Chapter 7
Evaluation-Centered Case Studies for Preschool to School-Age Children

Abstract The current chapter examines important considerations surrounding the evaluation of applied behavior analysis (ABA)-based programs. The cases prompt learners to consider the perspectives of both ABA researchers and practitioners, while critically exploring strengths and limitations associated with the measurement and evaluation of behavior-change programs. Throughout this chapter, emphasis is placed on the evaluation of behavior changes within a mediator model in applied settings. Within this context, key areas of focus include interpreting and analyzing graphic displays of behavior data, determining the social significance of behavior changes, and weighing the strengths and limitations of various experimental and nonexperimental designs. Learners will be guided to consider indicators of success and determine the extent to which behavior-change programs are responsible for the achievement of meaningful outcomes. In this chapter, entitled "Evaluation-Centred Case Studies for Preschool to School-Aged Children," technical, professional, and ethical considerations surrounding the evaluation of ABA-based research and practice are explored through five case scenarios in home, school, clinical, and community settings.

Keywords Measurement · Evaluation · Preschool · School-age children · Behavior-change programs · Behavior data · Graphic displays · Mediator model · Experimental designs · Nonexperimental designs · Social

CASE: iv-E1 Guest Author: Jocelyn Prosser

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"My teaching strategies are working! Aren't they?"
Setting: Home Age Group: Preschool

LEARNING OBJECTIVE:

- To interpret and critically analyze graphic displays of behavior data.

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TASK LIST LINKS:

- **Measurement**
  - (A-06) Measure percent of occurrence.
- **Experimental Design**
  - (B-02) Review and interpret articles from the behavior-analytic literature.
  - (B-03) Systematically arrange independent variables to demonstrate their effects on dependent variables.
- **Fundamental Elements of Behavior Change**
  - (D-03) Use prompts and prompt fading.
  - (D-08) Use discrete-trial and free-operant arrangements.
  - (D-09) Use the verbal operants as a basis for language assessment.
  - (D-14) Use listener training.
- **Measurement**
  - (H-04) Evaluate changes in level, trend, and variability (H-04)
  - (H-05) Evaluate temporal relations between observed variables (within and between sessions and time series)

KEY TERMS:

- **Baseline Phase**
  - The baseline phase is when the practitioner or researcher collects data on the dependent variable prior to any intervention or independent variable being put into place. Data collected during the baseline phase is used to determine any effects of the independent variable (Horner et al. 2005).
- **Intervention Phase**
  - The intervention phase is when the practitioner or researcher introduces the independent variable or intervention, and continues to collect data on the dependent variable (Horner et al. 2005).
- **Least-to-Most Prompt Hierarchy**
  - A "least-to-most prompt hierarchy" involves starting a teaching process using the least intrusive prompt possible to support a learner display a target-desired behavior. If the learner is not successful, the instructor then moves to successively more intrusive prompts. This prompt sequence is typically used when a learner has shown success demonstrating the target behavior in the past (Libby et al. 2008).
- **Receptive Language**
  - Receptive language refers to our ability to understand language that we hear or read. This is often contrasted with expressive language, or how we convey a message to others, or how we express our wants and needs (Thurm et al. 2007).

- **Teaching Targets**
  - Items within a program that are the focus of teaching. For example, the teaching targets could be the different animals in a tacting program. Often multiple trials are run to teach the learner each teaching target (Severtson 2012).

My Teaching Strategies Are Working! Aren't They?

Like many others, I often get asked, "What do you do for a living?" It is a significant challenge to explain this most people, especially to those who are truly interested in a detailed response. I create and supervise individualized programming for children with Autism Spectrum Disorder (ASD). Here is what this looks like on a day-to-day basis …

One of the first things we behavior therapists focus on is an understanding of spoken language. This might be following an instruction to carry out an action, or following an instruction to select the appropriate item from an array. This is called receptive language and is of utmost importance. Hannah, a behavior therapist for children with ASD, handed me a completed **baseline** graph one morning for three-year-old Jo's—a child in our program—**receptive language** program. Jo's receptive language goal, written below the graph, read: *When presented with 3 familiar foods, Jo will select the correct item upon hearing the corresponding word* (Fig. 7.1).

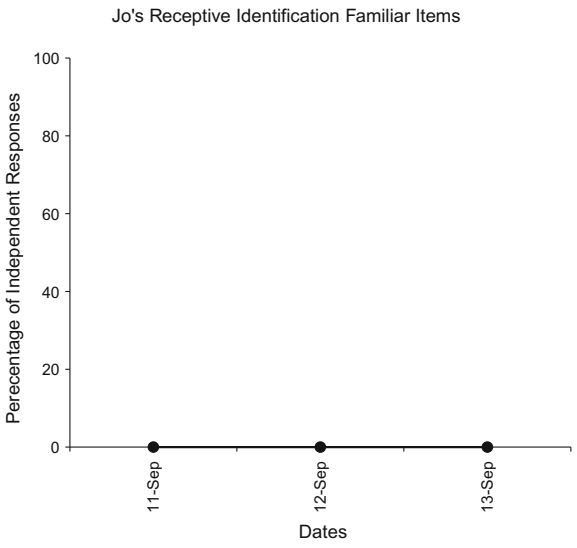


Fig. 7.1 Graph of Jo's baseline receptive identification data

Moving my eyes down the page, I was easily able to make an educated decision on the direction of Jo's program. Letting my eyes move across the graph of "percentage of correct independent responses" for this area of his learning, the visually displayed data show his level at zero percent of these hoped-for correct responses across all three days of data collection so far. My next job, then, was to go to the clinical literature around evidence-based methods to teach receptive language and to use this information to develop a program to help Jo reach this goal through precise instruction around introductory receptive language skills. Ultimately, all of those of us working with Jo and supporting Jo in any of his environments (home, community, and childcare) want to see Jo acquiring reach this one. After I finished researching and writing Jo's current receptive language program, I reviewed it with his parents and his therapist and left it with his therapist to begin immediate implementation during their next morning session.

Five days later, I returned to evaluate the current phase of Jo's program, to see how its implementation was progressing—hoping (and expecting) to see great things from this program that was made just for Jo. Almost as soon as I walked in the door of the children's center, Hannah pulled me aside and quietly exclaimed, "You should see how well he is doing!" She passed me his binder—where we keep all of our programs and data for Jo—and I flipped through a few pages to find his updated implementation graph placed efficiently near the front (Fig. 7.2).

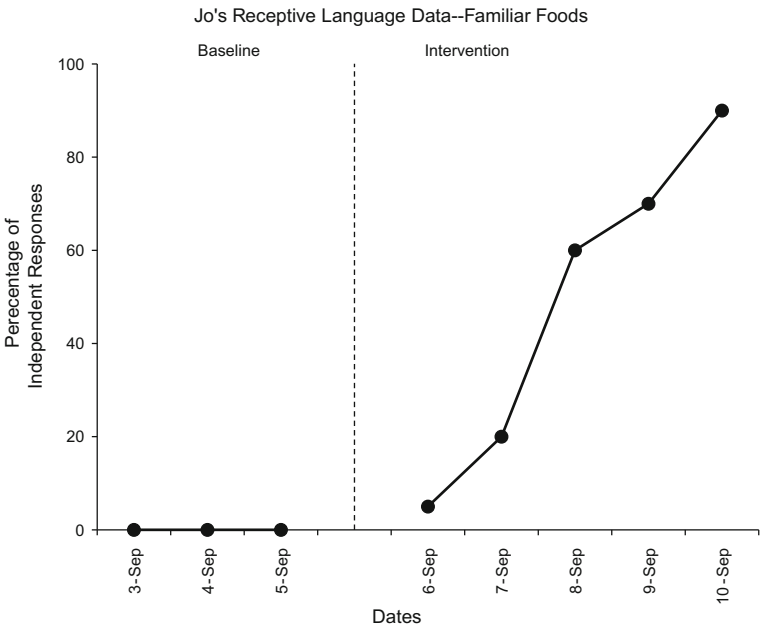


Fig. 7.2 Graph of Jo's progress with first target set–familiar foods

I smiled and nodded as my eyes and mind took in the increasing trend in the **intervention condition.** I could see the graph—flat in the baselines before we started Jo's new program—moving steeply upward in each and every session over the last five days. This positive development showed me that our current teaching strategies were indeed effective—just right—in teaching Jo receptive language with the support of everyone in his environment, including an excellent therapist.

With a tight timeline ahead and an increase in Jo's therapy hours, we decided a prudent next step would be to introduce another receptive language teaching set into Jo's current programming. Since we had such good success with familiar foods—our first focus area—we added, operationalized, and set our next goals around *receptive identification of familiar items*. We even chose to do a **least-to-most prompt hierarchy** to teach it since he had been so successful on the first teaching step. But a week later, Hannah told me that Jo is not doing nearly as well on his second receptive language targets, letting me know by email that his understanding of familiar foods is still going well but asks me to review the second teaching set. I clicked on the attachment to her email (familiar items) and opened the following graph of baseline data for the new **teaching targets,** which looked very different than his intervention for familiar foods (Fig. 7.3).

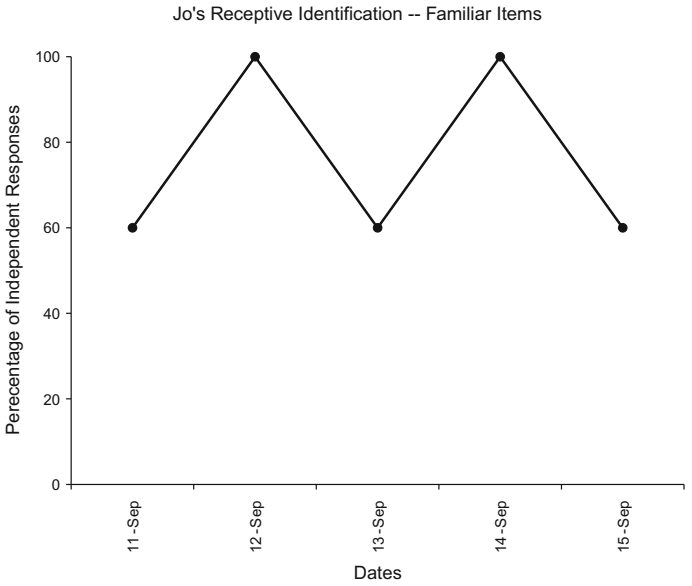


Fig. 7.3 Graph of Jo's progress with second target set—familiar Items

Discouraged, I knew that I needed to figure out what to do next, but I wasn't sure where to start. So I turned to my agenda and began to check over tomorrow's packed agenda, trying to find a time to fit in a visit during Jo's therapy.

And this was only one case—one child—at one of my centers, only over a few days. My job is highly complicated with a matching high level of responsibility; thankfully, a high level of reward comes with it, in the form of helping children and seeing progress on a daily basis.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) What is the purpose of gathering baseline data, and how might it help with the development and implementation of a behavior intervention program?
(Q2) Looking at the baseline data collected for Jo, do you think enough data were collected before introduction of the intervention? Explain your response (Fig. 7.4).

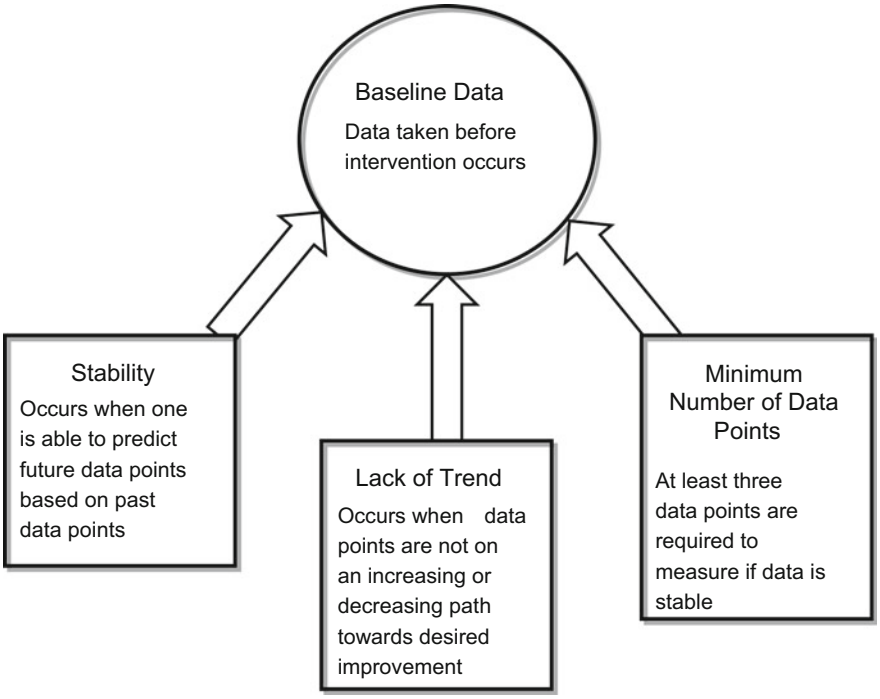


Fig. 7.4 Desirable qualities of baseline data and their definitions (Byiers et al., 2012)

Processes

(Q3) In behavior programs, teaching steps are often introduced to make the program increasingly more difficult as time goes on, in a supportive, stagelike manner. Currently, Jo can receptively identify an array of 3 for familiar foods. What would your next teaching step be (Fig. 7.5)?
(Q4) Explain how the therapists would have collected the data during the receptive language trials. Why did they convert it to percentage of opportunity data? How would they have calculated this?

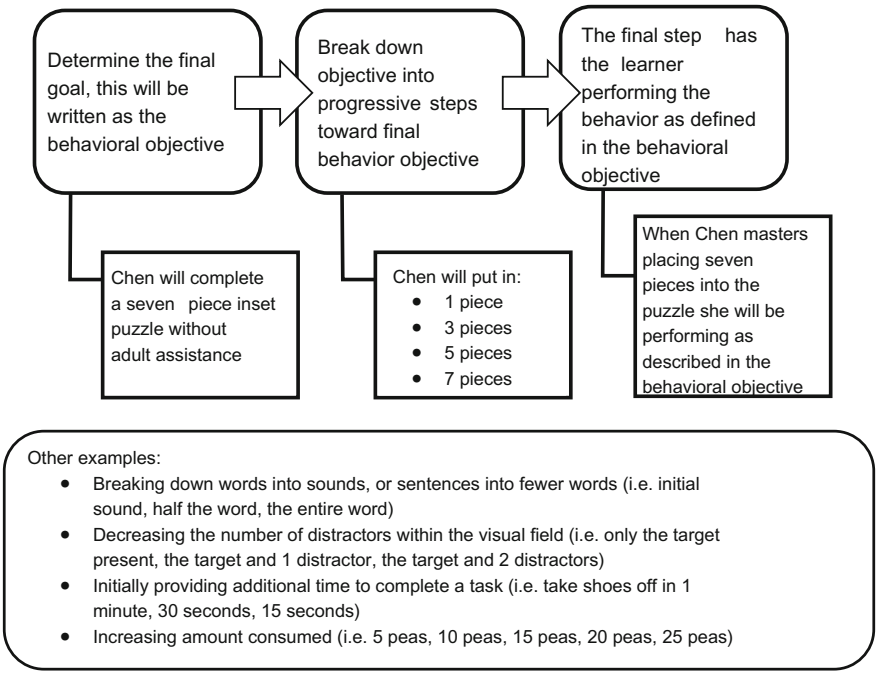


Fig. 7.5 Breaking a behavior objective down into teaching steps

Table 7.1 Common issues and potential solutions during receptive language training (Grow and LeBlanc, 2013)

Issue	Potential solution
The learner chooses one side consistently over another	• Continually mix-up position of materials • Use a larger array • Add an extra-stimulus or within-stimulus prompts to fade later
The learner watches the instructor for prompts	• Use video recording for the instructor to self-identify behavior changes to make • Model correct behavior • Identify and coach instructor on behavioral changes to make
When targets are similar, the learner does not discriminate reliably between them	• Put the similar targets into two separate learning sets • Introduce distinctly different targets to intermix with targets

Practice

(Q5) If the mastery criteria for Jo's program were 80 % over 3 consecutive days, would you say Jo mastered the familiar food targets?
(Q6) What may be some reasons that Jo is not as highly successful on the receptive identification program for *familiar item* targets as compared to the *familiar food* targets (Table. 7.1)?
(Q7) Using the article below as a guide, which prompting hierarchy would you use to teach Jo the receptive language program?
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2846579/
(Q8) What are some potential intermediate teaching steps to help Jo transition between the targets of *familiar foods* to *familiar items*?

Reflection

(Q9) As the therapist overseeing the case, what might you have done differently before starting the receptive identification programs to assist the team in choosing and teaching targets to Jo?
(Q10) Before implementing the program modification for Jo's receptive language program, who needs to approve the changes (Reference Ethics Box 7.1, Behavior Analyst Certification Board, 2014)?

Ethics Box 7.1

Professional and Ethical Compliance Code for Behavior Analysts

Behavior analysts are required to gain consent from the client in a number of situations regarding behavior-change programs and procedures:

- 3.03 Behavior-Analytic Assessment Consent
  (a) Prior to conducting an assessment, behavior analysts must explain to the client the procedures(s) to be used, who will participate, and how the resulting information will be used.
  (b) Behavior analysts must obtain the client's written approval of the assessment procedures before implementing them.
- 4.02 Involving Clients in Planning and Consent.
  Behavior analysts involve the client in the planning of and consent for behavior-change programs
- 4.04 Approving Behavior-Change Programs.
  Behavior analysts must obtain the client's written approval of the behavior-change program before implementation or making significant modifications (e.g., change in goals and use of new procedures).

Additional Web Links
Determining Baseline and Interpreting Data
http://pisp.ca/strategies/documents/BaselineDataCollection.pdf
Visual Analysis of ABA Data
http://www.educateautism.com/applied-behaviour-analysis/visual-analysis-of-aba-data.html
Teaching Receptive Identification in Discrete Trials or Natural Methods
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3592489/

CASE: iv-E2

It's Working for Tito … Right?
Setting: Home Age Group: Preschool

LEARNING OBJECTIVE:

- To critically evaluate behavior changes within a mediator model.

TASK LIST LINKS:

- **Experimental Design**
  - (B-01) Use the dimensions of applied behavior analysis to evaluate whether interventions are behavior analytic in nature.
  - (B-03) Systematically arrange independent variables to demonstrate their effects on dependent variables.

- **Identification of the Problem**
  - (G-06)Provide behavior-analytic services in collaboration with others who support and/or provide services to one's clients.
- **Implementation, Management, and Supervision**
  - (K-02) Identify the contingencies governing the behavior of those responsible for carrying out behavior-change procedures and design interventions accordingly.
  - (K-06) Provide supervision for behavior-change agents.
  - (K-09) Secure the support of others to maintain the client's behavioral repertoires in their natural environments.
- **Intervention**
  - (J-09) Identify and address practical and ethical considerations when using experimental designs to demonstrate treatment effectiveness.

KEY TERMS:

- **AB Design**
  - An AB design involves two phases: the "A" phase, or the baseline phase, during which the target behavior or dependent variable is measured before the intervention is introduced, and the "B" phase, or the intervention phase, during which the independent variable or intervention is introduced and the target behavior continues to be measured (Odom et al. 2003).
- **Level**
  - When visually analyzing a graph displaying behavior data, level of the data refers to the position of the data on the y-axis. Do most of the data points seem to be at a "high" level on the graph (e.g., fall between approximately 70 and 100 %), a moderate level (e.g., fall between approximately 40 and 70 %), or a low level (e.g., fall between 0 % and approximately 40 %) (Kratochwill et al. 2010)?
- **Reversal/Withdrawal Treatment Design**
  - A single-subject research design whereby the intervention is implemented and then withdrawn and reimplemented to investigate whether there is a functional relationship between the intervention and the behavior targeted for change. Although an ABAB design is the most common, other treatments can be implemented as well to make it an ABC… ABCD… etc., design (Engel and Russell 2012).
- **Trend**
  - When visually analyzing a graph displaying behavior data, trend refers to the direction that the data points seem to be going. For example, are the data points going up, or showing an increasing trend? Are the data points going down, or showing a decreasing trend? Are the data points not showing either

an increasing or a decreasing trend, but rather a "zero" trend, remaining level? (Kratochwill et al. 2010).

- **Variability**
  - When visually analyzing a graph displaying behavior data, variability refers to how different each data point is from one another or the extent to which multiple measures of behavior result in different findings (Kratochwill et al. 2010).

It's Working for Tito … Right?

The grade one teacher began, "His classmates sometimes call him 'Tito the Turtle' because it seems to take him FOREVER to do anything. I don't know if he's not paying attention, or if he just doesn't care, or he doesn't have the skills, maybe at times? It's just not clear to me. Yesterday was a routine after-school set of events. We finished up class, the bell rang, and all the other grade one students rushed to get ready for theirs parents to pick them up, to meet with their older sibling to walk home, or to get to their buses on time. Tito, has a developmental disability but our class is very inclusive and caring, we have all sorts of diverse children here. Anyhow … yesterday, everyone else was gone—everyone—and Tito was still around. He had his boots on the wrong feet, and his coat on upside down, and he was very unconcerned about what was happening next. He was happy—but definitely disengaged. This is the same way he is with class work. If he has to write his name on a paper, he does everything BUT write it. He seems happy enough, but is looking around, or laughing, or chewing his pencil, or getting up to go to the bathroom. Really, he does everything EXCEPT what he is supposed to be doing. I know we are only in the second week of school, but this off-task behavior is just not going to work."

The school's behavior consultant replied to the grade one teacher: "It sounds like you are saying that off-task behavior is the issue with Tito. Remember last year with your student who was hiding under her desk, we will start in the same manner, we will begin with collaborating with Tito's parents, operationalizing the behavior, creating a data sheet, and then collecting baseline data until we see a stable pattern. Since we need to know how much time Tito is off-task, it would probably make sense to use momentary time sampling. And you are in luck, because I have a student starting with us next week who is learning the clinical work of behavior analysis, and I can get him to help you with this data collection. Agreed?"

The teacher and the behavior student started collecting data the week after next, on a Monday. The student carefully graphed the off-task data each day and took the additional step of graphing the behavior of two typically developing peers to see the comparison in the inclusive classroom. "It's important," she explained to the grade one teacher, "to not only know details regarding Tito's off-task behavior, but also to know if this behavior is any different from that of his peers, and if it is to what extent."

Predictably, the grade one teacher laughed and responded with, "I don't need any data sheet or graph to tell me that!" However, she let the student move on with

his work. Five days later, the school's behavior consultant, the classroom teacher, the resource teacher, and the student studying ABA reviewed the graph together using visual analysis. Together, they concluded that Tito's **level** of off-task behavior is stable; the **trend** is increasing (far higher than that of his peers); and the **variability** is low. According to the collected data, there was no difference in academic tasks when compared to tasks of everyday living, such as reading and taking off his outdoor shoes in the morning. It was apparent that Tito was on-task during anything that involved technology. Together with the functional behavior analysis that they would be completing in the coming weeks, they had a plan for intervention.

Over the next week, the behavior student's data collection continued, while the teacher put a number of her self-created interventions in place. On Monday, she placed visual schedules around the class, including one about how to get dressed for home, and showed Tito—and the rest of the class—how to use them. On Tuesday, she took the class to the computer laboratory for an hour in the morning and again at the end of the day. On Wednesday, she borrowed the cart of iPads and used them in her two learning centers through the day. On Thursday, there was a substitute teacher. On Friday, a parent volunteer came in and spent most of the day with Tito, prompting him to help with his on-task behavior.

When the behavior consultant dropped by on Friday after school, the grade one teacher excitedly said to the ABA student, "Show her!" She then reported to the behavior consultant, "See? The plan working … right? I am so happy. The student showed me this week's graph and how much better it is and we are both celebrating. Tito's doing great!" They told the behavior consultant the activities of their week and the variety interventions and activities that had happened each day.

Not sure what to say next—and wanting to be supportive rather than the cynic of the team—a number of fleeting thoughts and concerns ran though the behavior consultant's head.

- *An **AB design** does not tell us much. At the best of times, it cannot tell us whether a change was caused by the intervention.*
- *Even if it could, how do we know what was making a change happen? Every day was a different intervention!*
- *Did Tito learn new skills that will be maintained so quickly? Is he even attending to the visual schedules put in place?*
- *Does it appear that he is more on-task simply because there are more electronics in the environment this week?*

She tried to be very gentle: "You are quite right that the graph is looking better, far better. But at this point, we really can't be quite sure if—or what—is related to this increase in Tito's on-task behavior. We have to do things a little bit differently, in order to tell what is causing the increase in on-task behavior we need to try one intervention or change at a time. So we don't know, yet, if it's working, but with some slight alterations we will keep going until it does!" She thought to herself about the importance of using an experimental design such as a **reversal or withdrawal design** to be sure that it was the intervention that was causing the change, but also had to think through the ethical implications of this in the setting.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Why is it important to compare Tito's problematic behavior to those of his same age peers?
(Q2) Often in clinical work, an AB design is used to see the difference from baseline to intervention, as was done in this case. What type of design would be most appropriate when the teacher wants to try numerous different interventions?
(Q3) When doing a number of interventions together, this is called a comprehensive treatment model. What are pros and cons of this approach (Fig. 7.6)?

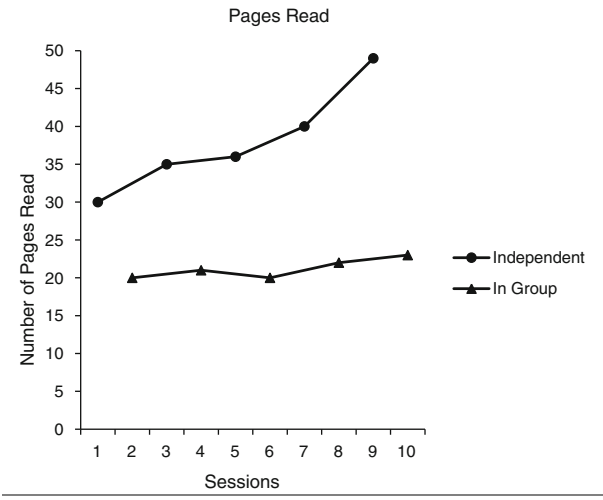
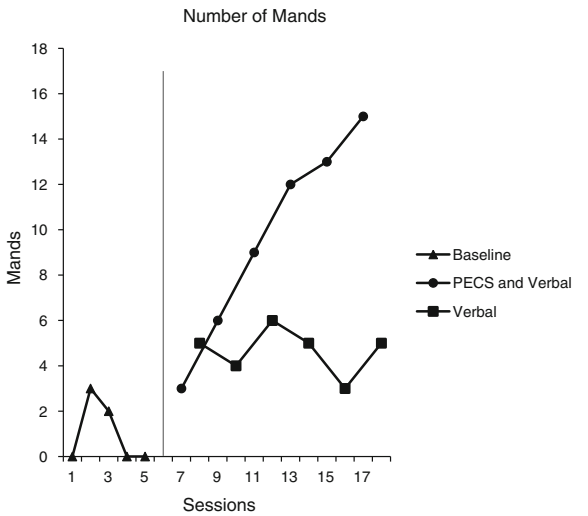
Comprehensive Treatment Models	Focused Intervention Packages
Comprehensive treatment models (CTMs) consist of a set of practices designed to achieve a broad learning or developmental impact on the core deficits of ASD. In their review of education programs for children with autism, the National Academy of Science Co mmittee on Educational Interventions for Children with Autism (National Research Council, 2001) identified 10 CTMs. Examples included the UCLA Young Autism Program by Lovaas and colleagues (Smith, Groen, & Winn, 2000), the TEACCH program developed by Schop ler and colleagues (Marcus, Schopler, & Lord, 2000), the LEAP model (Strain & Hoyson, 2000), and the Denver model designed by Rogers and colleagues (Rogers, Hall, Osaki, Reaven, & Herbison, 2000). In a follow -up to the National Academy review, Odom, Boyd, Hall, and Hume (2010) identified 30 CTM programs operating within the U.S. These programs were characterized by organization (i.e., around a conceptual framework), operationalization (i.e., procedures manualized), intensity (i.e., substantial number of hou rs per week), longevity (i.e., occur across one or more years), and breadth of outcome focus (i.e., multiple outcomes such as communication, behavior, social competence targeted) (Odom, Boyd, Hall, & Hume, in press).	In contrast, focused intervention pract ices are designed to address a single skill or goal of a student with ASD (Odom et al., 2010). These practices are operationally defined, address specific learner outcomes, and tend to occur over a shorter time period than CTMs (i.e., until the individual goal is achieved). Examples include discrete trial teaching, pivotal response training, prompting, and video modeling. Focused intervention practices could be considered the building blocks of educational programs for children and youth with ASD, and they are highly salient features of the CTMs just described. For example, peer-mediated instruction and intervention (Sperry, Neitzel, & Engelhardt-Wells, 2010), is a key feature of the LEAP model (Strain & Bovey, 2011).

Fig. 7.6 Comprehensive treatment models versus focused intervention packages (Wong et al., 2013, p. 3)

Processes

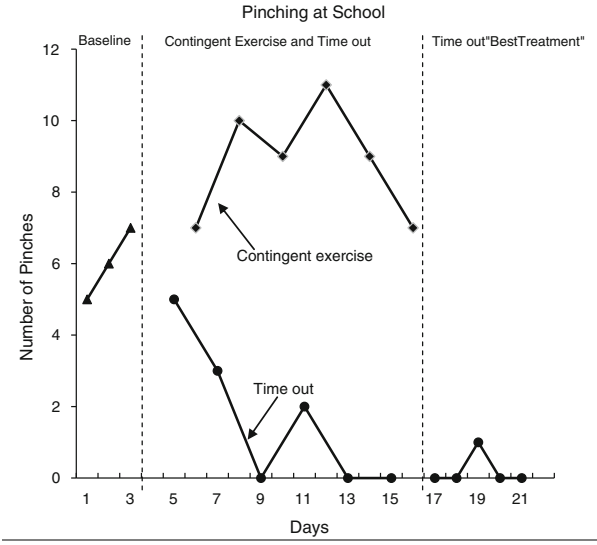
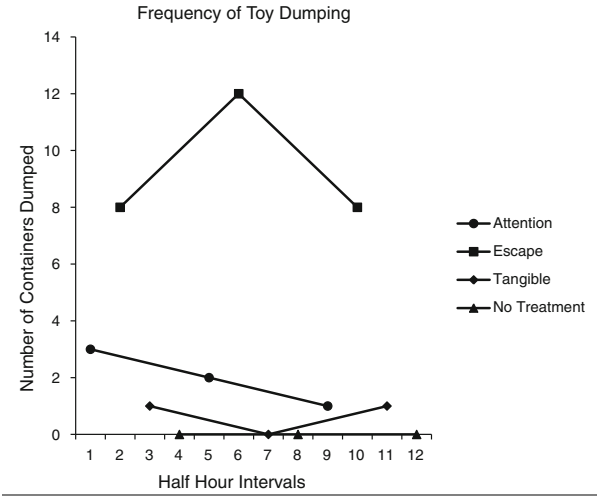
(Q4) Given that there are multiple interventions in place for Tito, what type of alternating treatment design would you use and how would you set up the different interventions (Table 7.2)?

Table 7.2 Different types of multiple treatment designs in single-subject research

Design	Details
1. Alternating treatment design with no baseline 	• Single phase • Two or more interventions (independent variables) are alternated rapidly, and the behavior (dependent variable) is measured • Allows one to measure the effect of two different interventions on a single behavior
2. Alternating treatment design with baseline 	• Two phase • Baseline phase is followed by an alternating treatment phase where two or more interventions are alternated

(continued)

Table 7.2 (continued)

Design	Details
3. Alternating treatment design—three phase with final phase most effective treatment implemented 	• Three phases are used • Baseline is followed by the alternating treatments; then finally, the best treatment is used in the final phase
4. Alternating treatment with no treatment control condition 	• Single phase • Multiple independent variables are alternated; one independent variable is the "no treatment" or control • Useful for visualizing functional behavior analysis data

(Q5) What are the strengths and limitations of an AB design? How could the limitations be addressed?

Practice

(Q6) The behavior that has been identified to increase is "on-task behavior." Create an operational definition of this behavior the team could use.
(Q7) Taking two of the interventions that the teacher utilized, use either an alternating treatments or changing criterion design to determine which intervention is more effective.
(Q8) How might a behavior analyst balance the need for an objective, scientifically based approach to analyzing changes in behavior with the establishment and maintenance of a positive and supportive relationship with mediators implementing a behavior-change program?

Reflection

(Q9) Do you agree with the behavior consultant's response when shown the graph illustrating positive changes in Tito's behavior? Why or why not?
(Q10) It turns out that the ABA student is also Tito's next door neighbor and occasionally watches Tito for a few hours on the weekend. Discuss whether the role the student has at school with Tito is appropriate or not.

Additional Web Links
Defining Normal Behavior
http://www.healthyplace.com/parenting/challenge-of-difficult-children/how-kids-grow-defining-normal-behavior/
Hypothesis Development
http://challengingbehavior.fmhi.usf.edu/explore/pbs/step4.htm

CASE: iv-E3

It's just not happening with Owen!
Setting: Home Age Group: Preschool

LEARNING OBJECTIVE:
To critically evaluate behavior measurement procedures.

TASK LIST LINKS:

- **Measurement**
  - (A-09) Evaluate the accuracy and reliability of measurement procedures.
- **Experimental Design**
  - (B-02) Review and interpret articles from the behavior-analytic literature.

- **Fundamental Elements of Behavior Change**
  - (D-21) Use differential reinforcement.
- **Behavior-Change Systems**
  - (F-01) Use self-management strategies.
- **Intervention**
  - (J-09) Identify and address practical and ethical considerations when using experimental designs to demonstrate treatment effectiveness
- **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.

KEY TERMS:

- **Dependent variable**
  - In ABA research, the dependent variable is the target behavior that is identified for change (Horner et al. 2005).
- **Independent variable**
  - In applied behavior analysis research, the independent variable is the intervention that is put into place to increase or decrease a target behavior (Horner et al. 2005).
- **Treatment Fidelity**
  - The degree in which an intervention was implemented as designed, which ensures reliability in the data (Vermilyea et al. 1984).

It's Just Not Happening with Owen!

"Owen! Stop! You have to stop that, please! O, come on! You know better! Let's just go and talk. Owen, hands down! Hands to yourself!" These were the commonly heard phrases echoing around the Towering Spruce outdoor activity day camp. Parents of campers at Towering Spruce could sign up for any number of weeks, or even the whole summer! Owen was signed up for every week of the summer—what looked like were going to be eight very long, exhausting weeks for the camp staff—and even the first two weeks had been pretty tough to take. Two weeks into summer camp, Owen had already been in four physical fights, filled with yelling, pushing, and punching. *Clearly,* though the head camp counselor, *this is not a personality conflict, as the fights have been with four other children. I can't*

say I have been enjoying all of the phone calls I have had to make to hysterical parents, and all of the incident reports I have had to complete.

Each week at the camp had a theme, and week two was "arctic week." Though it was pretty warm outside, 10-year-old Owen's favorite activity for the week was dressing up in the full-body polar bear costume. The costume itself, though made of fairly light material that let in the breeze, had a heavy rubber head and long, black rubberized claws attached to the bear's four paws. Life around camp was quite calm while Owen was getting in and out of the polar bear costume, a stark contrast with life around camp while Owen donned the costume.

Perhaps predictably, Owen enjoyed leaping off of the Styrofoam icebergs when other campers were near, typically scaring them so that they startled and as a result yelled, then they yelled at him. He also enjoyed chasing others with the costume again and growling, with his front paws and claws outstretched. He seemed to do this quite a bit around girls, who often screamed and giggled while they chastised him in a friendly way. Finally, he would roll on his back and pretend to eat the plastic seals as his lunch, hitting anyone near him who dared to interrupt his polar bear "meal."

When the majority of the camp staff had engaged in one or a number of the following, chasing Owen around to get in-between him and the other campers, physically pulling Owen off others, calming Owen, or talking to Owen over and over, the camp director decided next steps had to be taken. *I can't have all my staff quitting on me after week two*, she thought, *as she searched for the right number to call. I am sure I have a number, somewhere, for an agency that will come out and help with problem behaviors and provide some 1:1 support, too, I think.* After easily securing parental consent and finally locating the number to the local behavior support agency, the director made the call. The director gave a brief overview of the situation at hand and arranged an emergency meeting the next morning with Owen's parents, the behavior agency, herself, and the head counselor who had been for many of Owen's exhibitions and who was responsible for debriefing the counselors at the end of the day meetings. The behavior agency explained that they would be bringing along a support counselor to provide extra time and attention for Owen during the planning meeting.

After introductions, the camp director explained to everyone in a quiet, calm voice: "All of the camp staff are struggling with how to support Owen. While we are very relieved that so far no one has been seriously hurt, we are worried that if we don't make a serious change, things will get worse over the next six weeks of camp. We have tried talking, scolding, time outs, and giving him extra jobs to do around the camp's kitchen area. But it's just not happening for us. So we have now brought a behavior consultant on board, who will work with the camp team to develop a behavior intervention program and provide training all of our staff to implement it. While the behavior consultant works out the intervention plan, her and I have discussed that the best route to take right now is assigning someone every half-day to spend that time just with Owen, and that person that person will focus on giving Owen praise and rewards for anything that is **not** physical aggression." Everyone agreed that this was the best possible route to take, and the behavior consultant stuck around for a few more hours to talk with Owen's parents,

directly observe, generally start working on Owen's behavioral assessment, and to write up the details of this short-term intervention with the camp team. She began by describing that she wanted to approach this from a scientific perspective, as they do in research, *thinking* about Owen's behavior as the **dependent variable** and the intervention program that they will be developing as the **independent variable,** and the goal being to demonstrate a relationship between these two variables. As part of the intervention, she explained that a **self-monitoring** program might be effective for Owen. Everyone quickly agreed and almost in unison said: "Whatever will help, we are fully on-board. Just tell us what to do!"

Before the behavior consultant had a chance to come up with a data-supported hypothesis, however, she received a frantic phone call from the camp saying that the intervention is not working—it is just not happening—and if the behavior has not improved by the end of the week, Owen will not be able to stay in camp at all—even with 1:1 support. The child's parents, who received the same message, work full time over the summer, are very concerned, and are not sure what they will do if he is not allowed to stay at the camp. After much discussion, the camp staff agreed to continue but allow the behavior consultant to stay on the camp site for a longer period of time to observe the child at camp for a few days. After two days, the consultant has a good idea about why the intervention is not working. *Given the number of different camp staff that interact Owen each day,* she wrote in her notes, *as he moves from activity to activity throughout the day, it is clear that the procedure of attention for everything except the problem behaviors was not consistently implemented in the way it was explained. For example, when Owen was fishing, his 1:1 counselor was off at the tuck shop having ice cream, and the counselor in charge of the fishing activity was giving Owen all sorts of attention for his problem behaviors. Some of the counselors provided lots of praise and positive reinforcement for camp-appropriate behaviors, and others told me that they were not doing it, because he didn't deserve it. This problem with everyone not implementing the program as planned, called* ***treatment fidelity****, is providing confusing messages to Owen. I think we need to have another emergency meeting with the camp staff and begin to explain the importance of treatment fidelity as well as avoiding treatment drift; that how they are implementing this intervention is the issue, and not in the intervention itself. THIS is why it's "just not happening."*

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Why is procedural fidelity a critical component of any behavior intervention program?
(Q2) What procedure did the behavior consultant implement when she asked them to provide attention to everything except the problem behavior?

Processes

(Q2) Given the graph collected of Owen's behavior below, how may treatment drift have been missed? What other interpretations may be possible (Fig. 7.7)?

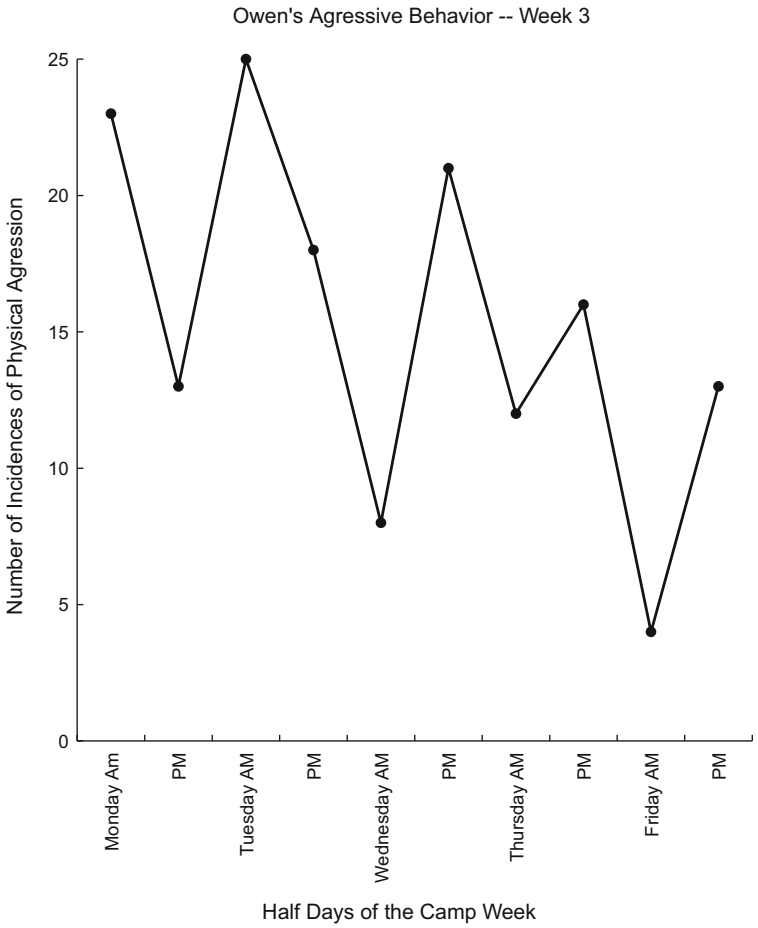


Fig. 7.7 Graph of data collected by camp staff regarding the total frequency of Owen's physical aggression toward others during week 3 of camp

(Q3) In the case of Owen, does the behavior consultant have enough evidence to support the conclusion that treatment drift is the reason that the intervention program is not working?
(Q4) What types of information would be essential to determine that treatment drift is causing the inconsistencies in Owen's behavior? What data sheet would be ideal to collect this information?

Practice

(Q5) Develop a treatment fidelity checklist for Owen's staff using the sample below as a guide (Fig. 7.8).

Treatment Fidelity Checklist
Early Learner's ABA Program

Learner: **Instructor:**

Week of: **Session Length:**

Instructions: Complete after session and file in binder under "TFC" tab. Circle Y for each component that was completed or implemented; each component that was not completed or implemented circle N.

	M	Tu	W	Th	F
1. Preference assessment completed at start of session	Y N	Y N	Y N	Y N	Y N
2. Mand training completed for at least 50% of session	Y N	Y N	Y N	Y N	Y N
3. Maintenance checks completed	Y N	Y N	Y N	Y N	Y N
4. Data taken as soon as possible after behavior occurred	Y N	Y N	Y N	Y N	Y N
5. Correct response varied position in visual array (left, middle, right positions)	Y N	Y N	Y N	Y N	Y N
6. Transferred data from hand tallies to data sheet at end of session	Y N	Y N	Y N	Y N	Y N
7. Daily mands graphed	Y N	Y N	Y N	Y N	Y N
8. Paired tangible reinforcers with social praise	Y N	Y N	Y N	Y N	Y N
9. Wrote in communication book including: effective reinforcers, overall affect of the learner, and any information relayed to you from parents	Y N	Y N	Y N	Y N	Y N
10. Instructor control program run at least 5 times throughout session	Y N	Y N	Y N	Y N	Y N

Fig. 7.8 Sample treatment fidelity checklist (Wilkinson, 2007)

(Q6) Do you agree with the consultant having the staff give Owen praise and rewards for anything that is not physical aggression? Looking at the literature, was this an evidence-based decision? Why or why not?
(Q7) Using the chart below, how could treatment drift be avoided when starting to implement a new intervention (Table 7.3)?

Table 7.3 Treatment fidelity assessment grid (UCDHSC Center for Nursing Research, 2006)

Type of fidelity	Steps taken to ensure fidelity	How was fidelity assessed?
Fidelity to theory (*did the intervention include the relevant "active ingredients" based on theory?*)	• Review by experts • Ensure adequate "dose" of treatment is received • Ensure equivalent dose of treatment across conditions (if applicable)	• Documentation of review, comments, suggestions • Statistics on number, frequency, length of contact • Show no difference in number, frequency, length, and type of content
Provider training (*were the treatment providers capable of delivering the intervention as designed?*)	• Initial training of interventionists • Test of provider skills • Ongoing supervision of interventionists • Periodic retraining to prevent "drift"	• Training protocols and standardized materials • Results on post-training test • Forms used to document supervision • Schedule and protocols for retraining
Treatment implementation (*did the treatment providers actually implement the intervention as it was designed?*)	• Standardized intervention protocol • Provider monitoring (e.g., video, audio, in-person) • Participant rating of treatments' credibility • Minimize treatment contamination	• Treatment manual or other standard delivery materials • Individual or aggregate results of monitoring • Survey of participants' perceptions of treatment • Methods used to prevent contamination (e.g., separate sites, patient exit interviews, checklist of *non*allowed provider behaviors)
Treatment receipt (*did the participant receive the relevant "active ingredients" as intended?*)	• Check of participants' understanding • Measure of change in participants' knowledge • Review of homework completion • Self-report or diary to measure use of new skills	• Results from participant measures {note: this section may be "N/A" if the participant is not expected to learn something from the intervention—e.g., in behavioral interventions with cognitively impaired patients}
Treatment enactment (*did the participant put new skills or behaviors into practice? Were all necessary steps completed?*)	• Success in implementing new behaviors • Level of skill in performing new behaviors (e.g., using an inhaler correctly)	• Laboratory assessment of actual participant skills/behaviors • Self-report or home visit to assess actual skills/behaviors {note: This may be N/A in some but not all cases, when behavior is the outcome variable}

Reflection

(Q8) After reading the case of Owen, who is it that may need to change? Owen, the camp staff, or both? Please explain.
(Q9) Within a mediator model, the behavior consultant is focused both on the behavior of the individual displaying the problematic behavior and on the behavior of those charged with implementing the intervention program. Where should a behavior consultant place the emphasis of his or her work? Why (Fig. 7.9)?
(Q10) With emphasis placed on the behavior of Owen as the source of the problem, how might the behavior consultant begin to shift emphasis toward the behavior of the staff while still maintaining positive rapport with the team?

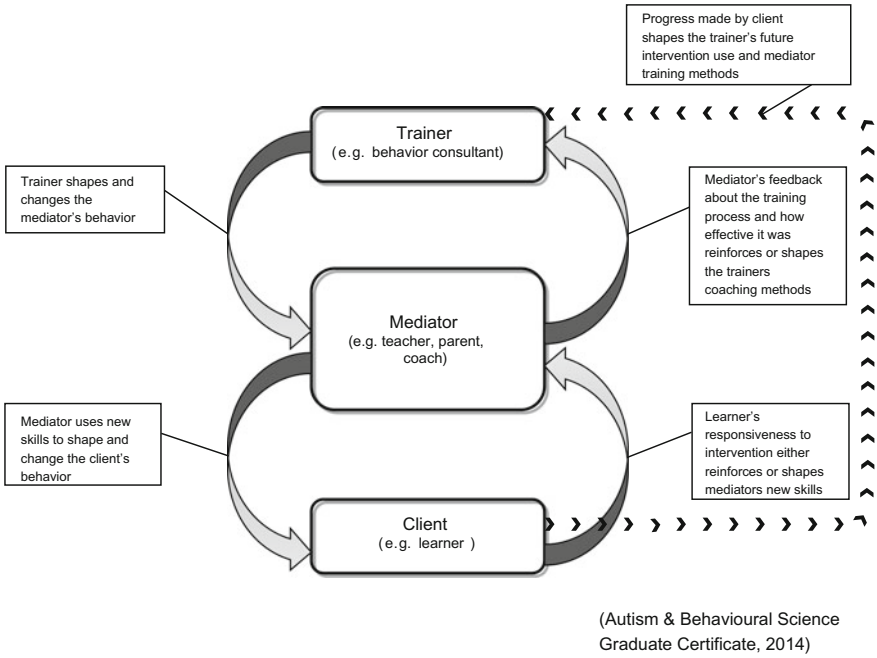


Fig. 7.9 Triadic mediator model of interaction (Autism and Behavioral Science Graduate Certificate, 2014)

Additional Web Links
Helping Children Learn to Manage their own Behavior
http://csefel.vanderbilt.edu/briefs/wwb7.pdf
Acknowledging Children's Positive Behaviors
http://csefel.vanderbilt.edu/briefs/wwb_22.pdf
Differential Reinforcement
http://165.139.150.129/intervention/Differential.pdf

CASE: iv-E4

As long as Molly's improving, nothing else matters
Setting: Home Age Group: Preschool

LEARNING OBJECTIVE:

- To critically weigh the strengths and limitations with the use of single-subject experimental designs in natural settings.

TASK LIST LINKS:

- **Experimental Design**
  - (B-03) Systematically arrange independent variables to demonstrate their effects on dependent variables.
  - (B-04) Use withdrawal/reversal designs.
  - (B-05) Use alternating treatment designs.
  - (B-06) Use changing criterion designs.
  - (B-07) Use multiple baseline designs.

KEY TERMS:

- **Alternating Treatment Design**
  - The alternating treatment design is a type of single-subject research design that allows for the effects of two or more treatments on a target behavior to be compared. In this design, two or more treatments are presented to an individual in rapidly alternating succession, such as on alternating days or even alternating sessions on the same day, in order to determine whether one intervention is more effective than the other (Cooper et al. 2007; Kratochwill et al. 2010).
- **Changing Criterion Design**
  - A changing criterion design is a type of single-subject research design that involves gradually changing criteria for reinforcement or punishment following a baseline phase. Throughout the changing criteria, the target behavior is measured and the extent to which changes in the behavior correspond to changes in the criteria is documented (Cooper et al. 2007; Kratochwill et al. 2010).

- **Multiple Baseline Design**
  - Multiple baseline designs are a type of single-subject research design that allows for measurement of the effects of an independent variable (e.g., intervention program) on a dependent variable (e.g., target behavior) across individuals or settings, or even across several behaviors displayed by the same individual. For example, when measuring the effects of an intervention program on a problem behavior being exhibited by three individuals, baseline data collection would begin at the same time for all three individuals. The intervention program would then be systematically introduced in a staggered manner across the individuals—the first individual would begin the treatment phase, while the others remain in the baseline phase; then, the second would begin the treatment phase, while the third remains in baseline; then, the third would begin the treatment phase. This staggered introduction of the intervention program allows for any effects on the target behavior to be observed in one individual at a time, so as to establish a functional relationship between changes in the target behavior and the introduction of the intervention (Cooper et al. 2007; Kratochwill et al. 2010).

As Long as Molly's Improving, Nothing Else Matters

Every report card Molly brought home from school in Kindergarten, Grade 1, Grade 2, and now the first term of Grade 3 said the same thing in different words that Molly had hardly any friends. Following Molly's diagnosis of Asperger's disorder in preschool, her parents had watched her carefully. She seemed to get along okay. "Who needs a lot of friends as long as you have one good one?" they asked one another. But when they received this most recent report card, even with all of the encouragement they had given Molly, the meetings with her teacher, the peer sensitivity training in her classroom, and all the community activities that they had enrolled her in, it finally became clear to them. This was not going to "go away" without some sort of systematic intervention.

"Maybe it was my fault?" said Molly's mom. "Maybe I shouldn't have gone back to work so soon and I could have taken her to more moms and tots lessons. But we needed the money."

"Well, maybe it was mine. I took those two years off when she was a toddler because we moved and I couldn't find work. Maybe we should have put in her childcare so she could have had more socialization at an even younger age," countered Molly's dad. "But it doesn't matter any longer. Remember that the psychologist told us that she was going to struggle with social skills. So as much as we didn't want this to happen, it's happening. Let's just move forward."

"Okay, let's do it." Molly's mom, who tended to organize the household affairs now that Molly was in school, sent an email to the agency she had found online that was recommended by Molly's skating coach. Only hours later, she received a reply and set up a time for a behavior analyst to come and work with Molly and their family.

"Tell me about your biggest concerns with Molly when it comes to her social skills" was one of the questions the behavior analyst asked.

"That's easy," replied Molly's dad, eager to contribute to this conversation. "Molly has never had very many friends, but we told ourselves that it's okay. After all, we don't have a ton of friends either, but we do have some really good friends—other parents—that we hang out with as a couple. And that's enough for us! But even when she is with other children regularly, she doesn't really seem to interact much, or really want to make friends. It almost seems like she is withdrawing; like she doesn't want to make friends at all."

"And we have told her this over and over," chimed in Molly's mother. "We have modeled it for her at the playground, during her lessons and activities. She can tell us the steps to making a friend, but she doesn't seem to DO it or even try just one little bit. At school where, obviously, there are tons of other kids, it still doesn't happen. We thought, for a long time, until now, really, that she would 'catch up.' People keep telling us that young children learn skills at their own pace. But it's really past that point now, we think. We are really getting worried and I have big knot in my stomach right now just talking about it." She reached for Molly's dad, and they held hands tightly while the conversation continued. "It might sound silly, but we are feeling almost desperate. We are just really frightened for Molly."

Later, as the conversation concluded, the behavior analyst went back to her office, her desk, and her computer to work out a plan for completing a full assessment and then putting a plan into place. She began to think about how she might be able to determine whether the intervention program that she will be designing is responsible for any behavior changes they might observe. She wondered about the strengths and limitations of a **multiple baseline design**, a **changing criterion design**, a reversal design, and an **alternating treatment design**. *Could I even ethically use any of these experimental designs in this context? Social skills are so complex*, she pondered. *And it looks like, at least for some of Molly's skills, that we are seeing problems with performance of skills that she knows. I think that since Molly has a number of components in her repertoire of social skills that will likely need support, I could plan a multiple baseline across behaviors design, or maybe a multiple baseline across home, school, and community settings design, when we are ready to start working on the actual intervention.*

For the next three months, Molly, her parents, and the behavior analyst worked together on a range of social skills, including approaching other children, initiating conversations, and reciprocal turn-taking in conversation. Each of these interventions began at various times, so that the behavior analyst could easily pinpoint which parts of the interventions were successful—if any. The behavior analyst was quite impressed with the graph he created throughout this period of time, gathering data at home, school, and community settings to see whether the frequency in which Molly demonstrated these new skills was increasing.

At their next meeting, the analyst reported as he displayed the graphs, "I am really thrilled to see that Molly is making so many positive changes. She is really showing her skills in every setting, and I see a strong upward trend in the frequency in which she uses these skills, especially in the last month or so."

Molly's parents nodded, but made very little eye contact. They did not appear to share in the enthusiasm that the behavior analyst was exhibiting. She finally asked, "Is something wrong?"

"Not wrong, no. But we are a bit embarrassed," they began. "We actually started Molly on some new medication for social anxiety suggested by her pediatrician and her child psychiatrist. This was about a month ago, too. Although they told us that we shouldn't tell anyone so the use of the medication could be what they called 'blinded.' But it feels really wrong to us and I think we should have told you."

Molly's behavior analyst hesitated to process this new information and then said, "I think that the intervention, though, is what is making the difference, based on the data we have collected."

Molly's dad interrupted with, "But does it really matter? In the end, as long as Molly is improving, she wins, you win: we all win. Am I right?"

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) What is the term used when it is unsure whether another variable is influencing the results that are being seen?
(Q2) Does an ethical dilemma result at all, from the behavior therapist, if she is not sure whether her intervention is effective (Reference Ethics Box 7.2, Behavior Analyst Certification Board, 2014)?

Ethics Box 7.2

Professional and Ethical Compliance Code for Behavior Analysts

- 4.07 Environmental Conditions that Interfere with Implementation.
  (a) If environmental conditions prevent implementation of a behavior-change program, behavior analysts recommend that other professional assistance (e.g., assessment, consultation, or therapeutic intervention by other professionals) be sought
  (b) If environmental conditions hinder implementation of the behavior-change program, behavior analysts seek to eliminate the environmental constraints or identify in writing the obstacles to doing so.

Processes

(Q3) What are the strengths and limitations of a multiple baseline design, reversal design, changing criterion design, and alternating treatment design (Table 7.4)?
(Q4) In this case, which research design would allow the therapist to evaluate whether the medication or the social skills intervention was causing the change?

Table 7.4 Descriptions of reversal, changing criterion, multiple baseline, and alternating treatment single-subject research designs

Design	Description
Reversal (A–B)	Baseline data are taken and then an intervention (A phase) is introduced for a predetermined amount of time. After this time has passed, the intervention is removed (B phase). This can be repeated a number of times in order to determine whether a functional relationship exists between the independent variable (the intervention) and the dependent variable (the behavior)
Changing criterion	This design is appropriate when the target behavior has the potential to change in gradual stages. Baseline data on the behavior are taken first. After baseline data are collected, a criterion level is determined for each phase. The final phase criterion level should match the behavior and terminal goal initially determined. The intervention is then introduced, and the criterion level that had been predetermined is used to control reinforcement (or punishment). Each time the criterion level is met, the next phase is introduced, and this continues until the terminal goal is met
Multiple baseline	A multiple baseline design is similar to the reversal design but is used when there is more than one dependent variable, such as setting, people, or functionally equivalent behaviors. Baseline data are taken on all dependent variables. After the baseline phase, the independent variable, or intervention, is introduced for the first dependent variable, while maintaining baseline for the other dependent variables. Upon reaching predetermined criteria for the first dependent variable, the following dependent variable may enter the intervention phase. This pattern would continue until all dependent variables enter into the intervention phase
Alternating treatment	An alternating treatment design is used when one is interested in the effect of more than one intervention on a dependent variable. The interventions are rotated in a counterbalanced manner to decrease the possibility of treatment effects carrying over from one intervention phase to subsequent phases. Baseline data are not necessary when using this design, though should be included when it is possible. The first independent variable is introduced; data are taken. At the next opportunity, a different independent variable is used. This continues until it is determined whether one independent variable is more effective than another

Richards et al. (2013)

Practice

(Q5) Set up a multiple baseline design to determine whether the social skills training is effective. Which type of multiple baseline would you use and why? Would a multiple baseline or a reversal design be more effective?
(Q6) Another way to evaluate if change has been achieved is by completing a criterion-based skills assessment. An example from the VB-MAPP is provided below. What are advantages and disadvantages to using this approach (Fig. 7.10)?
(Q7) Using the figure below, determine how the changing criterion design would work with Molly? How would self-management play a role with this design? Do you think the medication influenced her performance given the results (Fig. 7.11)?

	ASSESSMENT			
	1ST	2ND	3RD	4TH
TOTAL SCORE				

DOES THE CHILD SPONTANEOUSLY PARTICPATE IN ACTIVITIES WITH OTHER CHILDREN AND SPONTANEOUSLY VERBALLY INTERAC T WITH THEM?

1ST	2ND	3RD	4TH	6. Initiates a physical interaction with a peer 2 times (e.g., a push in a wagon, hand holding, Ring around the Rosy) **(TO: 30 min.)**
1ST	2ND	3RD	4TH	7. Spontaneously mands to peers 5 times (e.g., *My turn. Push me. Look! Come on*.) **(TO: 60 min.)**
1ST	2ND	3RD	4TH	8. Engages in sustained social play with peers for 3 minutes without adult prompts or reinforcement (e.g., cooperatively setting up a play set, water play) **(TO: 30 min.)**
1ST	2ND	3RD	4TH	9. Spontaneous responds to the mands from peers 5 times (e.g., *Pull me in the wagon. I want the train.*) **(E)**
1ST	2ND	3RD	4TH	10. Spontaneously mands to peers to participate in games, social play, etc. 2 times. (e.g., *Come on you guys. Let's dig a hole*.) **(TO: 60 min.)**

Fig. 7.10 VB-MAPP milestones, level 2, social behavior, and social play (Sundberg 2008, p. 13)

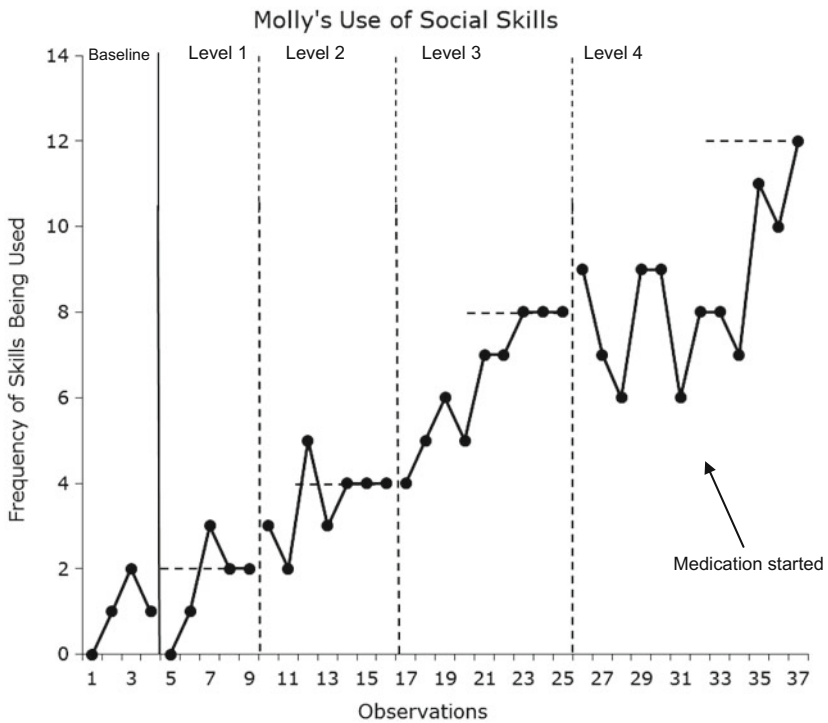


Fig. 7.11 Changing criterion graph showing the number of times Molly engaged in one of the social skills being worked on while behavior analyst was observing

Reflection

(Q8) Can medication be a useful part of a behavior intervention program? If so, in what way? If not, why not?
(Q9) What was the behavior consultant required to discuss with the family with regard to implementing the treatment? Did this change at all since she implemented a multiple baseline design (Reference Ethics Box 7.3, Behavior Analyst Certification Board, 2014)?

Ethics Box 7.3

Professional and Ethical Compliance Code for Behavior Analysts

- 4.04 Approving Behavior-Change Programs.
  Behavior analysts must obtain the client's written approval of the behavior-change program before implementation or making significant modifications (e.g., change in goals, use of new procedures).

(Q10) Were Molly's parents wrong to withhold information about the introduction of medication? Why or why not?

Additional Web Links
Single-Subject Design
http://www.sagepub.com/sites/default/files/upm-binaries/25657_Chapter7.pdf
Introduction to Single-Subject Research Design
https://www.msu.edu/user/sw/ssd/issd10.htm#a
Behavioral Consulting
http://files.eric.ed.gov/fulltext/EJ801232.pdf
VB-MAPP
http://www.avbpress.com

CASE: iv-E5

How is it a success for Ramsey, when WE aren't seeing any change?
Setting: Home Age Group: Preschool

LEARNING OBJECTIVE:

- To evaluate the social significance of behavior change.

TASK LIST LINKS:

- **Experimental Design**
  - (B-08) Use multiple probe designs.
  - (B-09) Use combinations of design elements.

  - (B-10) Conduct a component analysis to determine the effective components of an intervention package.

- **Identification of the Problem**
  - (G-02) Consider biological/medical variables that may be affecting the client.
  - (G-06) Provide behavior-analytic services in collaboration with others who support and/or provide services to one's clients.

- **Intervention**
  - (J-11) Program for stimulus and response generalization.

KEY TERMS:

- **Scatterplot**
  - In applied behavior analysis, a scatter plot is a tool used to discover patterns between the occurrence of certain behaviors within certain times over the course of a day or week. A scatter plot is often used as part of the behavior assessment process to determine when, for example each day, problematic behaviors are occurring, and is often collected within a data sheet (Maas et al. 2009).

- **Self-injurious behavior**
  - Self-injurious behaviors can be described as behaviors that one engages in that harm one's own body. There are many forms of self-injurious behaviors that may include head-banging, hand-biting, and scratching one's self (Matson and LoVullo 2008).

- **Socially significant**
  - In applied behavior analysis, behaviors are selected for change based on their social significance, that is, the extent to which the behavior change will improve the person's quality of life (Bosch and Faqua 2001).

How Is It a Success for Ramsey, When WE Aren't Seeing Any Change?

"Ramsey has really been struggling with **self-injurious behavior** this year at school so far," noted one of the school support team members, Mr. Avro, at their weekly team meeting. "It is quite different from what we saw last year. Last year, he was having trouble with physically aggressive behaviors, mostly around his peers. He kept taking those airplanes that he loves—the ones he carries in his pockets—and hitting his peers with them. Remember? We did a great job working with the school

staff and with Ramsey to decrease this particular behavior. But since he was off for the summer months, he has come to school with a whole new one and we have been focusing on that important **socially significant** behavior issue since then. Ms. Lancaster, could you describe your observations around Ramsey?"

"Certainly," Ms. Lancaster—another school support member–responded with confidence. "As you will all remember, Ramsey does not use verbal communication, he has an Autism Spectrum Disorder diagnosis, he just turned 11 a few weeks ago, and is in sixth grade at this school. He has been displaying what we would call self-injurious behaviors: he has been banging his head against the wall and banging his head, at times, with his fists. This has persisted for over two months, and we have full parental support to put changes in place as they see this as both a socially important goal, but also safety concern. Although there is not a great deal of force behind any of the blows Ramsey self-delivers, is it obviously concerning to the school staff, Ramsey's parents, and importantly, Ramsey himself. It is really making his peers shy away from interacting with him: they clearly do not know what to think or to do as they likely wouldn't have seen this type of behavior before. When Ramey was re-referred to use about seven weeks ago, of course we began with requesting that his parents take him for a full medical evaluation. No issues emerged from his check-up. We updated his Functional Behavior Analysis (FBA), which showed a complex combination of sensory and socially mediated attention functions. Our **scatterplot** showed a distinct pattern of occurrence during the periods where Ramsey is included with all the students in his grade level, which typically happen in the afternoon hours before the students leave for the day. He often wants to interact with them, but gets frustrated when they don't interact with him or when he cannot communicate his message. In addition, it was found that the overwhelming nature of the situation was difficult for him when there were many peers and the noise was loud. As you will recall, we planned and implemented a package of interventions here at school: noncontingent attention from peers, teachers, and paraprofessionals; the addition of sensory and other acceptable tools around the school (bongo drums, gel-filled squeezable items); a button coded with phrases to get the attention of peers; learning to ask for a break with a 'break card'; and response blocking if necessary."

Mr. Avro picked up the summary again. "Excellent. That's quite right. We have, of course, been collecting and evaluating data to see if this intervention package has had any effect on the incidence of self-injurious behaviors, as operationalized, and we have seen impressive success so far. In fact, the level of self-injurious behaviors is at a very low level—almost zero and seems quite stable at this point! This is very good news and I think our goals here are pretty much achieved. So, as you know, I have invited Ramsey three parents, his Mom, Dad and Step-Mom, into school today to share this progress. I think they are going to be very happy, as this behavior was noted as particularly concerning in both school and home environments." He glanced at the wall clock and stood up. "I think they should be here by now. I will go and see if they are waiting for us at the office."

Momentarily, Mr. Avro returned with Ramsey's three greatest resources: his parental figures from his two homes. With earnest pleasure, the team greeted Ramsey's parents and excitedly explained—and showed—the tremendously decreased rates of self-injurious behavior happening during the school days. All three listened with avid interest, nodding and smiling as they heard the positive news. Ramey's father began, "We were talking together in the office before you came to get us for this meeting. We wanted to make sure that you know we are thrilled with the positive news that you have been informing us about regularly in Ramsey's communication book and phone calls. It's really good to hear that you have been having so much success, just like you did last year. However, unlike last year, we are still really struggling with something at both of Ramsey's homes, and we haven't really been sure how to approach this. But here goes. We are still having all sorts of problems with these self-injurious behaviors at home. All three of us agree that we want to ask you for help at home, too. Is that possible?"

The members of the school support program awkwardly made eye contact, and Ms. Lancaster responded "Unfortunately, not for us, no. We are privately contracted with this school board in a partnership. It would be a conflict of interest and directly against the boundaries set out in our memorandum of understanding to work in the homes of our students. Even if it wasn't, our job is here, and if we are not busy with Ramsey, we have many other students on our caseloads that occupy our work hours."

"That makes me so angry!" Ramsey's mother blurted, with his father and stepmother nodding in unison. "I mean, you are clearly very skilled professionals, people who are hard to find, but I wonder how meaningful all of these so-called great changes are if they happening only in one place? How are they really meaningful changes?"

"I can understand your frustrations," added Mr. Avro, "but unfortunately our hands are tied with respect to looking at other environments. But I can make a list for you of names and contact information for other community support services that might work for you outside of the school environment. That's the best we can do for Ramsey and all of you right now."

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) What would the component of the intervention that focused on noncontingent attention from peers look like?
(Q2) Using the table below, has the principles of generality been achieved in the case of Ramsey? Why or why not (Fig. 7.12)?

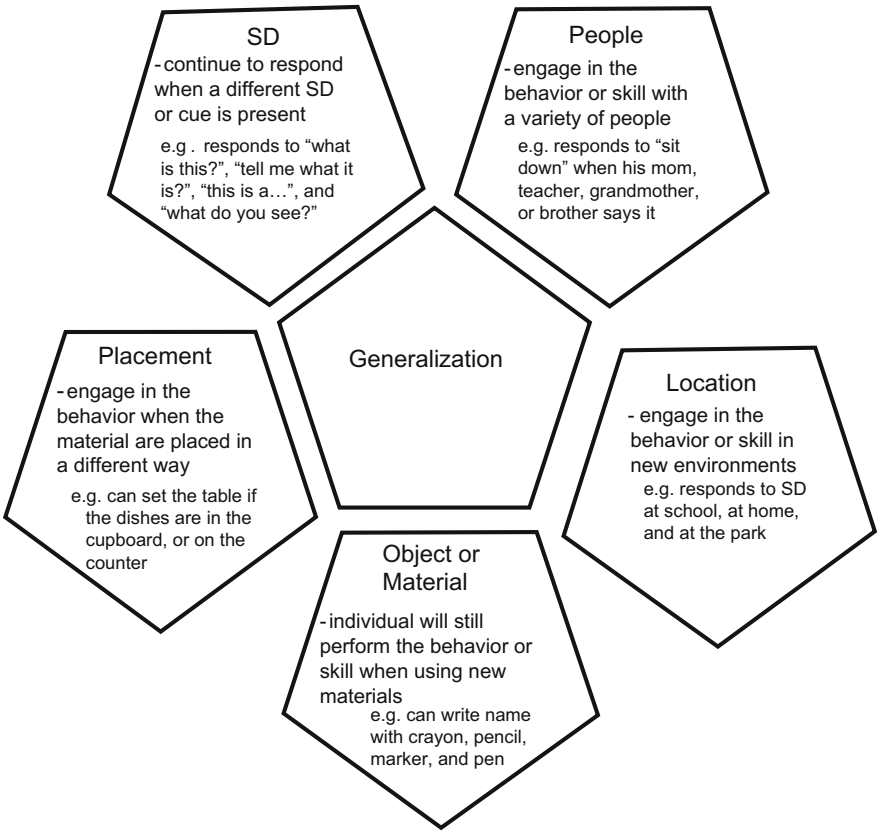


Fig. 7.12 Types of generalization

Processes

(Q3) How could the school personnel have planned for the generalization of Ramsey's behavioral improvements outside of the school environment?
(Q4) What ethical boundaries are in place that prevent the school team from working with Ramsey's parents at home? How might the school personnel have included Ramsey's parents in the process while staying within the scope and boundaries of their roles (Reference Ethics Box 7.4, Behavior Analyst Certification Board, 2014)?

Ethics Box 7.4

Professional and Ethical Compliance Code for Behavior Analysts

- 2.04 Third-Party Involvement in Services.
  (a) When behavior analysts agree to provide services to a person or entity at the request of a third party, behavior analysts clarify, to the extent feasible and at the outset of the service, the nature of the relationship with each party and any potential conflicts. This clarification includes the role of the behavior analyst (such as therapist, organizational consultant, or expert witness), the probable uses of the services provided or the information obtained, and the fact that there may be limits to confidentiality.
  (b) If there is a foreseeable risk of behavior analysts being called upon to perform conflicting roles because of the involvement of a third party, behavior analysts clarify the nature and direction of their responsibilities, keep all parties appropriately informed as matters develop, and resolve the situation in accordance with the code.
  (c) When providing services to a minor or individual who is a member of a protected population at the request of a third party, behavior analysts ensure that the parent or client-surrogate of the ultimate recipient of services is informed of the nature and scope of services to be provided, as well as their right to all service records and data.
  (d) Behavior analysts put the client's care above all others, and should the third party makes requirements for services that are contradicted by the behavior analyst's recommendations, behavior analysts are obligated to resolve such conflicts in the best interest of the client. If said conflict cannot be resolved, that behavior analyst's services to the client may be discontinued following appropriate transition.

Practice

(Q5) Using the competing behavior path diagram below, indicate the current behavior path for the socially mediated component of the behavior and indicate how the intervention has been implemented to teach replacement behaviors (Fig. 7.13).
(Q6) Using the functional analysis data shown in the link (pg. 5), describe the functions that are maintaining the self-injurious behaviors at home.
http://www.pent.ca.gov/frm/functobserv.pdf
(Q7) Given the information provided, what initial hypothesis may you draw as to why the self-injurious behavior is occurring at home? What additional information do you need to confirm this? How and from whom might you obtain this additional information?

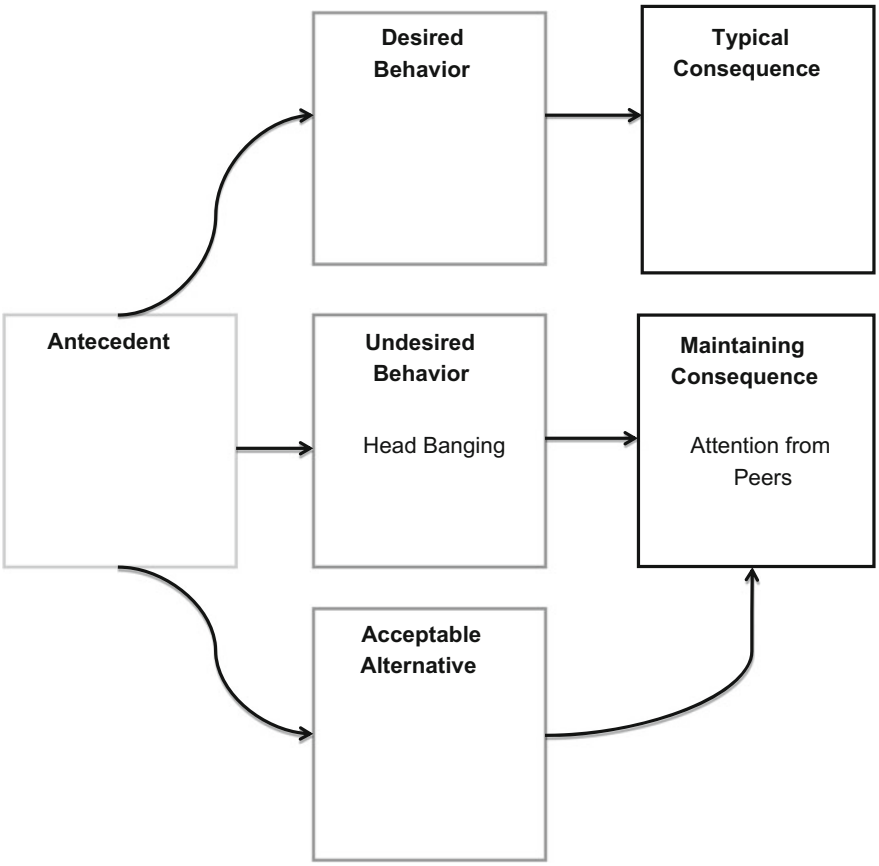


Fig. 7.13 Competing behavior pathway for Ramsey's self-injurious behavior

Reflection

(Q8) Why was a medical examination conducted before Ramsey's self-injurious behaviors were addressed through a behavioral intervention (Reference Ethics Box 7.5, Behavior Analyst Certification Board, 2014)?

Ethics Box 7.5

Professional and Ethical Compliance Code for Behavior Analysts

- 3.02 Medical Consultation.
  Behavior analysts recommend seeking a medical consultation if there is any reasonable possibility that a referred behavior is influenced by medical or biological variables.

(Q9) By still maintaining appropriate ethical guidelines, could the consultants work with the family through a parent coaching or mediator model?
(Q10) How meaningful are the changes in the success that the school has seen in the reduction of Ramsey's self-injurious behaviors if they have not generalized (Reference Ethics Box 7.6, Behavior Analyst Certification Board, 2014)?

Ethics Box 7.6

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 for each client.
  (b) Behavior analysts do not plagiarize other professionals' behavior-change programs.
- 4.06 Describing Conditions for Behavior-Change Program Success.
  Behavior analysts describe to the client the environmental conditions that are necessary for the behavior-change program to be effective.

Additional Web Links
Promoting Generalization of Positive Behavior Change: Practical Tips for Parents and Professionals
http://www.centerforautism.com/Data/Sites/1/media/GeneralizationForParentsAndProfessionalsJan06DLS.pdf
Generalization
http://www.kcbehavioranalysts.com/aba-toolbox/generalization
ABA: A Focus on Outcomes
http://www.iidc.indiana.edu/pages/Applied-Behavior-Analysis-A-Focus-on-Outcomes
Self-Injurious Behaviors
http://www.autism.com/symptoms_self-injury

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