of Hadeel's program:

- Low-probability event and
- High-probability event.

(Q2) Indicate the types of prompts that were used in the program with Hadeel. Which were stimulus prompts and which were response prompts?

Processes

(Q3) To implement the visual schedule, usually a task analysis of the person's required behavior is needed to determine the schedule. Then, the visual schedule needs to be taught. Write a task analysis for Hadeel's morning routine and indicate the teaching procedures for teaching the visual schedule (Fig. 6.3).

(Q4) Indicate how you would teach the Premack principle to Hadeel. How would you let her know what expectations are required before obtaining the reinforcer? What behaviors are required to gain access and not gain access to the reinforcers?
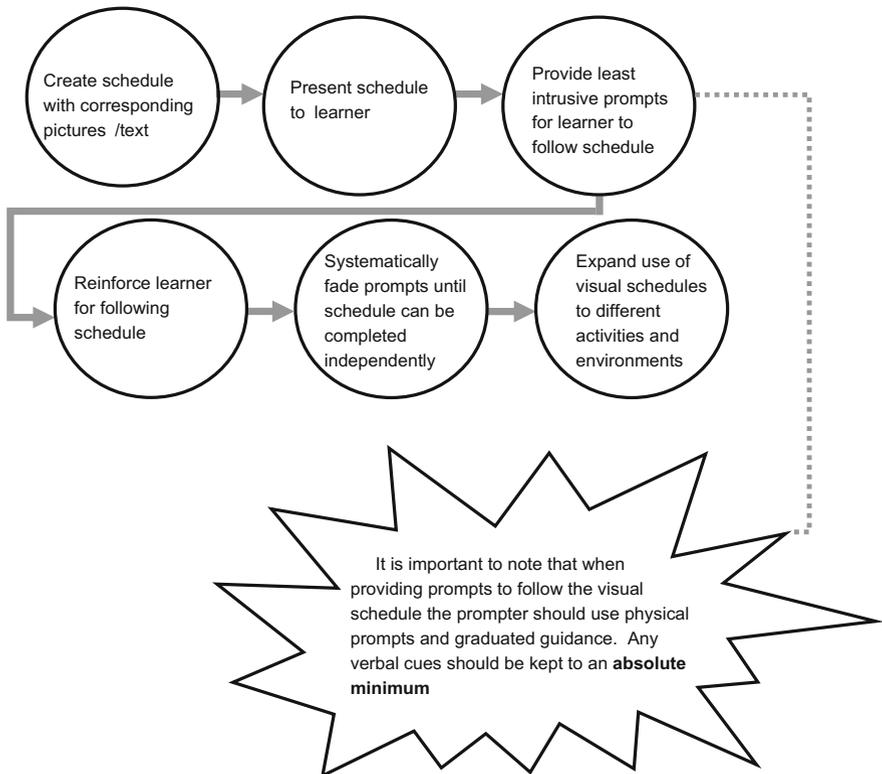
Fig. 6.3 Steps to implemente a visual schedule

Practice

(Q5) Using the checklist below that Hadeel's staff completed, determine how you would graph these data? Why (Table 6.4)?

(Q6) Given the prompts that were used in the scenario, which prompt hierarchy would you use to teach Hadeel—most-to-least or least-to-most. Read the following article before making your decision (Table 6.5):

Table 6.4 Data from first three weeks of Hadeel's morning routine. Each task has seven opportunities to occur independently (without reminders) unless noted. The data below are the sum of each day's occurrences

Task	Number of times completed independently Week 1	Number of times completed independently Week 2	Number of times completed independently Week 3
Gets out of bed	4	6	7
Gets dressed	3	5	6
Gets breakfast	5	5	7
Eats prepared breakfast—alone	0 (2 opportunities)	1 (2 opportunities)	2 (2 opportunities)
Eats prepared breakfast—with others	3 (5 opportunities)	4 (5 opportunities)	5 (5 opportunities)
Brushes teeth	3	4	6
Does hair	2	6	7
Goes to bus stop	1 (5 opportunities)	3 (5 opportunities)	4 (5 opportunities)
Participates in house activity	1 (2 opportunities)	1 (2 opportunities)	2 (2 opportunities)

Table 6.5 Functional assessment summary statement/hypothesis (Maryland State Department of Education, n.d.)

Meets expectations	Partially Meets expectations	Does Not Meet expectations
Good	Fair	Poor
A summary statement is provided, including a hypothesis and all of the following components: • antecedents • behavior • function • setting events	A summary statement is provided, including two of the following components: • antecedents • behavior • function • setting events	A summary statement is provided, including one or none of the following components: • antecedents • behavior • function • setting events Or, a summary statement is not provided

• **Antecedents** are immediate triggers of the behavior.
• The **function** of the behavior is what the student is trying to get/obtain or escape/avoid
• **Setting events** for the behavior are environmental, physical, instructional, or interpersonal factors that may influence how likely it is that the behavior will occur

Strengths	Needs Improvement

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2846579/

(Q7) Based on the case study, what is the function of Hadeel's behavior? Complete the hypothesis statement based on the following guidelines (Table 6.5):

Reflection

(Q8) At first, the staff had difficulties completing the behavior program as determined by the behavior consultant. The data collection sheet was made easier to assist with this. What other factors would you have implemented to assist with staff adherence to the program?

(Q9) The visual schedule has worked nicely for Hadeel to complete her morning routine. List three ways that the staff could generalize this to other parts of Hadeel's life and three ways that the visual prompts of the schedule could be faded.

(Q10) What are two advantages and two disadvantages of implementing a reinforcer survey? What alternatives could have been used?

Additional Web Links
Visual Schedules
http://praacticalaac.org/strategy/ideas-for-teaching-the-use-of-visual-schedules/
Premack Principle
http://study.com/academy/lesson/applying-the-premack-principle-in-the-classroom.html
Task Analyses
http://www.iidc.indiana.edu/pages/Applied-Behavior-Analysis
Least-to-Most Prompting
http://www.autisminternetmodules.org/up_doc/PromptsLeasttoMostSteps.pdf
Instruction Plans
http://mast.ecu.edu/modules/sip/concept/

CASE: iii-I9

It only happens to Sophia when these people are here!
Setting: Community   Age-Group: Adult

LEARNING OBJECTIVE:

- Determine the behaviors under stimulus control.

TASK LIST LINKS

- **Measurement**

  - (A-14) Design and implement choice measures.

- **Fundamental Elements of Behavior Change**

  - (D-14) Use listener training.
  - (D-20) Use response-independent (time-based) schedules of reinforcement (i.e., noncontingent reinforcement).

- **Specific Behavior-Change Procedures**

  - (E-01) Use interventions based on manipulation of antecedents, such as motivating operations and discriminative stimuli.
  - (E-02) Use discrimination training procedures.
  - (E-07) Plan for behavioral contrast effects.

- **Intervention**

  - (J-06) Select intervention strategies based on supporting environments.
  - (J-07) Select intervention strategies based on environmental and resource constraints.
  - (J-08) Select intervention strategies based on the social validity of the intervention.

- **Implementation, Management, and Supervision**

  - (K-01) Provide for ongoing documentation of behavioral services.
  - (K-02) Identify the contingencies governing the behavior of those responsible for carrying out behavior-change procedures and design interventions accordingly.
  - (K-05) Design and use systems for monitoring procedural integrity.
  - (K-06) Provide supervision for behavior-change agents.
  - (K-07) Evaluate the effectiveness of the behavioral program.
  - (K-09) Secure the support of others to maintain the client's behavioral repertoires in their natural environments.

KEY TERMS:

- **Antecedent Stimulus**

  - An antecedent is a stimulus that occurs before a target behavior. Antecedent stimuli cue an individual to display learned behaviors, based on that individual's history of reinforcement in the presence of that stimuli (Travis and Sturmey 2013).

- **Discriminative Stimulus**

  - A discriminative stimulus is a stimulus that signals to a learner that particular behavioral responses are likely to be reinforced (Cooper et al. 2007).

- **Stimulus Control**

  - Stimulus control is when an individual displays certain behaviors in the presence of certain stimuli and not in the absence of those stimuli (Green 2001).

It Only Happens to Sophia When These People Are Here!

The staff at Seven Pines try hard to maintain a family home-like setting in their residential care home. With a five-bedroom rambling ranch home, a beautifully treed outdoor space, and a huge family room for everyone to gather in regularly, it is not hard for the lived environment to be a success for their full-time, live-in adult clients with varied needs. Most importantly, however, is the personal attention they are able to pay to their clients. With an interdisciplinary team at their service on an as-needed basis, and at least two staff members on-site daily, they know their clients well. With a full year's worth of half-day professional development sessions on behavior strategies focused on proactive teaching combined with the prevention of potentially disruptive behaviors, the staff feels ready for almost everything, and enjoy their weekly meetings with the behavior consultant assigned to Seven Pines.

This week, the staff brought a concern about 50-year-old Sophia to the behavior consultant. One staff member started with some very recent history. "Sophia has recently been to a routine medical appointment for her yearly check-up," she began, "and the physician pronounced her with what she called 'prediabetic.'" She did not give her any additional medications but said she is strongly suggesting careful dietary planning, a 25-pound weight loss, and regular exercise. She actually wrote it down on her prescription pad, so I think she was pretty serious. As well, she asked us to monitor Sophia's blood glucose before and after meals and again before bedtime. As Sophia ages, she said, it becomes even more important to take care of her health proactively and to transition her carefully into a new routine respectfully, being sure to account for her Autism Spectrum Disorder. This is just like we talk about with the everyday routines of our group home," she compared. The other staff member continued the conversation. "We have been observing Sophia and collecting data so we have a steady baseline of eating habits, exercise, and weight. As you know, Sophia eats our evening meal with everyone else, and these are carefully monitored by our dietician and typically cooked by the staff along with the residents. Sophia only deviates from this pattern when it comes to takeout food. She chooses, prepares, and cooks her own breakfasts, lunch, and snacks with minimal supervision and has a lot of choice from what we stock in our fridge and pantry. We have sufficient data to show what's happening. What do you suggest we do next?"

The behavior consultant listened, took notes, and examined the data and graphs. "Let's try to structure choice a bit more. How about we cut down on the junk food that is in the pantry. I see that Sophia likes salty treats like potato chips, so let's stock up on healthy alternatives. In other words, decreasing the presence of unhealthy snacks, and increase the presence of healthy ones. Let's meet together next week and see if there is any change in the data, especially snacking patterns and blood glucose levels."

One week later, they gathered together again—this time also including the dietician—to see how things were going with this initial intervention. While they reviewed the data, they noted that a few changes were evident. First, the majority of the time Sophia seemed quite happy to choose from the healthy snacks the dietician

had suggested. Her snacking frequency remained the same but her intake was healthier. When they pulled out her blood glucose records, the dietician raised one brow. "What's this?" she inquired. "Here, here, and here, her blood glucose levels have risen quite dramatically after supper. Can you see any patterns in her behavior at that time?" Interestingly, a review of Sophia's eating patterns and the activity notes accompanying them showed that her family members were visiting at these three times—only these three times. It was also noted that Sophia had asked staff members for chips, chocolate, and dessert after her family had left. While her family was visiting on the first occasion, they ate pizza, chicken fingers, and brownies while they gathered together in the kitchen for board games. And that was only one example. The other family visits had similar patterns of food intake.

"This is fascinating," said the one staff member. "We generally give our clients a great deal of privacy with family visits and we have never had a reason to monitor what Sophia was eating or doing at these times. This certainly shows why data—and not assumptions—is important in making programming decisions."

"I agree," the behavior consultant responded. "Since we are all trained here, I can use some behavioral language. It looks like takeout food is acting as the **discriminative stimulus** (S^D) for requesting junk food. Takeout food is leading to junk food, and this behavior is under **stimulus control**. Sophia doesn't seem to request junk food at all if it's not in front of her (or hasn't just been eaten). If it's not in sight, the **antecedent stimulus** is not present, and it seems to be out of mind, speaking more colloquially. A second problem that seems to be in front of us is with **procedural adherence**. If you will remember, when we spoke with Sophia's parents, they were totally on board with the plans for healthy living, as I thought they would be. But either they didn't think this extended to their visits, or they don't think that this kind of eating is detrimental for Sophia. Also, I noticed her brother was here during one of these visits. Did we even talk to extended family—or did we just assume that the parents would do this? We have a bit of work to do, moving forward. Let's try and get everyone fully invested with dietary planning, and then let's talk about starting some daily exercise. We want to make slow and sustainable changes to keep Sophia healthy and even healthier as time passes. She needs everyone's support."

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Indicate the behaviors under stimulus control and how they have been reinforced in the past.

(Q2) Indicate the SD and the S Delta in the current situation (Fig. 6.4).
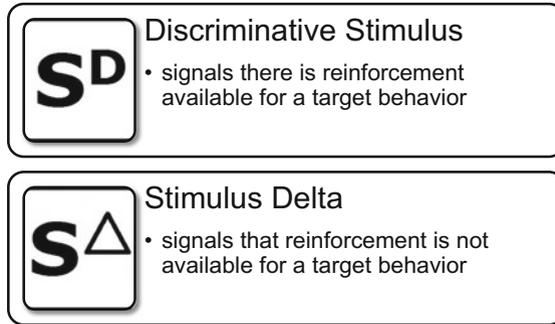
Fig. 6.4 The difference between SD and S Delta

Processes

(Q3) Examining the graph that the behavior consultant examined, what components are missing (Fig. 6.5)?
(Q4) What type of self-management strategy could be used with Sophia? Determine a treatment plan for Sophia to self-monitor her food intake and/or blood glucose level (Reference Ethics Box 6.2, Behavior Analyst Certification Board, 2014).
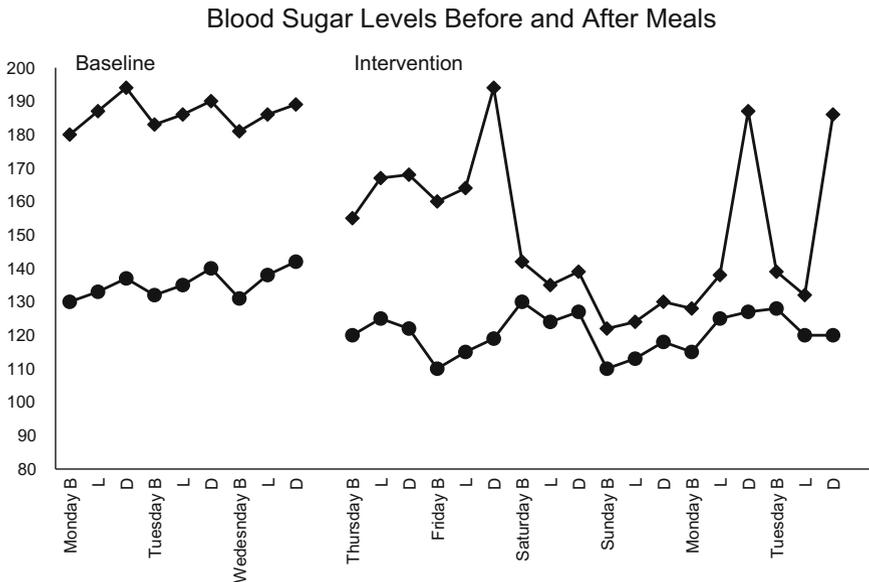

Fig. 6.5 Sophia's blood glucose before and after meals. What elements are missing?

Ethics Box 6.2

Professional and Ethical Compliance Code for Behavior Analysts

- 4.03 Individualized Behavior-Change Programs.
  (a) Behavior analysts must tailor behavior-change programs to the unique behaviors, environmental variables, assessment results, and goals of each client.
  (b) Behavior analysts do not plagiarize other professionals' behavior-change programs.

Practice

(Q5) List all of the potential antecedent stimuli in Sophia's environment? What other antecedent manipulations could you complete in order to help Sophia with her diet and blood glucose levels?

(Q6) It has been demonstrated that also including a differential reinforcement system can help strengthen stimulus control. What differential reinforcement strategies could you implement and how would you design these?

(Q7) Looking at the data below after the family was informed about Sophia's diet changes, what trends and patterns do you see? Is there any additional hypothesis or interventions you would implement to offset these (Fig. 6.6)?
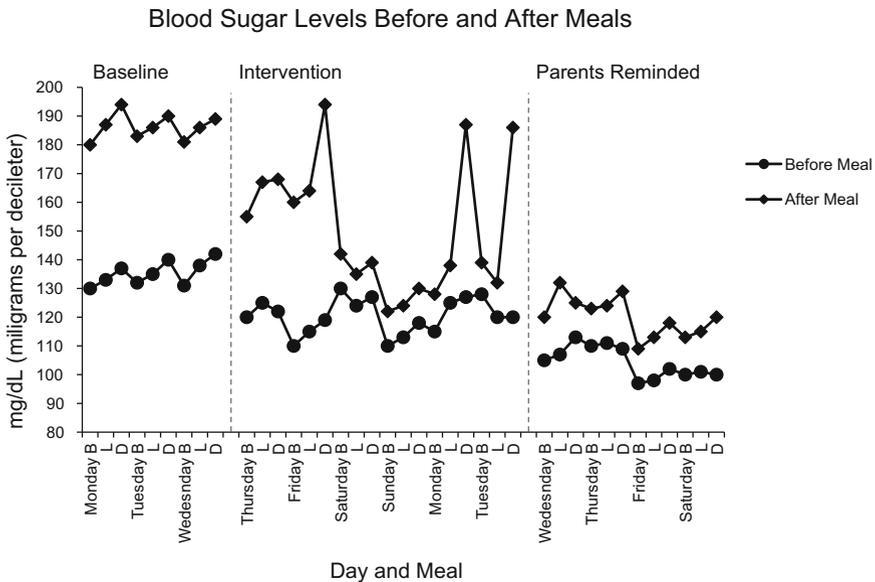
Fig. 6.6 Sophia's blood glucose levels over baseline, intervention, and when her parents were reminded of the importance of her eating habits

Reflection

(Q8) Why may Sophia's parents and other family members have difficulty with adhering to Sophia's diet? What could you do to assist them?

(Q9) When working with adults and behavior programs that involve food, there is sometimes ethical concerns about restricting food since many adults with health concerns do not have their food restricted. How do you feel about restricting Sophia's food in this situation? Are there alternative strategies?

(Q10) How could Sophia be involved in this treatment plan and the decisions regarding her diet and prediabetic condition?

Additional Web Links

SD and S Delta

http://www.educateautism.com/applied-behaviour-analysis/discriminative-stimulus-and-stimulus-delta.html

Self-Management

http://www.iidc.indiana.edu/pages/Dont-Forget-About-Self-Management

Components of Single-Subject Line Graphs

http://www.kipbs.org/new_kipbs/fsi/files/graphingtips.pdf

CASE: iii-I10

I wish Hilde could just tell us!

Setting: Home   Age-Group: Adult

LEARNING OBJECTIVE:

- To design a functional communication method using discrimination training, stimulus equivalence, and an augmentative communication system.

TASK LIST LINKS:

- **Experimental Design**

  - (B-03) Systematically arrange independent variables to demonstrate their effects on dependent variables.
  - (B-04) Use withdrawal/reversal designs.

- **Fundamental Elements of Behavior Change**

  - (D-09) Use the verbal operants as the basis for language assessment.
  - (D-14) Use listener training.
  - (D-21) Use differential reinforcement (e.g., DRO, DRA, DRI, DRL, and DRH).

- **Specific Behavior-Change Procedures**

  - (E-02) Use discrimination training procedures.
  - (E-06) Use stimulus equivalence procedures.

- **Behavior-Change Systems**
  - (F-07) Use functional communication training.
  - (F-08) Use augmentative communication systems.

- **Measurement**
  - (H-05) Evaluate temporal relations between observed variables (within and between sessions, and time series).

- **Assessment**
  - (I-04) Design and implement the full range of functional assessment procedures.

- **Intervention**
  - (J-05) Select intervention strategies based on the client's current repertoires.
  - (J-08) Select intervention strategies based on the social validity of the intervention.
  - (J-10) When a behavior is to be decreased, select an acceptable alternative behavior to be established or increased.
  - (J-11) Program for stimulus and response generalization.
  - (J-12) Program for maintenance.
  - (J-13) Select behavioral cusps as goals for intervention when appropriate.
  - (J-15) Base decision-making on data displayed in various formats.

KEY TERMS:

- **Discrimination Training**
  - Using selective reinforcement and extinction to evoke differential responding between two or more stimuli. For example, when the instructor says, "point to cat," and after the learner responds, the instructor provides reinforcement when the learner points to cat versus the other pictures of dog or fish (those responses are on extinction) (Strand 2007).

- **Functional Communication Training**
  - A method of teaching behaviors that are functionally equivalent to the individual's challenging behavior by using a communication strategy that produces a functionally equivalent response in the environment (Durand and Carr 1991).

- **Stimulus Equivalence**
  - A method of teaching that provides economical and efficient methods to teach complex behavior. Through the use of symmetry, transitivity, and reflexivity, select relations are taught, and then, other relations derive as a result of their relationship to the taught response. This decreases the number of targets that need to be taught (Rose et al. 1996).

- **Tact**
  - A tact is a verbal behavior that occurs when an individual names or identifies objects, actions, or events. A tact occurs when an individual comes into contact with a stimuli, and as a result of that contact, names or identifies that stimuli, such as saying "car" when that individual sees a car (Wallace et al. 2006).

I Wish Hilde Could Just Tell Us!

Hilde was nearing the end of her long life. She was in her early 80 s and placed in a long-term, intensive-care home for the developmentally disabled, where she was finding it increasingly difficulty to make her wants and needs known to the staff. Although she never had a formal method of communication, when she was younger she could say basic things such as "more" or "no," and she would often pointed to things in her environment or led people to what it is she wanted. When her difficulty with verbal language, fine motor skills, and her ability to walk around the house increased, her challenging behavior also increased, and it seemed like her dementia might be more severe. The staff members were seeing her exhibiting new behaviors such as tossing food, cutlery, bedclothes, and items off her bedside table. She was not only tossing them haphazardly, but regularly tossing them at the staff members with impressive accuracy as they went about their daily care tasks.

After a few weeks of this aggressive behavior being present, the staff in the home decided to jot her name down on the weekly meeting agenda. Unfortunately, Hilde's only sister and only relative was elderly herself, had limited mobility, and was unable to attend the planning meeting.

At the large, roundtable where the home's **multidisciplinary team**, consisting of a consulting physician, a consulting behavior consultant, on-site occupational therapist and speech/language therapists, and a family social worker regularly, met the team came to Hilde's name on the agenda and began discussing the current challenges.

The physician began, "It is clear to me that we need to start a trial of medication. Hilde has been very lucky so far that she has rarely needed consistent medication, but to me it would be ridiculous to let this continue. If we give her the right kind of medication, this aggression will likely not continue. I would be so bold to predict that it will reduce quickly within hours."

The behavior consultant, holding onto the notes and data sheets from the staff, added to the conversation, "I think we need to take a functional approach to solving this issue. If we don't know why Hilde is throwing items on the floor and at staff members, we won't be able to provide very effective interventions. We need to know the reason for it: the why, the function. Right now, she has no functional means of communication. If she is trying to get something from the staff—a special food, an activity, a blanket, any sort of request—and she is unable to do so, this is a

problem. We need to find a replacement method for Hilde to communicate with us, which will involve some teaching. From the initial data it looks like a functional communication program may be needed. She could use pictures to tell us what she is communicating more effectively than getting upset or throwing things."

"I am not so sure," the speech and language therapist jumped in. "She could be having oral motor issues. I would like to begin a series of exercises to strengthen the motions of her mouth, tongue, and jaws. Perhaps she is unable to form the speech sounds she is used to be able to use. I can only imagine how frustrating that would be!"

"In addition," interjected the social worker, "looking simultaneously at emotional wellness is of highest importance. If she is feeling anxious or stressed, she is probably not functioning at her best. I think we need to be careful to encourage her and to placate her when problems arise. It must be scary for her right now. I could easily start working on a program of stress management that would take some time to change her current behavior patterns, but it would support her emotional domain, which it turn affects everything else."

"Not to start on too many therapies at one time …" The occupational therapist spoke up during a brief lull in the conversation. "But I think we need to think about activities of daily living. Since Hilde has started with these outbursts, I can see that she has been far less involved than she was a few months ago. She used to be involved with activities happening around here, such as cooking, crafts, and even attending casual activities like games in the recreation room. If she is staying in her bed or in a chair all the time, we are going to start to see other problems."

After a long debate, the behavior analyst tried to bring the team together, "I hear what everyone is saying, and I think we need to see how we can come up with an integrated plan. I want to suggest something to the team. What if I completed a functional assessment to see why the behaviors are occurring, and write up a program for **functional communication training,** particularly **tacts**—to see what communication we can give her to replace the current way she communicates. I think with some simple **discrimination training**, she will be able to differentiate between pictures to communicate to us, what we call an augmentative communication system. Using **stimulus equivalence**, we can plan for her to get the most vocabulary without having to teach each relationship for communication. I will take data as we go, and if we don't see a decrease in challenging behavior within two weeks, then we can start looking at the other options. We can do a **reversal treatment design** where we look at the data phase-by-phase and implement one thing at a time to see the resulting effect on behavior. Then, we can determine how we are going to generalize and maintain these skills across people, situations, and over time."

The team looked at her and smiled. The team agreed that this plan was ideal. The behavior consultant would take the lead and each team member would check in with her each week to see how their strategies could be implemented into the plan as well.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Discrimination training is often used in Picture Exchange Communication System (PECS) for the client to learn to discriminate between the different pictures when choosing what they would like to communicate. Given the PECS steps below, indicate where the discrimination training occurs (Fig. 6.7).

Fig. 6.7 Phases of the Picture Exchange Communication System (Pyramid Educational Consultants, 2012)

(Q2) Based on the functional assessment data that the behavior consultant continued to collect, she found that the behavior was caused by Hilde wanting to gain access to something tangible. Based on this, what would you teach her within functional communication training to replace this behavior (Fig. 6.8)?
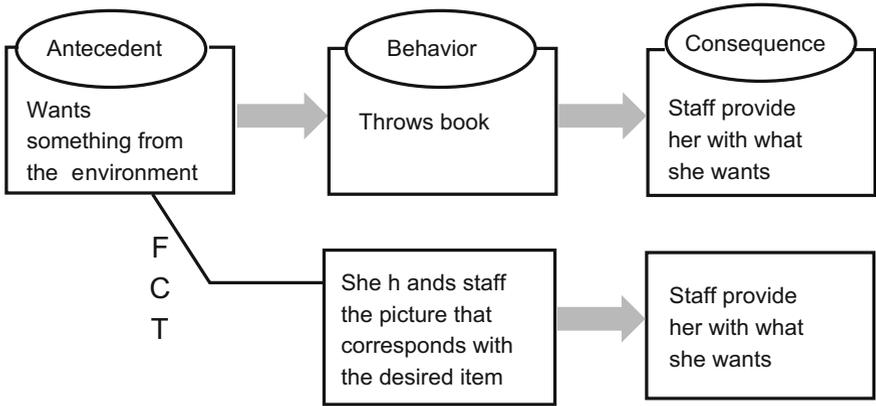
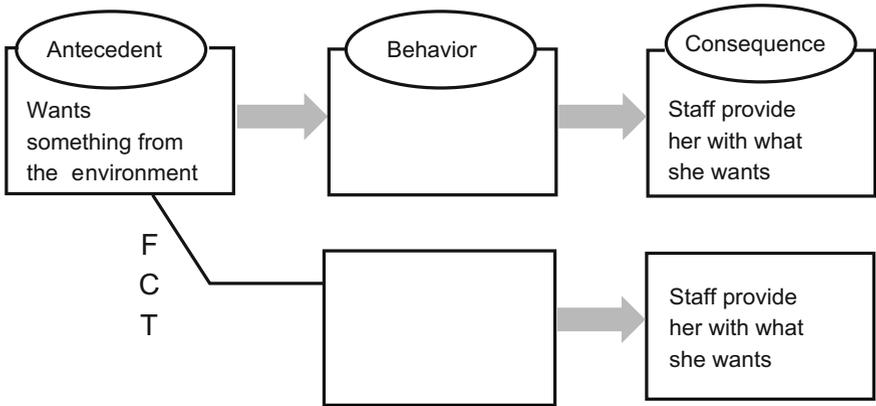Fill in the empty behavior boxes below.

Fig. 6.8 Current behavior contrasted with potential future behavior after functional communication training (FCT)
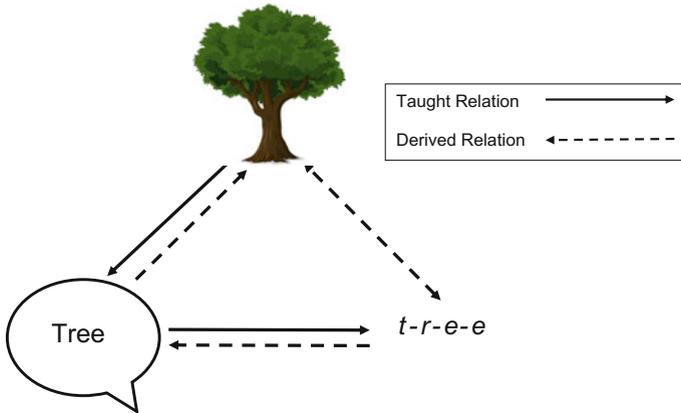
Fig. 6.9 Stimulus equivalence, a depiction of trained relations and derived relations

Processes

(Q3) How would you use stimulus equivalence to ensure that Hilde gets the most out of her vocabulary training without having to teach each everything? See the example below and create your own stimulus equivalence image for Hilde (Fig. 6.9).

(Q4) What other augmentative communication systems could be used with Hilde? What are some advantages and disadvantages of using these systems?

Practice

(Q5) Below are the data for baseline and after implementing the functional communication training. Next, you are going to pair with the occupational therapist to use this communication method to teach daily living skills, and then, you will pair with the social worker to decrease anxiety. Finish the graph by drawing the remaining two phases of the graph (Fig. 6.10).

(Q6) Write out a discrimination training program for Hilde using the template and below. Consider teaching her how to discriminate between requests (mands) in a communication program (Table 6.6).

(Q7) Looking at the final data from the implementation of all different treatment approaches in the graph you completed in Fig. 6.10, describe the temporal relations.
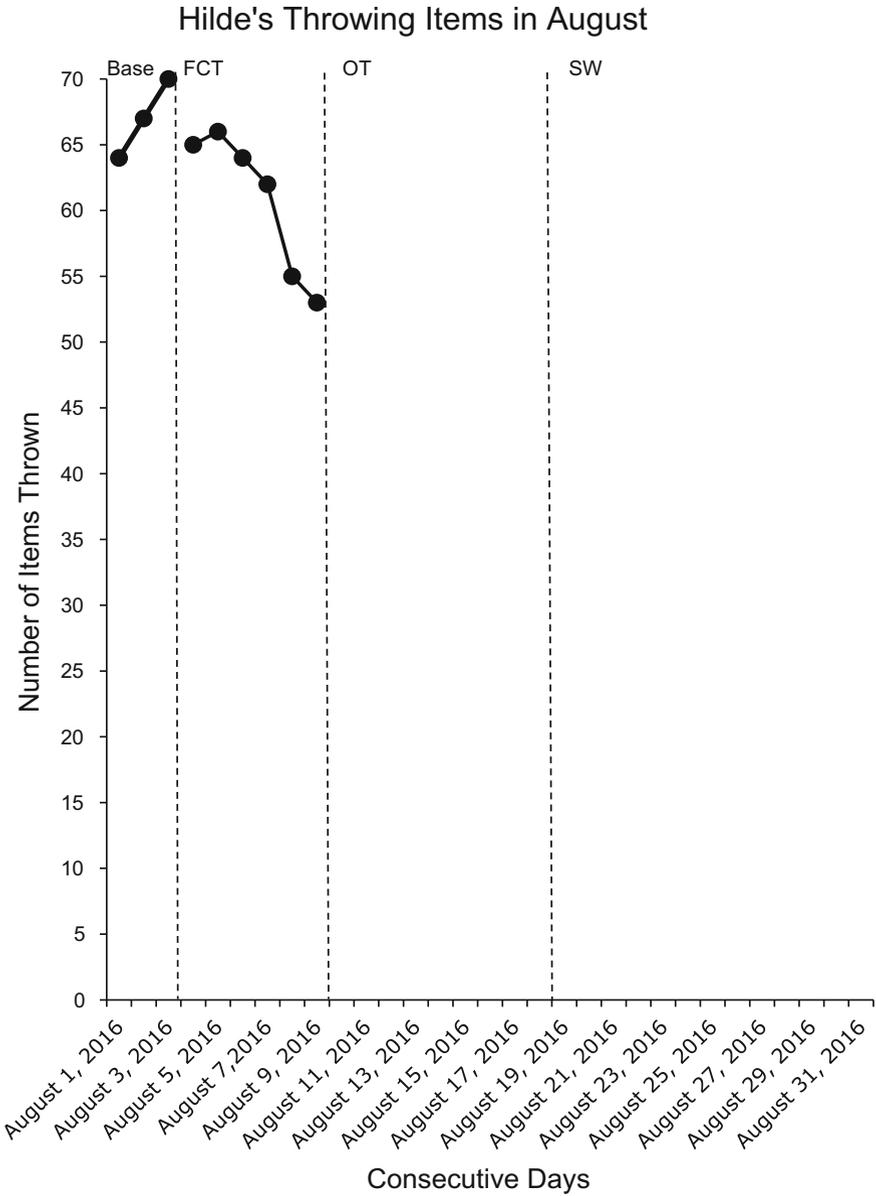
Fig. 6.10 Graph of items thrown by Hilde in the month of August. Baseline and functional communication phases have been done for you. Complete the graph with the occupational therapy (OT) and social worker (SW) phases

Table 6.6 Template to use to make stimulus equivalence program for Hilde

Program	
Trials:	
Sd:	
Data Collection:	
Prompting Hierarchy:	**Materials:**
Teaching Steps:	**Error Correction:**
Mastery Criteria:	**Revision Criteria:**
Generalization:	
P—**people**—new IT's, school staff, various family members	
L—**location**—different rooms, away from table, on floor	
O—**object**—with novel targets	
P—**placement of object**—have objects out of view	
S—**SD**—various placement of board, objects, etc.	
Maintenance:	
Once mastery is attained at independence for each teaching step,	
complete the following maintenance schedule:	
• Weekly: 3 consecutive Y's	
• Bi-Weekly: 3 consecutive Y's	
• Monthly: 3 consecutive Y's	
Targets:	

Reflection

(Q8) What do you think about the approach that was implemented? Do you think it was wise to implement it systematically, adding one procedure at a time or do you think it would have been better to work more collaboratively as a team from the start? Why or why not?

(Q9) Implementing a program for functional communication training may be called a behavioral cusp. Do you think this was the case for Hilde? Why or why not?

(Q10) Functional communication training is considered a differential reinforcement strategy. Explain why using information about Hilde.

Additional Web Links

Steps for Implementing Functional Communication Training

http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/FCT_Steps_0.pdf

Stimulus Equivalence

http://journal.frontiersin.org/article/10.3389/fpsyg.2011.00122/full

Single-Subject Research Designs

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