Chapter 8
Evaluation-Centered Case Studies from Adolescence to Adulthood

Abstract In this chapter, the evaluation of behavior-change programs is explored through a series of case scenarios with adolescents, adults, and seniors. While the reduction and elimination of problematic behaviors are usually key outcomes for behavior-change programs, in these stages of life increased emphasis is often placed on the development and mastery of skills that will lead to independent living and working, and successful engagement in social and recreational activities. Throughout this chapter, learners will evaluate the efficacy and effectiveness of behavioral interventions and determine the extent to which outcomes are being achieved that are meaningful and socially significant for the adolescent adult stages of life. Further, learners will be guided to use a logic model to support the development and implementation of a program evaluation framework, while considering the importance of viewing both positive and negative evaluation outcomes as critical to the success of a behavior-change program. In this chapter, entitled "Evaluation-Centered Case Studies from Adolescence to Adulthood," the strengths and limitations of various direct and indirect measures of behavior are critically examined within a bio-psychosocial framework through five case scenarios in home, school, work, and community settings.

Keywords Adolescents · Adults · Seniors · Measurement · Evaluation · Problematic behaviors · Independent living · Engagement · Social activities · Efficacy of behavioral interventions · Program evaluation framework · Implementation

CASE: iv-E6

I Think it is fair to say that this is Working!
Setting: Community Age Group: Adolescence—Adulthood

LEARNING OBJECTIVE:

- Construct an evaluation to demonstrate an intervention program's efficacy and effectiveness.

K. Maich et al., *Applied Behavior Analysis*,
DOI 10.1007/978-3-319-44794-0_8

TASK LIST LINKS:

- **Measurement**
  - (A-11) Design, plot, and interpret data using a cumulative record to display data.
- **Behavior-Change Systems**
  - (F-06) Use incidental teaching.
- **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-07) Evaluate the effectiveness of a behavioral program,
  - (K-10) Arrange for the orderly termination of services when they are no longer required.

KEY TERMS:

- **Cumulative Record**
  - A method of data collection whereby the rate of the response is added to the previous data collection and the display is organized such that the steeper the response, the more rapid the responses (Mayer et al. 2014).
- **Effectiveness**
  - Effectiveness refers to whether a treatment improves outcomes when delivered with typical clients in real-world settings, outside of rigorous research or clinical trial conditions (Marchand et al. 2011; Wells 1999).
- **Efficacy**
  - Efficacy refers to whether a treatment improves outcomes under highly controlled conditions, such as in rigorous clinical trials or research that use experimental designs (Marchand et al. 2011; Wells 1999).
- **Program Evaluation**
  - Evaluations are conducted to determine the extent to which programs are achieving their intended purpose. An evaluation may involve an assessment of a program's processes, procedures, or outcomes (Hogan 2007). The Ontario Centre of Excellence for Child and Youth Mental Health (2016) describes program evaluation as gathering information systematically to use results for making decisions and future program improvement.

I Think It Is Fair To Say That This Is Working!

It was the end of another busy, yet successful, day at the center. Checking his watch, Tom, the supervisor of a social skills program at a local treatment center for children and adolescents with autism spectrum disorder (ASD), was happy to see that he had thirty minutes to debrief with the staff and clean up from the day's program. His group of eight adolescents had just been picked up by their parents a few minutes ago, and he was eager to hear from each of the staff about how they thought the session went.

Tom was hired four weeks ago to support the launch of a new program at the treatment center: a social skills program for adolescents between the ages of 10 and 12 with a diagnosis of ASD. The center had received some new funding to try out and evaluate this new program in the hopes that it would be found to be effective. Everyone hoped that, after this trial period, the center would receive permanent funding to expand this social skills program so that more adolescents could participate, and the center could add it to their list of programs offered year-round to the community.

After working together with his staff to quickly put activities and supplies away, disinfect the tables and chairs, sweep the floors, and take the garbage out, Tom asked the staff to meet in the staff room for a quick meeting before they all left for the day. As they settled into the staff room, making themselves comfortable on the couches, Tom began to share with the staff the conversation he had had earlier that morning with the Center Director Sherrie. Sherrie had told Tom that next month, she had to report back to the funders about the progress of the new social skills program and complete a new funding application. "We have to do a small **program evaluation**," Sherrie said. "The funders are interested in both the **effectiveness** and the **efficacy** of our program." Sherrie went on to tell Tom that the future of the program could be dependent upon whether it was seen to be successful and reminded Tom and the rest of the staff that the current funding was just intended for a short, three-month pilot program. At the end of the conversation, Sherrie asked Tom to meet with her next month for an update so that she could complete her report to the funders. As Tom continued to speak with the staff about this upcoming meeting, his mind started to wander.

He remembered how he felt walking away from Sherrie that morning after their conversation about the program's future, as he was reminiscing he felt a wave of anxiety come over him. *I just started*, he thought, *and I really like it here. My staff are great, the youth seem to be enjoying the program, and parents keep thanking me and my team for the work we are doing. What will happen if the funding is cut and the program ends? What will this mean for the youth? For my staff? And what about me?*

As he looked around the room at his five staff members, he could see that they were listening closely to every word he was saying. "But I like it here. I think we are a great team and working with all of you and in this program is a lot of fun," said Tracey, a twenty-year-old post-secondary student working part-time with the program. "And I need this job to help pay for school," Tracey went on to explain.

Tom interrupted the clearly rising anxiety around him and said, "Let's begin by having a quick look at the data you have all been collecting. This should help to explain our case to the funders." One at a time, each staff member held up the graphs they had been constructing over the last four weeks and provided a very brief summary of the progress the youth were making. The thing that struck Tom was the fact that all of the graphs were so different since they were measuring such different social skills for each adolescent. He did not know how he was going to summarize all of this information to ensure that he could demonstrate success across all of the participants, especially since they are using incidental teaching and turning tasks that each youth enjoys into "teachable moments." He thought about it and suggested a **cumulative record**. When asked what it was by the staff, they discussed that they would be able to track the number of different social skills each person exhibited across all of the sessions. This way, if there were some social skills that were dependent on others or what was happening that day, it would not influence the data.

As the staff listened, they became more and more excited, and the anxiety became a thing of the past. One of the staff members could not contain himself any longer and blurted, "This is fantastic! It has given me a great idea! Let us put together a cumulative graph showing the progress of each youth, and then, we can attach each of the individual graphs to a summary across all youth. We can then give this package to Sherrie to show her that our program is indeed successful."

Matt, a 22-year-old part-time staff member and also a full-time student at the local college, looked at Tracey and shared a somewhat concerned look. "But Tom, while it is great that youth in our program are showing the target social skills more often, how can we tell if it is actually because of our program?" asked Matt. "And what about those who we have been able to systematically fade our involvement with? Do we know if our ability to fade our prompts and supports has anything to do with our program? What about other possible explanations?"

"I agree," said Tracey, "I mean, we know that some have been taking medication, some of been receiving other interventions at the same time, and some have not even attended every session. Can we really just put all the data together and say that we are the reason for the changes in behavior? And is this really what Sherrie is looking for?"

But Tom was not listening to the thoughtful input of his team. His mind was back on all of the ways he could put the data together to not only help with planning the next steps for each student, but also show Sherrie how great the social skills program is doing. He thought that *I could save the program!* Tom looked at his staff, thanked them for all of the great work they are doing, and told them to have a great night. He knew what to do, and he wanted to get started right away.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Describe the similarities and differences between evaluation and research. What considerations will be important for Tom to ensure that he is conducting an evaluation of the social skills program, and not research?

(Q2) When determining whether or not to implement an intervention in an applied setting, would the efficacy or effectiveness of that intervention be of greater importance? Why? Should Tom be concerned about demonstrating the efficacy or the effectiveness of the social skills program?

Processes

(Q3) What would be involved in teaching social skills through incidental teaching? What would be some benefits and drawbacks of the approach from an evaluation standpoint (Fig. 8.1)?

(Q4) What are the strengths and limitations of conducting visual analysis of graphed behavior data? How might you address any limitations in the current study with the cumulative record (Fig. 8.2)?

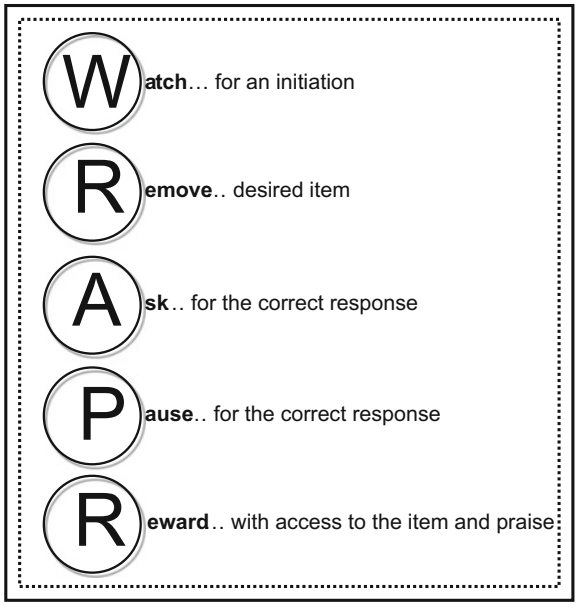


Fig. 8.1 Steps in incidental teaching (Ryan 2011)

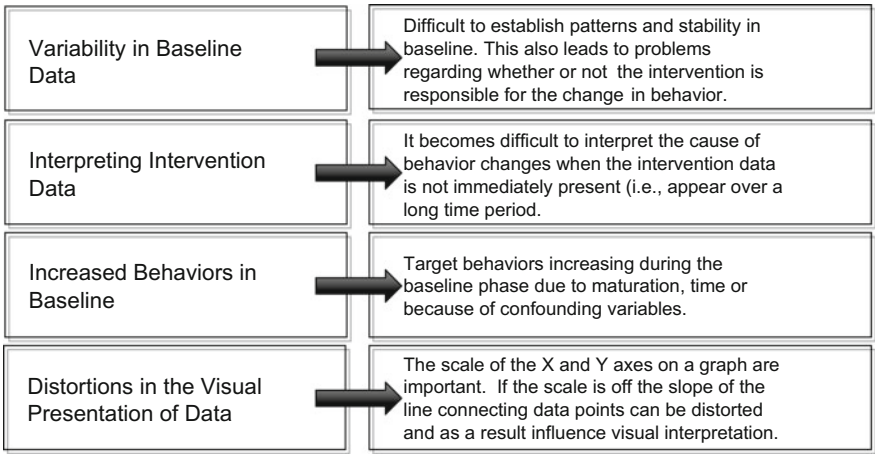
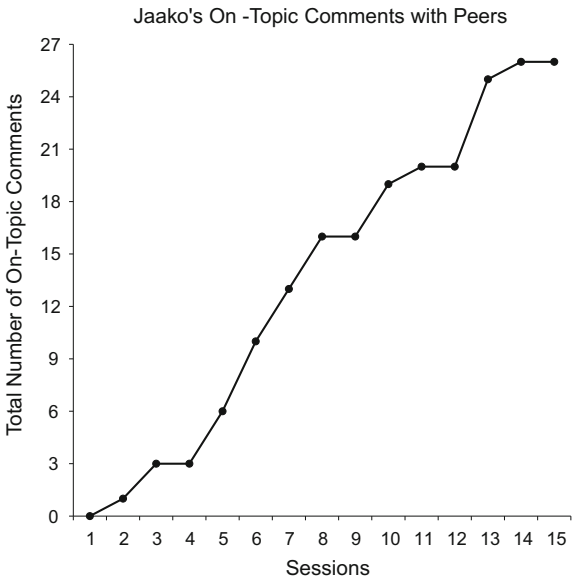


Fig. 8.2 Difficulties with the visual analysis of graphed data (Alnahdi 2015)

Practice

(Q5) Interpret the following cumulative graph for one of the youth. What is the graph demonstrating? In Session 9, how many on-topic comments did Jaako make? What about in Session 13 (Fig. 8.3)?
(Q6) This cumulative graph in Fig. 8.4 looks at if the youth says "Hi" each morning that he comes into the center. Do you think this is the most effective way to graph this data? Why or why not?

Fig. 8.3 Cumulative graph depicting Jaako's on-topic comments to his peers during social skills program sessions



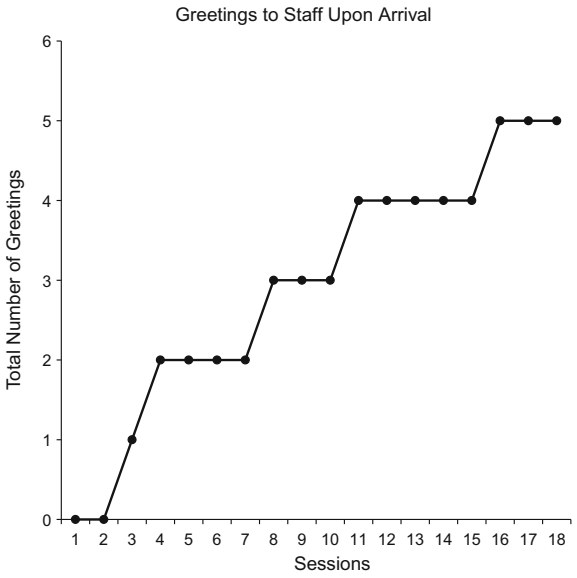


Fig. 8.4 Cumulative graph of one youth in the program's greeting staff each morning at the center

(Q7) Comparing the cumulative graph in Fig. 8.3 to the line graph below, which graph better depicts the frequency of social greetings each day. What is the pros and cons of using each graph (Fig. 8.5)?
(Q8) What confounding variables might pose challenges for Tom? For each confounding variable listed, please outline how you might address the issue.

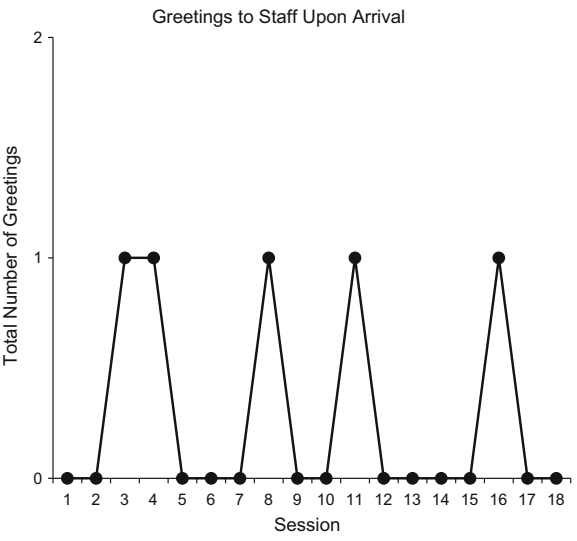


Fig. 8.5 Line graph depicting one youth in the program's greeting staff each morning at the center

Reflection

(Q9) What are the benefits of Tom using a single-subject design as opposed to a group-comparison design for this program evaluation?
(Q10) Knowing that this project was a trial project, what considerations would need to be put into place at the beginning of the program to ensure that clients are prepared for the termination of services (Reference Ethics Box 8.1, Behavior Analyst Certification Board, 2014)?

Ethics Box 8.1

Professional and Ethical Compliance Code for Behavior Analysts

- 2.15 Interrupting or Discontinuing Services.
  (a) Behavior analysts act in the best interests of the client and supervisee to avoid interruption or disruption of service.
  (b) Behavior analysts make reasonable and timely efforts for facilitating the continuation of behavior-analytic services in the event of unplanned interruptions (e.g., due to illness, impairment, unavailability, relocation, disruption of funding, disaster).
  (c) When entering into employment or contractual relationships, behavior analysts provide for orderly and appropriate resolution of responsibility for services in the event that the employment or contractual relationship ends, with paramount consideration given to the welfare of the ultimate beneficiary of services.
  (d) Discontinuation only occurs after efforts to transition have been made. Behavior analysts discontinue a professional relationship in a timely manner when the client: (1) no longer needs the service, (2) is not benefiting from the service, (3) is being harmed by continued service, or (4) when the client requests discontinuation.
- 4.11 Discontinuing Behavior-Change Programs and Behavior-Analytic Services.
  (a) Behavior analysts establish understandable and objective (i.e., measurable) criteria for the discontinuation of the behavior-change program and describe them to the client
  (b) Behavior analysts discontinue services with the client when the established criteria for discontinuation are attained, as in when a series of agreed-upon goals have been met.

Additional Web Links
Program Evaluation Resources
http://www.cdc.gov/eval/resources/
Planning Evaluation
http://www.excellenceforchildandyouth.ca/evaluation-module-1-planning-evaluation
Incidental Teaching
http://www.special-learning.com/article/incidental_teaching

CASE: iv-E7

Does it matter WHAT worked?
Setting: School Age Group: Adolescent—Adulthood

LEARNING OBJECTIVE:

- Design and evaluate a school-wide positive behavior support program.

TASK LIST LINKS:

- **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.
  - (B-11) Conduct a parametric analysis to determine the effective values of an independent variable.
- **Behavior-Change Systems**
  - (F-02) Use token economies and other conditioned reinforcement systems.
- **Measurement**
  - (H-01) Select a measurement system to obtain representative data given the dimensions of the behavior and the logistics of observing and recording
  - (H-03) Select a data display that effectively communicates relevant quantitative relations
- **Implementation, Management, and Supervision**
  - (K-06) Provide supervision for behavior-change agents
  - (K-07) Evaluate the effectiveness of the behavioral program

KEY TERMS:

- **Positive Behavior Support**
  - Positive Behavior Support (PBS) is an application of behavior analysis. Often described as a system, PBS begins with understanding the function of problematic behaviors, and then focuses on replacing the problematic behavior with functionally equivalent, yet more socially appropriate skills. This reduces the potential that intrusive or aversive interventions will be needed. Additional components of PBS may include lifestyle changes, person-centered values, a life span perspective, ecological and social validity of interventions, and a focus on prevention and empirical validation of behavior-change procedures (Carr et al. 2002).

- **Component Analysis**
  - Intervention programs, either to reduce problematic behaviors or increase pro-social behaviors, are often made up of various components, or parts. For example, a parent training program might be made up of (a) increasing positive parent–child interactions, (b) using time-out, (c) communication skills, and d) parental consistency. A component analysis is an attempt to determine which components, or parts, of the intervention program, either alone or in combination, are associated with larger or smaller effects on the target behaviors (Kaminski et al. 2008; Ward-Horner and Sturmey 2010).
- **Experimental Design**
  - Single-subject research is one of the most commonly used approaches to research in applied behavior analysis. Single-subject research focuses on the measurement of changes within each participant taking part in a study, where the participant acts as their own control, rather than average changes in groups of participants, as is often the focus of group design studies. A single-subject experimental design, such as an ABAB withdrawal design (A = baseline phase, B = treatment phase), or a multiple baseline design, attempts to document causal or functional relationships between the manipulation of the independent variable, such as the introduction and withdrawal of the treatment, and changes in the dependent variable, such as decreases or increases in behavior (Horner et al. 2005).
- **Parametric Analysis**
  - Statistical practices whereby it relies on the assumption that the shape of the distribution is a normal distribution from the sample it is derived from and that there are parameters (means and standard deviations) in this assumed distribution (Hoskin n.d.).

Does It Matter WHAT Worked?

Jennifer, the principal of Sunnyview High School, just left yet another administrative meeting feeling uneasy about the future of her students, her staff, and her school. The meeting that she had attended was chaired by the superintendent of schools in her district. In attendance were most of the principals from schools across the wide and long geographic area in which her school resided. The focus most of the day was on addressing decreasing behavioral difficulties and poor achievement among some of the schools: including Sunnyview. Sunnyview was recognized earlier in the school year (and the last school year, and the one before that) as one of the schools experiencing such challenges, and Jennifer—like her colleagues in similar situations—had been asked to provide an update to her colleagues. After her update, the superintendent said that she would like to send a few school

administrators to a workshop being held next week on *s*chool-wide **Positive Behavior Support**. She identified Jennifer, along with four other principals, as individuals she would like to see participate in this workshop. The Superintendent went on to say that at the next meeting of this group–eight weeks away–she would like the five principals, including Jennifer, to share how they have put PBS into practice, and to share the progress they are making in turning their schools around.

As Jennifer started her car and began to drive slowly back to her school, she kept asking herself questions: *How am I going to lead this change in my school? Can I really do this? And in just eight weeks?* Jennifer began to feel her stress build as she thought about where she might even begin—much less end.

After her return from the series of PBS-intensive professional development activities, Jennifer called a meeting of her school administrative, senior teaching staff members, and her heads of guidance and special education. After welcoming everyone to the meeting, Jennifer began to share with her team her experience at the administrative meeting and the expectations of the superintendent. Jennifer went on to say, "We will have to report back in only about seven weeks. That does not give us a lot of time. But I am confident that if we support each other and draw on each other —our knowledge, our experiences, our expertise—we can bring about some of the changes we want to see in our students, and our school. Let us begin by identifying the challenging behaviors you are experiencing. Who would like to begin?"

One at a time, the teachers each shared with Jennifer the challenging behaviors they were experiencing with students in their classrooms. Jennifer listened carefully and worked hard not to interrupt, even as she was shocked at some of this new-to-her information. As she absorbed the ongoing commentary, the school's secretary busily took minutes on her notepad, and she took some additional notes, trying hard to capture what each teacher shared. After all twelve of the teachers finished describing the challenging behaviors they were experiencing, Jennifer took a deep breath and looked back at the notes, then at her staff, for what seemed like several very long minutes.

Without saying a word, Jennifer stood up and began to write on the large white-board behind her. On the left side of the board, she began to list all of the challenging behaviors described by the teachers. As she listed the behaviors, she noticed from the corner of her eye some of the teachers nodding as they saw their concerns reflected. After listing all of the behaviors on the left side of the board, Jennifer wrote three headings on the right side of the board: (1) school-wide/classroom-wide preventive practices; (2) specialized group programs; and (3) specialized intensive individual-ized programs. She then began to organize the behaviors listed under each heading.

Jennifer then turned around, faced her staff, and said: "I would like to propose a way for us to work together as a team to support our students and turn our school around. Last week, I attended a workshop on school-wide Positive Behavior Support and I think, based on the challenging behaviors you have been facing, it might work well here. Some of the challenging behaviors that you shared, like disrespectful behavior, could be a focus school-wide, with each of us modeling and reinforcing respectful behavior in all parts of the school throughout the whole day. We may want to think of a school-wide reinforcement system. Other challenging behaviors you

listed, like social skill difficulties between students in your classrooms, could be a focus for specialized instructions for small groups of students. Still other challenging behaviors, like specific behavioral difficulties experienced by only a select few students—for example, non-compliance to teacher requests and aggressive outbursts toward peers—can become the focus of specialized intensive individualized programs. We have funding for all of it and a promise of its renewal if we get results. We just need, at this point, the initiative and enthusiasm to put it into place."

The teachers in the room were silent as they took in what Jennifer had explained. One by one, the teachers began to nod in agreement. "I like it. I really like how we can all work together to make this happen," said Frank, a senior teacher with more than thirty years of experience. "Me too. I can see the potential in this plan," said Fareed, another senior teacher with twenty-five years of experience. After hearing that the most senior teachers were in support, the other teachers in the room began to express their support for this idea.

Jennifer, in turn, was getting excited: "It is great that you are all in support of this idea. I will contact a behavior analyst to work with us over the next seven weeks to design and implement the intervention programs and help us measure our progress."

"But Jennifer," interrupted Fareed, with a background in applied behavior analysis himself, "with so many parts to this idea for a really complex intervention program, how will we know which part is contributing to which change? How will we know if we are making a difference? Will the behavior analyst do a **component analysis**? Should we start all of the interventions at the same time or maybe stagger the start of each part, maybe as part of some sort of **experimental design**, to help us see which is making a difference?" Jennifer, *thinking* that these were excellent questions but not quite knowing how to respond and feeling the pressure of having to provide an update to her colleagues and the Superintendent in just seven weeks, quickly replied, "As long as we are seeing improvement, does it really matter which part is making a difference?" She thought back to her university days and wondered if she would need to complete **parametric analyses** or if using a single-subject design would suffice. With that, Jennifer thanked the teachers for attending the meeting and said that a behavior analyst will be in touch with each of them to get started over the next week.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) In their article "Positive Behavior Support: Evolution of an Applied Science" (Carr et al. 2002), the authors assert: "Were it not for the past 35 years of research in applied behavior analysis, PBS could not have come into existence" (p. 5). Do you agree or disagree with this statement? Please explain your response (Table 8.1).
(Q2) Determining the function of behavior is a key component of positive behavior support. What is the difference between a functional analysis and a functional behavior assessment? When would you do one over the other for specific students (Fig. 8.6)?

Table 8.1 Data collection in social skills teaching

Data collection method	How could this data be used to evaluate the social skills group?
Frequency	
Rate	
Duration	
Latency	
Interresponse time	
Percent of occurrence	
Trials to criterion	

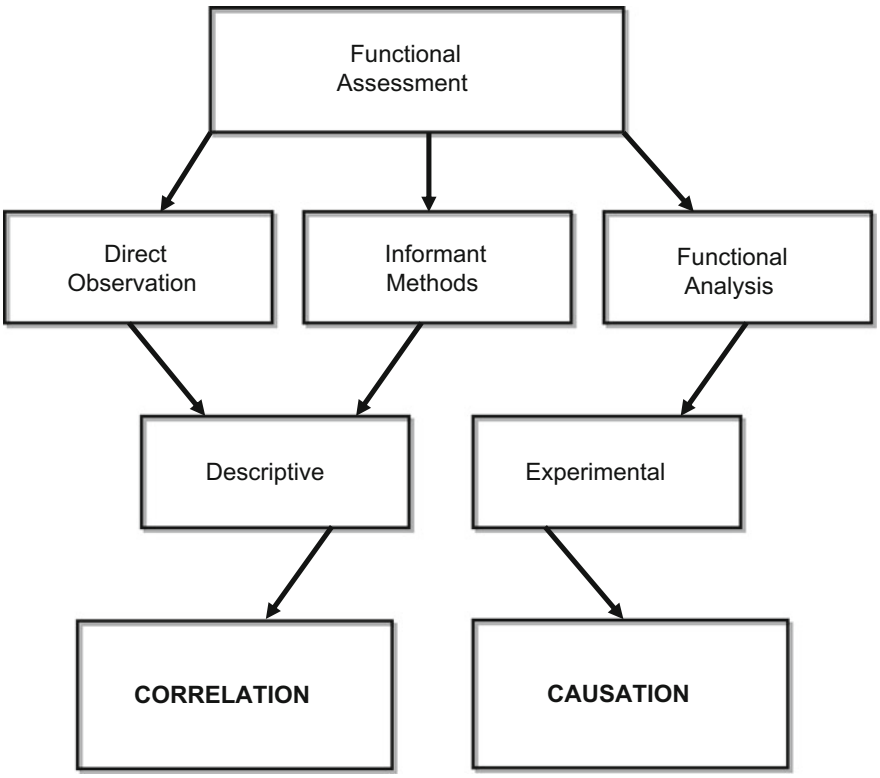


Fig. 8.6 Correlation versus causation within a functional behavior assessment (Educate Autism 2016)

Processes

(Q3) Jennifer outlines a tiered approach to supporting students throughout her school. This approach includes school-wide strategies for all students, specialized instructions for small groups of students, and specialized intensive individualized programs for a small number of students. How might you prepare both staff and students for the implementation of this tiered approach (Fig. 8.7)?
(Q4) An important component of positive behavior support is person-centered planning. What does this mean, and how might it apply to Jennifer's situation (Fig. 8.8)?

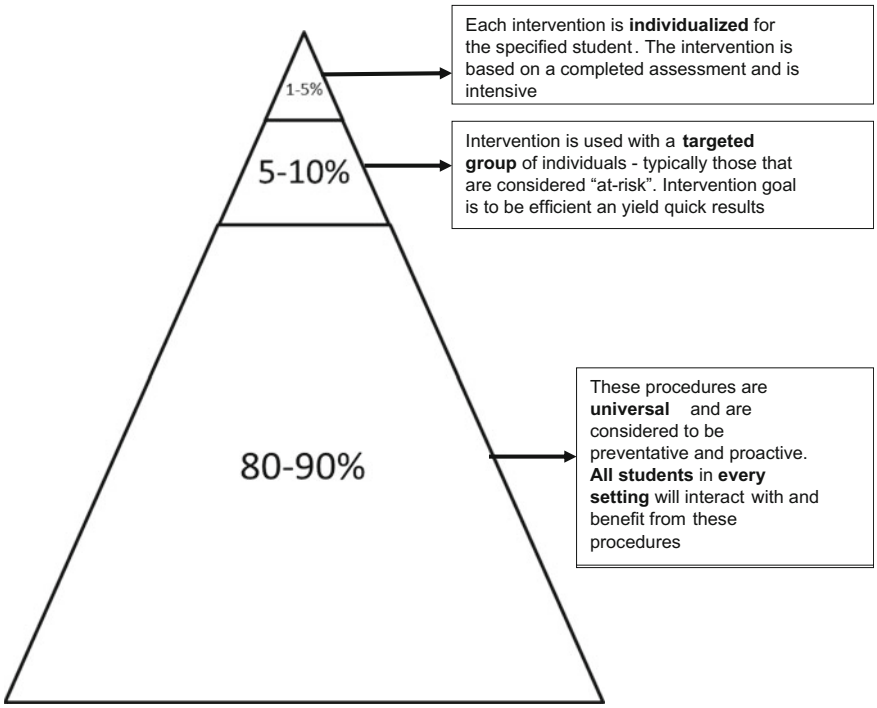


Fig. 8.7 Pyramid model for school-wide positive behavior supports can be used for both academic and behavior systems (Elsbree, n.d.)

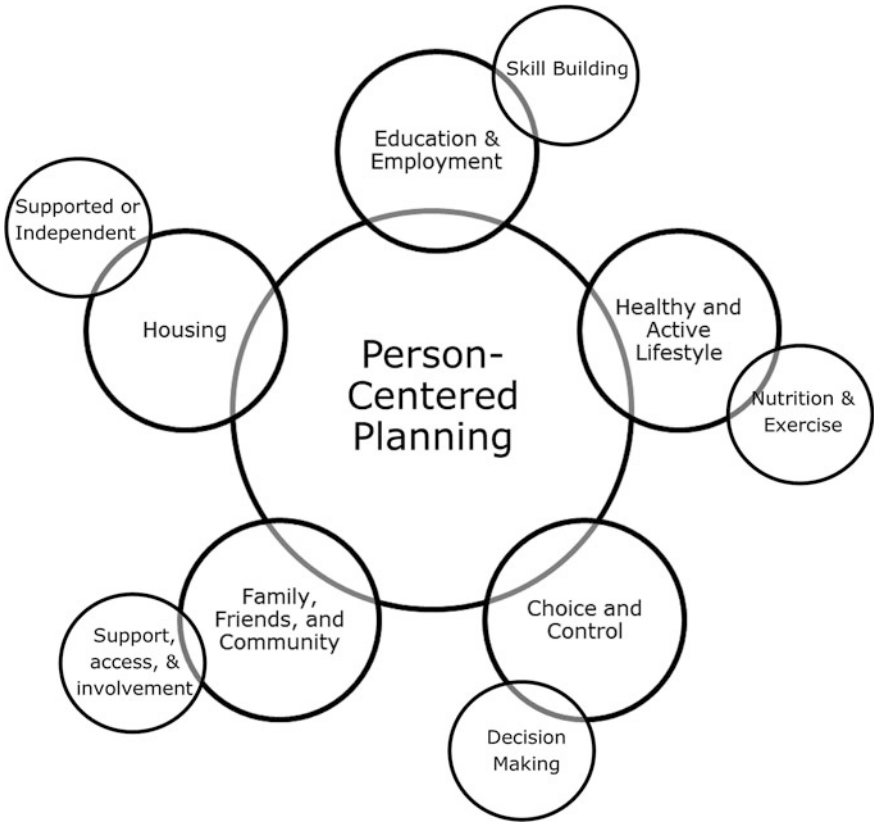


Fig. 8.8 Considerations when utilizing person-centered planning (Caring Homes Group, 2016)

Practice

(Q5) As principal, Jennifer's role requires that she not only focus on the behavior of students, but also determine how she will encourage and support her teachers and staff throughout the implementation of this school-wide behavior-change initiative. How might Jennifer apply the principles of applied behavior analysis to encourage engagement and program adherence in her teachers?

(Q6) When implementing the primary prevention for 80 % of students in the PBS program, the main focus is on clearly identifying expectations, teaching expectations and behaviors, and reinforcing the targeted behaviors. Often conditioned reinforcement systems and token economies are used school-wide to reinforce these behaviors. Design a school-wide reinforcement system and indicate how you will use it to track data of skill increases within the school.

(Q7) Using the school-wide PBS evaluation questionnaire below, what type of data will this produce? Will this information be able to be evaluated with parametric analyses? Why or why not (Table. 8.2)?

Table 8.2 Positive behavior intervention support (PBS) evaluation questionnaire (Todd et al., 2012)

SET MATCHING EXERCISE

Interview Questions	*Evaluation Questions*
What information do you use for collecting office disciplines referrals? a) What data are collected? b) Who collects those data?	**B2.** Do 90% of the staff asked state that teaching of behavioral expectations to students has occurred this year?
What do you do with the office discipline referral information? c) Who looks at those data? d) How often do you share them with other staff and whom do you share them with?	**B3.** Do 90% of team members asked state that the school wide program has been taught/reviewed with staff on an annual basis?
What type of problems do/would you refer to the office rather than handling in the classroom?	**B4.** Can at least 70% of 15 or more students state 67% of the school rules?
What is the procedure for handling extreme emergencies in the building (i.e. stranger with a gun?	**B5.** Can 90% or more of the staff asked list 67% of the school rules?
What are the school rules/motto and what are they called?	**C2.** Do 50% or more students asked indicate they have received a reward (other than verbal praise) for expected behaviors over the past two months?
Have you received/given a "gotcha" (positive referral) in the past 2 months?	**C3.** Do 90% of staff asked indicate they have delivered a reward (other than verbal praise) to students for expected behavior over the past two months?
Has the school-wide team taught/reviewed the school wide program to staff this year?	**D2.** Do 90% of staff asked agree with administration on what problems are office-managed and what problems are classroom–managed?
How often does the (PBIS) team meet?	**D4.** Do 90% of staff asked agree with administration on the procedure for handling extreme emergencies (stranger in building with a weapon)?
Do you (administrator) attend team meetings consistently?	**E2.** Can the administrator clearly define a system for collecting & summarizing discipline referrals (computer software, data entry time)?
Does the (PBIS) team provide faculty updates on activities & data summaries?	**E3.** Does the administrator report that the team provides discipline data summary reports to the staff at least three times/year?
Do you have an out-of-school liaison in the state or district to support you on positive behavior support systems development?	**F1.** Does the school improvement plan list improving behavior support systems as one of the top 3 school improvement plan goals?
Have you taught the school rules/behavior expectations to your students this year?	**F5.** Is the administrator an active member of the school-wide behavior support team?
What are your school improvement goals?	**F6.** Does the administrator report that team meetings occur at least monthly?
	G2. Can the administrator identify an out-of-school liaison in the district or state?

Reflection

(Q8) How would you respond to Jennifer's statement: "as long as the behavior challenges are improving, does it matter which part of the intervention program is making a difference?" Please explain your response.
(Q9) *Thinking* about the many ethical considerations that surround the implementation of all applied behavior analysis-based intervention programs is consent required from all students in the school and/or their parents before Jennifer can implement any aspects of this school-wide intervention? Would this vary for different students in the different groups of interventions(Reference Ethics Box 8.2, Behavior Analyst Certification Board, 2014)? Why or why not?

Ethics Box 8.2

Professional and Ethical Compliance Code for Behavior Analysts

- 4.02 Involving Clients in Planning and Consent.
  Behavior analysts involve the client in the planning of and consent for behavior-change programs

(Q10) Given the complexity of the PBS model and the short time frame that the school is working with, which components of the PBS model would be the most effective in making the largest changes?

Additional Web Links
Positive Behavior Support
http://www.nasponline.org/resources-and-publications/resources/mental-health/positive-behavior
Association for Positive Behavior Support
http://www.apbs.org/
The Six Steps of PBS
http://challengingbehavior.fmhi.usf.edu/explore/pbs/process.htm
What is School-wide PBIS?
https://www.pbis.org/school

CASE: iv-E8

We cannot Evaluate our Program!
Setting: Community Age Group: Adult

LEARNING OBJECTIVE:

- Employ a logic model to support preparations for program evaluation.

TASK LIST LINKS:

- **Measurement**
  - (A-09) Evaluate the accuracy and reliability of measurement procedures.
- **Experimental Design**
  - (B-03) Systematically arrange independent variables to demonstrate their effects on dependent variables.
- **Measurement**
  - (H-01) Select a measurement system to obtain representative data given the dimensions of the behavior and the logistics of observing and recording.
- **Implementation, Management, and Supervision**
  - (K-07) Evaluate the effectiveness of the behavioral program.

KEY TERMS:

- **Logic Model**
  - A logic model is a tool used as part of the program evaluation process that describes linkages between program resources, components, activities, outputs, and outcomes and helps to describe program effectiveness (Bellini and Pratt 2011).
- **Output Measures**
  - Output measures refer to the products of a program's activities. These are often reported as the number of units such as the number of clients served or the number of hours of service delivered (Carman 2007).
- **Outcome Measures**
  - Outcome measures refer to the impact of a program's activities. Examples include an increase in knowledge or skills or improvements in behavior (Carman, 2007).

We Cannot Evaluate Our Program!

Gian, the supervisor of a skills training program for teenagers with developmental disabilities, was preparing the agenda for an upcoming meeting with this staff. Three months ago, he had received a letter from the government department that had long-funded the program. In the embossed letter that came to his mailbox—and not his email inbox—Gian was told that a review of programs funded by this department would be conducted and the skills training program that Gian supervises may be one of the programs carefully examined to see whether future funding would continue. The letter went on to describe that the department is planning to review how available funds are invested, seeking evidence from programs to inform decisions that will be made about future funding allocations in the next six months and beyond.

Up to now, he thought, *the staff have been keeping great notes summarizing how each session has gone, how many participants attended, any questions or concerns raised, and have been completing the checklists confirming that the curriculum we have planned is covered in each session. Participants have also been sending in short feedback surveys comprised of open-ended questions and yes/no questions, and the large majority are positive. Would this be enough to demonstrate the value of the program? Is this the "evidence" that the Ministry would want?* Gian was not sure.

Today, three months after receiving the initial letter, he had not received any further correspondence about this evaluation plan, and he was still not sure what next steps to take. *Maybe we should just hope that this program would not be part the review after all,* he thought. As he thought about this further and with more maturity, Gian felt that he should try to get ahead of any potentially imposed evaluations, and to do more to engage his team in evaluating the program on their own.

After *thinking* about this for several more minutes, Gian doodled "Program Evaluation" at the top of his notepad as the first agenda item to be discussed at his team meeting later that week. He then placed a call to a colleague, Angela, who worked in the research and evaluation branch of his organization. *Maybe she can help,* he silently hoped. And—he was right.

During the team meeting, Angela, a Board Certified Behavior Analyst, began their group discussion by asking each staff member to take out a piece of paper and write out what the skills training program does and how the training happens. After several minutes, when everyone has stopped writing, Angela asked each staff person, one at a time, to read their ideas out loud. Gian was quite surprised at what he heard, listening and taking notes while taking a back seat to the actual events of the day. While his staff each provided valid, truthful statements about the program, they each offered quite different descriptions of the program's day-to-day happenings.

After much deliberation, discussion, consultation, and collaboration, Angela suggested that what is needed is a **logic model**, a tool to help develop a single, agreed-upon description of the program, its purpose and components, and its **output** and **outcome measures.** She went on to explain that, "In order to determine

if the program is meeting its goals, we will need to first agree on a single description of the program. Once we agree on how we will describe the program, we can then —and only then—determine well how we will measure it." Gian's staff looked a little concerned. They had been used to collecting frequency, percent of occurrence, duration, and latency data—all which they thought would prove the effectiveness of the program.

Angela set up meetings with the team once every two weeks to continue to develop the logic model together. After several months of work, the team produced a single agreed-upon description of what the program does, how it does it, and what it hopes to achieve.

Angela, who by then had arranged for some of her workday to be spent with this team for at least the next six months, spoke with the team about the importance of moving toward a more objective approach to measuring their program. She stressed the importance of building on the subjective accounts of client progress they had already collected by introducing more objective behavioral data on the progress of each participant.

Angela then asked the staff if they had any questions at this point. After several beats of silence, Marcus, a senior staff member tentatively asked, "I don't really get why we are doing this evaluation in the first place. Am I being evaluated?" Several other staff members joined Mark in expressing their concerns out loud for the first time since this process began.

"I don't understand why we are doing this either. What is wrong with what we have been doing, exactly?" questioned Bruno.

"And how will this information be used?" requested Amber, with stress and concern reflected in her cadence and tone. "I am not sure I am comfortable with all this. I mean, what will happen if it turns out that we are not meeting all of these goals? Will we be penalized? Will I? And who will be looking at this data?"

The room erupted in questions. Angela and Gian looked at each other with concern. *What have I done?* thought Gian to himself. *Why don't they see the importance of this and how this will help us? What are they afraid of? What are they worried about? Don't they get that it is not about us; that it is about our clients?*

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Describe the difference between measurement, evaluation, and research in applied behavior analysis.
(Q2) How might visual representation of a program through the construction of a logic model be helpful to Gian, Angela, and the team?

Processes

(Q3) Explain the role of a logic model in the program evaluation process.
(Q4) What would a logic model provide that other data may not provide (i.e., frequency, rate, trial to criterion).

Practice

(Q5) Completing the figure below, what other ABA data collection measures could be used to evaluate the program?
(Q6) Task list link, K-10, states that the behavior analyst should prepare for the orderly termination of behavior services (BACB, 2012). How would a program evaluation address this principle?

Reflection

(Q8) Is there something that Gian could have done to help prevent these concerns for occurring? If so, what actions could he have taken?
(Q9) Why is it important to include both quantitative and qualitative data in the program evaluation?
(Q10) How might Gian create a climate in which evaluation is seen as safe and a driver of continuous improvement?

Additional Web Links
Recommended Practices: Being an Evidence-Based Practitioner
http://challengingbehavior.fmhi.usf.edu/do/resources/documents/rph_practitioner.pdf
Program Evaluation Checklist
http://www.actcommunity.ca/rasp/information-for-families/program-evaluation-checklist/
Logic Model
http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html

CASE: iv-E9

"It worked for them; it will work for us."
Setting: Employment Age Group: Adult

LEARNING OBJECTIVE:

- To recognize opportunities and limitations associated with generalizing research to practice.

TASK LIST LINKS:

- **Experimental Design**
  - (B-02) Review and interpret articles from the behavior-analytic literature.
- **Behavior-Change Systems**
  - (F-04) Use precision teaching.

KEY TERMS:

- **Direct Replication**
  - Direct replication refers to an experiment that attempts to precisely duplicate a previous study (Barlow 2009).
- **External Validity**
  - External validity refers to the extent that the findings of a study can be generalized to other individuals, settings, or target behaviors (Horner et al. 2005).
- **Replication**
  - Replication refers to repeating a previous study in an attempt to determine the extent to which the findings will hold true. Further, within single-subject research, replication may also refer to repeating a certain condition within an experiment to determine the extent to which the findings of previous conditions will hold true (Horner et al. 2005).
- **Systematic Replication**
  - Systematic replication refers to an experiment that attempts to duplicate a previous study, but varies one or more aspects of the earlier study (Barlow 2009).

It Worked for Them; It Will Work for Us

Raymundo, the manager of a local department store, arrived for work early, looking forward to getting a head start on his long "to-do" list. As he settled into his office at the back of the store, he noticed the message light flashing on his desk phone. It was a message from Stephanie, the behavior consultant from the community support service down the street. Stephanie was calling to see how Vicky was doing.

Three months ago, Vicky began working part-time at the department store. Raymundo still remembers the first phone call he received from Stephanie asking him if he had any part-time positions available. During that call, Stephanie explained that her program supports adults with developmental disabilities in their independent living, and, as with many of the individuals she supports, this often involves supporting individuals to acquire employment within their local community. Raymundo recalls listening especially carefully to Stephanie during that initial call, as she explained that she was calling on behalf of Vicky, a 45 years old with a developmental disability. At that time, Stephanie had also explained that she had consent from both Vicky and her family to contact him in order to explore the possibility of employment for Vicky. Although he had been a little nervous at the time, as he did not have any experience supporting individuals with developmental

disabilities at work, as a life-long volunteer in his town and neighborhood, Raymundo remembers being happy with the possibility that his store might be able to help to make an important difference in someone's everyday life.

That was three months ago, thought Raymundo, as he wrote down Stephanie's updated contact information. *Things had started off so well, then.* Lately, however, his floor supervisors had become concerned. According to the reports he had been receiving, Vicky seems to be doing very well following instructions and completing tasks such as placing items on the shelves, sorting returned items, placing price stickers on items, and keeping the sections she is working in neat and clean and up to standard. His supervisors, however, have had to respond to several customer complaints about Vicky over the past few weeks. Customers have complained, for example, that Vicky asks too many questions, speaks too loudly and, at times, is abrupt and rude (according to their perceptions).

Most recently, a customer reported that after being greeted in a friendly manner by Vicky, Vicky became overly interested in a tablet computer that the customer was holding. Vicky asked the customer if she could see it and even use it. After several minutes of showing Vicky the tablet, the customer—who was in a rush and wanting to proceed with her shopping—told Vicky that she was on a tight schedule and had to get her shopping done. Vicky became upset when the customer took her tablet away, followed the customer down several aisles and, in a very loud voice, continuously asked the customer to stop and show her the tablet. The customer eventually went to the customer service desk for assistance.

I am not sure what has changed, thought Raymundo. *Hopefully, Stephanie can turn this around. I am not sure how many more incidents we can take. While the team are very supportive, everyone is concerned about the increase in complaints recently.* Raymundo picked up the phone, called Stephanie, and scheduled a meeting with her later that week.

In preparation for the meeting, Raymundo searched online for examples of how others have supported employment for adults with developmental disabilities. After reading several articles, Raymundo was becoming concerned. Although there were no shortage of examples of interventions that others have used in employment settings to address challenging behaviors, the interventions seemed very complex and way too time-consuming. *I can't add even more to my staff members' workload, and this certainly would not be in their current job description,* he thought. *And the training that would be involved would be far too extensive—way beyond what I was imagining.* After about a half hour of very detailed searching, Raymundo came across a case in a different environment which a teacher in an elementary classroom used a method called **Differential Reinforcement of Other Behavior** to reduce inappropriate social skill behaviors in children with autism spectrum disorder. Though the terminology and its clinical implications were far beyond his areas of interest and ability, he still recognized that he had found a good thing. *This is it,* thought Raymundo. *I think that we could do something like this.*

As he sat down to meet with Stephanie, as planned, Raymundo was excited to share what he had found. *If this worked for them, it should work for us,* he thought. With that, he began to outline his plan to Stephanie. As she listed, Stephanie

became concerned and her mind became consumed with clinical care. *Was there enough **external validity** to support the use of this approach for what Vicky is struggling with? Is there any evidence to support the efficacy and effectiveness of this approach for Vicky's situation? Has this approach been **replicated**, either through a **direct replication** or a **systematic replication**? And did these replications result in enough evidence to support the use of this intervention with Vicky in this setting?* Stephanie was, of course, concerned and did not want to rush into an intervention plan without quite a bit more research into processes and procedures.

As she listened to Raymundo explain what he had found and how he was going to implement this in his store to support Vicky, she tried to determine how she would engage Raymundo in a critical review of this intervention while acknowledging the work he has done and being supportive of the steps he has taken. *I don't want to discourage him*, she thought, *and we have developed a very positive rapport that I don't want to damage.*

"Well," said Raymundo looking up at her from where had been excitedly reading and gesturing, "What do you think?"

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) What is meant by evidence-informed practice in applied behavior analysis?
(Q2) What types of evidence can inform the practice of behavior analysts?

Processes

(Q3) Should Stephanie focus on efficacy or effectiveness of research studies when looking for evidence to inform the types of supports provided to Vicky? Please explain your response.
(Q4) What components of a research study should behavior analysts focus on when attempting to generalize from research to their practice (Table 8.3)?

Table 8.3 Efficacy versus effectiveness (Gartlehner et al., 2006)

Efficacy	Effectiveness
Tests whether an intervention produces the desired results under ideal circumstances (i.e., clinical lab, etc.)	Determines whether an intervention produces the desired results in the natural setting (i.e., classroom)

Practice

(Q5) How might Raymundo determine the external validity of the studies he is reviewing (Table 8.4)?
(Q6) When seeking research to inform your practice, would a direct replication study or a systematic replication study be of greater value? Why?
(Q7) How could you determine if an intervention was evidence based? What does it mean for something to be evidence based (Table 8.5)?

Table 8.4 Types of validity (University of Calgary, 2005)

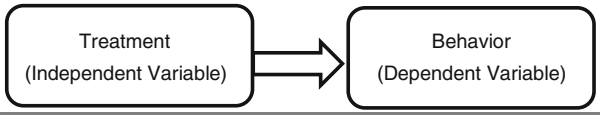
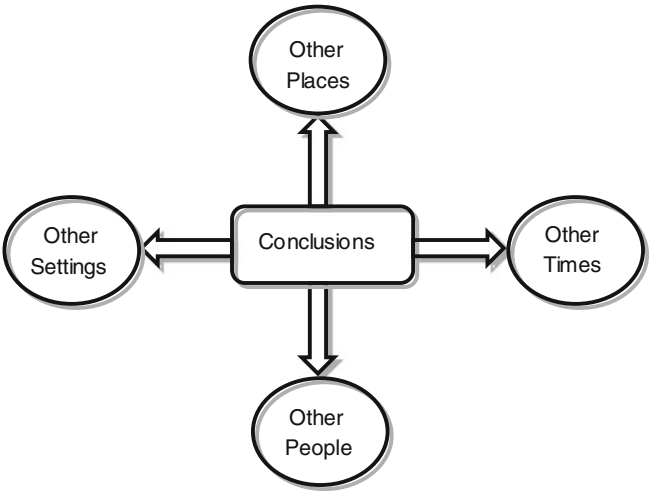
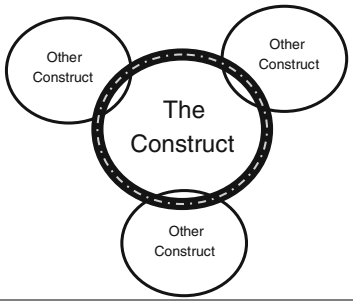
Internal validity	
External validity	
Construct validity	

Table 8.5 Scientific merit rating scale (SMRS) when determining if an intervention is evidence based (National Autism Project 2015)

Variables in SMRS		Sample variables considered to give number rating from 1–5
1. Research design	Group design	• Number of groups • Size of groups (N) • Design (i.e., random) • Data loss
	Single-subject designs (not including alternating Treatment)	• Number data points • Number of reversals • Number of Participants • Data loss
	Single-subject designs (alternating Treatment	• Number of data points • Carryover effects minimized • Number of participants • Data loss
2. Measurement of dependent variables	Test, scale, checklist, etc.	• Standardized vs. non-standardized • Are data collectors blind?
	Direct behavioral observation	• Interobserver Agreement (IOA) • Continuous vs. discontinuous data collection • % of sessions where IOA collected
3. Measurement of independent variable		• Implementation accuracy • % of sessions where implementation accuracy measured • IOA for treatment fidelity
4. Participants ascertainment		• How participants were assessed and by whom
5. Generalization and maintenance of intervention effect(s)		• Generalization and maintenance collected

Reflection

(Q8) Do you agree with the concerns raised by Stephanie? Why or why not?
(Q9) How might you address these concerns while still maintaining a positive professional relationship?
(Q10) Why is maintaining a positive professional relationship important?

Additional Web Links
External Validity
http://www.socialresearchmethods.net/kb/external.php
Planning and Conducting Program Evaluation
https://www.fraserhealth.ca/media/2009-05-11-A-Guide-to-Planning-and-Conducting-Program-Evaluation-v2.pdf
Evidence-Based Practices for ASD
http://autismpdc.fpg.unc.edu/evidence-based-practices

CASE: iv-E10 Guest Authors: Sharon Jimson and Renee Carriere

GUEST AUTHORS

Sharon Jimson, MADS, BCBA
Community Consultants
sjimson@wgh.on.ca
Renee Carriere, MADS, BCBA
Regional Support Associates
rcarriere@wgh.on.ca

Raja's Decreasing Disruptive Behavior
Setting: Home Age Group: Adolescence to Adulthood

LEARNING OBJECTIVE:

- To describe the strengths and limitations of direct and indirect measures of behavior.

TASK LIST LINKS:

- **Measurement**
  - (A-06) Measure percent of occurrence.
  - (A-09)Evaluate the accuracy and reliability of measurement procedures
  - (A-14) Design and implement choice measures.
- **Experimental Design**
  - (B-01) Use the dimensions of applied behavior analysis (Baer et al. 1968) to evaluate whether interventions are behavior analytic in nature.
- **Fundamental Elements of Behavior Change**
  - (D-21) Use differential reinforcement (e.g., DRO, DRA, DRI, DRL, DRH).
- **Identification of the Problem**
  - (G-02) Consider biological/medical variables that may be affecting the client.
- **Measurement**
  - (H-01) Select a measurement system to obtain representative data given the dimensions of the behavior and the logistics of observing and recording.
- **Assessment**
  - (I-03) Design and implement individualized behavioral assessment procedures.
  - (I-05) Organize, analyze, and interpret observed data.
  - (I-06) Make recommendations regarding behaviors that must be established, maintained, increased, or decreased.

- **Intervention**
  - (J-13) Select behavioral cusps as goals for intervention when appropriate.
- **Implementation, Management, and Supervision**
  - (K-10) Arrange for the orderly termination of services when they are no longer required.

Professional and Ethical Compliance Code for Behavior Analysts:

- Avoiding Harmful Reinforcers (4.10)

KEY TERMS:

- **Direct measurement**
  - Direct measurement of behavior involves actually observing episodes of the target behavior under study (Cooper et al. 2007).
- **Indirect measurement**
  - Indirect measurement of behavior involves gathering secondhand information about the target behavior under study. Examples include interviews with parents, teachers, or professionals who may be able to provide insights into the target behavior under study (Cooper et al. 2007).
- **Intellectual disability**
  - An intellectual disability refers to limitations in both intellectual functioning (i.e., IQ) and adaptive behaviors such as social skills and daily living skills (Crocker et al. 2006).

Raja's Decreasing Disruptive Behavior

Raja is a thirty-six-year-old woman who has been assessed by a psychologist to be functioning within the moderate range of **intellectual disability**. She has been residing in a group home with the same two house-mates since she moved into the residence eight years ago. The home is fully supported with two full-time staff members during all waking hours, and one staff member who remains awake during the night shift. Prior to this placement, Raja lived with her mother in their small suburban home. She was placed with the current residential agency when her maladaptive behaviors became too difficult for her mother to manage in the home. Raja began engaging in minor property destruction in the form of ripping and tearing household furnishings (curtains and linens), as well as breaking small household items by pulling out cords or snapping them in pieces.

Prior to Raja moving in, a planning meeting was held between the new team and Raja's mother, as a result of the planning meeting a number of environmental modifications were made to help support her. As such, the home used frosted glass

windows in lieu of curtains, all kitchen appliances were kept out of sight in a cabinet until needed for use, and living room electronics were stored in cabinets with Plexiglas fronts to ensure the cords were inaccessible. At that time they decided to limit Raja's smoking too, since it may be a danger to the environment if she did not put it out properly and her health. Since moving into the new residential setting, Raja's maladaptive behavior has escalated to include ripping the clothing off herself and others. She has also begun to target minor items in the home such as books, bills, data collection sheets, or other papers left within sight.

Last year, the agency placed a referral for clinical support from their local behavior support provider. At that time, a behavior analyst was assigned and conducted a full functional assessment of behavior including biopsychosocial variables. A meeting was held with Raja, her mother, and the agency where a full health review screen was completed. The family noted a history of seasonal allergies, and a broken wrist as a child which has since healed. Otherwise, Raja was reported to be in good overall physical health. She has a family doctor whom she sees regularly as he monitors her use of birth control to regulate her menses, as well as lorazepam (Ativan) to help manage anxiety. Raja's staff team are diligent at administering her prescribed medication, and Raja typically takes them when prompted.

After the behavior analyst explained some of the key components of a behavioral program—that it must address behaviors of social importance, that it must focus on observable and measureable behaviors, and that it requires objective measurement and evaluation, a combination of **direct measurement** and **indirect measurement** of Raja's behavior was then completed. The Psychological Assessment Screen for Adults with Developmental Disabilities (PAS-ADD) was conducted and one of the contributing psychological factors was found to be generalized anxiety, which is managed with medication. It was also reported that Raja's father abused alcohol prior to being asked to leave the family home when Raja was sixteen years old. The psychological report obtained by the assessing psychologist determined that Raja functioned in the moderate range of intellectual disability. She is described as nonverbal, however, reportedly demonstrated good receptive language skills. She could reliably follow simple one-step instructions when the assessor used 3–5 word sentences.

The Questions about Behavior Function (QABF) questionnaire was completed by Raja's primary support staff in her residential setting, and focused on the target behavior of minor property destruction. She often engaged in this behavior in the absence of demands, regardless of who was present. Results indicated that Raja's ripping or breaking of items was likely maintained by an automatic/sensory function as evidenced by the high score in the nonsocial section and relatively low scores in the physical, escape, attention, and tangible sections.

Raja currently follows a structured routine in which she attends a day program on Tuesdays, Wednesdays, and Thursdays and participates in scheduled activities with her staff team, housemates, or family when not in attendance. While at the program she follows a visual daily schedule in which she is guided through social activities such as games and karaoke to enhance cooperation and help build a social network with the support of her one-to-one staff member. Friday evenings after dinner, Raja's mother comes to visit her at the group home for approximately one

hour. Typical visits include a snack brought by her mother and quiet activities such as reading, listening to music in low light, or receiving back and head massages.

Raja's maladaptive behaviors present themselves across all settings and with everyone in her circle of care. Behavioral incidents were tracked through the use of A-B-C (antecedent-behavior-consequence) narrative data by the staff teams at both her home- and day-program settings. While the behavior was present in all settings, the frequency of minor property destruction varied across those settings. The highest frequency was consistently associated with the home environment, followed by the day program. Data analysis further indicated that the minor property destruction occurred most frequently during unstructured times throughout the day, and during non-preferred activities. For example, when Raja was left alone without an activity to engage in, the frequency of minor property destruction would increase. Her staff team often attempted to interrupt this behavior by offering alternative activities and/or direction to stop with little success. Once the item that Raja had targeted for minor property destruction was completely ripped, this signaled the end of the behavioral incident.

This data were collected for a period of three weeks, and it was forwarded to Raja's behavior analyst on a weekly basis for baseline analysis. In addition, the behavior analyst would visit the group home a minimum of once per week to complete one-hour observation periods in which she collected interobserver agreement (IOA) data. Based on data analysis, it was noted that visits with Raja's mother that commenced with a snack tended to result in increased positive interactions such as smiling and reciprocation; however, if the anticipated snack was withheld or not provided at the onset of the visit, Raja would often engage in minor property destruction such as ripping her mother's jewelry or clothing. When this behavior occurred, her mom would typically provide access to the snack in order to interrupt the behavior in an effort to continue with the scheduled visit. However, upon finishing the snack, Raja was typically ready to end the interaction. She demonstrated this by walking away from her mother. Should her mother choose to remain in her living space, minor property destruction would resume. It was noted that Raja's mother also provided her with cigarettes when she came. Based on the data collected and direct observation, the behavior consultant determined that the behavior was maintained by automatic reinforcement.

Through the analysis of the data obtained in the functional behavior assessment as outlined above, a treatment plan was designed. This support plan was created to help reduce the frequency of Raja's minor property destruction through the use of discrimination training to teach ripping of appropriate materials in order to meet her sensory requirements. Other positive behavioral strategies introduced in the home setting were the use of a choice board to request activities/items including the materials designated for ripping, as well as the use of a visual schedule similar to the one currently being used successfully in the day program. It was suggested that cigarettes also be used as a reinforcement, as they had proven an extremely high reinforcer in the past.

Ethics Box 8.3

Professional and Ethical Compliance Code for Behavior Analysts

4.10 Avoiding Harmful Reinforcers.
Behavior analysts minimize the use of items as potential reinforcers that may be harmful to the health and development of the client or that may require excessive motivating operations to be effective.

Discrimination training began by introducing a response interruption and redirection (RIRD) program in order to block access to the inappropriate materials once minor property destruction was initiated by Raja, followed by immediate redirection to the appropriate materials. These materials are to be kept on a small table in the living room for easy access at all times. In addition, a differential reinforcement of alternative behavior (DRA) schedule was introduced to reinforce any demonstration of the alternative behavior (ripping designated materials).

The visual schedule was to be set up each morning and represent daily activities or expectations in one-hour increments, in an effort to increase predictability and independence. The schedule is designed to mix preferred, non-preferred, or neutral tasks such as daily living skills. During the independent time slots, Raja is provided with a choice board to assist in choosing which activity she would like to engage in. She was taught to use her choice board by pairing preferred activities with their associated pictures. The designated materials in which Raja can utilize for ripping were always provided as an option on the choice board.

Data were collected by the staff team to indicate each time RIRD was used in response to the minor property destruction. Each time Raja initiated an attempt to engage in the target behavior it was indicated on the data sheet, along with her response to the staff member's use of the RIRD program. If Raja was successfully redirected to the alternative designated materials, a check mark would be used, and if she was unsuccessful an "X" would be used. At the end of each day, the percentage of opportunities would be calculated by dividing the total number of checks by the total number of redirection efforts. Raja's independent engagement with the designated materials was also tracked on a separate data sheet to establish any gains in independent initiations of the alternative behavior. A total frequency count was calculated at the end of each day. Both data sheets were retrieved by the behavior analyst on a weekly basis during her scheduled visits, which she would then graph to allow for visual analysis.

Evaluation of the data indicated that Raja responded well to the treatment, as evidenced by an overall increasing trend in the behavior for increase (engagement with the designated materials), and a corresponding decrease in the number of redirection efforts required. The overall frequency of minor property destruction decreased from an average of six times daily (42 times weekly) during the baseline condition, to three to five times weekly during treatment. These treatment gains were maintained at a one-month follow-up with minor property destruction occurring an average of three times per week.

Raja's family and her support team find these gains have had a meaningful impact on her overall quality of life. Since the decrease in property destruction, the staff team have been slowly reintegrating items into her living space including books and magazines as well as small games for her to engage with. The designated ripping materials remain available, and the staff team report that she continues to engage with them periodically. The behavior analyst has asked that the staff team continue to collect data to continue monitoring progress of the treatment program and has began to fade herself out and provide a follow-up plan for her departure on the team.

The Response: Principles, Processes, Practices, and Reflections

Principles

(Q1) Explain the process of discrimination training. Why is it important to teach?
(Q2) What is the response interruption and redirection (RIRD) program? How would it be taught to Raja?

Processes

(Q3) Describe the strengths and limitations of direct and indirect measures of behavior.
(Q4) Using the table and figure below, how might direct and indirect measures of behavior be combined to provide comprehensive insights into behavior and the evaluation of the information collected (Fig. 8.9, Table 8.6)?

Practice

(Q5) Looking at the data below, calculate the percentage of opportunity data (Table 8.7).
(Q6) Use the following checklist to determine whether the following behavior program uses the dimensions of applied behavior analysis listed by Baer et al. 1968 (Table 8.8)?
(Q7) What skills were taught to Raja that would be considered behavioral cusps? Why are behavioral cusps so important?

Sarah's results of the Questions About Behavior Function Questionnaire

Attention	Escape	Non-Social	Physical	Tangible
3	3	15	0	2

Fig. 8.9 Sarah's results of the questions about behavior function questionnaire

Table 8.6 Three days of antecedent-behavior-consequence (A-B-C) data for Sara's property destruction behavior in the group home

Date/time/observer/setting	Antecedent	Behavior	Consequence
September 15/11:30 A. M./Jamal/Living room	• Sara alone in living room	• Use hands and teeth to rip sleeve of shirt	• Interrupt physically • Turned on TV show
September 15/2:30 P. M/Mom/Kitchen	• Sara and Mom in kitchen at table • Mom talking to Sara about her week	• Sara grabbed Mom's bracelet and pulled it off	• Mom got snack off counter and brought it to table
September 15/9:30 P. M/Yasmin/Bedroom	• Sara in her room • I (Yasmin) left briefly to assist other client, directed Sara to put pajamas on	• Sara had ripped the lace off the sleeves of her pajama shirt	• I (Yasmin) came back into room • Directed her to pick up lace and give to me, then get new pajamas
September 16/9 A.M./ Jamal/Kitchen	• Sara at kitchen table with housemates having breakfast	• Used hands to rip up napkin	• Directed to put in garbage and continue eating
September 16/1:30 P.M./ Jamal/Car	• Sitting in backseat • On the way to afternoon program (swimming)	• Used hands to pull off housemate to the left's necklace	• Housemate exclaimed "no! that is mine" and grabbed it back
September 16/Yasmin/8:30 P.M./ Living room	• Sara sitting alone in living room	• Used hands to rip up magazine	• I (Yasmin) asked her if she wanted me to read with her • Read a chapter of the book we are reading
September 17/Jamal/10:30 A.M./ Bedroom	• Sara alone in her bedroom	• Found her ripping papers (not sure where from?)	• Asked her to clean up papers • Asked her to come downstairs with me to join housemates in painting
September 17/Jamal/10:45 A. M/Kitchen	• Sara joined in painting with housemates	• Ripped up paper	• Gave her new paper and prompted her to use paint brush to paint

Table 8.7 Data to calculate the percentage of opportunity

Opportunity	Data								
Redirection offered to Raja	Sept 15 1 pm	Sept 15 2:20 pm	Sept 15 8:20 pm	Sept 16 9:00 am	Sept 16 9:30 am	Sept 16 9 pm	Sept 16 10:20 pm	Sept 17 6:20 pm	Sept 17 10:20 pm
Successful redirection	✓	✓	✗	✗	✗	✓	✓	✓	✗

Table 8.8 Mark Sundberg's (2015) ABA program evaluation form: quick assessment

	None	Poor	Fair	Good
(1) **Applied** : Socially significant behaviors	0	1	2	3
Skill assessments completed: language social, academic, play, functional skills, etc.				
Behavioral deficits assessments completed: barriers, FBAs				
IEP goals appropriate and consistent with assessments				
Daily curriculum is consistent with assessments and IEP goals				
Behavior intervention program consistent with FBA				
Structured and intensive ABA style teaching sessions in place				
(2) **Behavioral** : Data system				
Data collection system in place				
Targets are based on the assessment results				
Targets are definable, observable, and measurable				
Uses appropriate measurement procedure for each target				
ABC recordin g system in place for problem behaviors				
Binder system in place				
(3) **Analytic** : Prediction and control				
Demonstrates prediction and control of skills and problem behaviors				
Demonstrates that skill acquisition is a function of the teachi ng procedures and intervention program				
The sources of control for barriers that impair language, social and learning skills are identified and ameliorated				
(4) **Technological** : Standard behavioral procedures are used				
Staff demonstrate corr ect use of basic ABA methodology				
Reinforcers identified and delivered effectively				
Staff have established clear instructional control				
Discrete trial structured teaching (DTT/EIBI) format used				
Natural environment teaching (NET) format used				
Negative behaviors appropriately prevented and/or consequated				
	None	Poor	Fair	Good
(5) **Conceptual Systems** : Procedures are relevant to principles	0	1	2	3
Staff can identify the relevant concepts and principles that underlie teaching proce dures				
Staff use the concepts and principles of behavior analysis to guide the intervention				
Staff use behavioral terminology				
(6) **Effective** : Large enough effects for practical value				
The students are acquiring appropriate and meaningful skills				
Negative behavior is significantly decreasing				
IEP benchmarks and goals are consistently being met				
(7) **Generality** : The skills are durable and generalize				
Daily programming for generalization occurs (different settings, peop le, time, materials, etc.)				
Systematic stimulus and response generalization after acquisition is in place				
Parent training program in place				
Score	None	Poor	Fair	Good
	0	1	2	3
Total tallies				
Sub -total scores (multiple number of tallies times point value)				
Final quick assessment score	/90 possible points			

Reflection

(Q8) Often, for adults with developmental disabilities, teaching them functional skills to keep them engaged is important and can decrease behaviors. Using the following figure as a guide, what self-help skills would you identify as critical to her independence and quality of life, and what self-care skills could increase her functional activities in a day (Fig. 8.10)?

SELF−CARE CHECKLISTS
The focus of the VB-MAPP is primarily on communication and social skills. However, self-care skills are an important part of the child's growing independence. The following self-care checklists can be used for assessment and skills tracking. The list can be downloaded and printed as needed to complete your child's program. As always, the procedures derived from applied behavior analysis provide the best way to teach these skills (Sunberg, n.d)

DRESSING − BY ABOUT 18 MONTHS	
Pulls a hat off	
Pulls socks off	
Pulls mittens off	
Pulls shoes off (may need help with laces, buckles and Velcro straps)	
Pulls coat off (may need assistance unbuttoning and unzipping)	
Pulls pants down (may need assistance unbuttoning and unzipping)	
Pulls pants up (but may need help getting pants over a diaper, and with buttoning, snapping and zipping)	

DRESSING − BY ABOUT 30 MONTHS	
Unties shoe laces	
Unbuttons front buttons	
Unsnaps	
Fastens and unfastens Velcro	
Unzips front zippers (smaller zippers may be difficult)	
Removes shirt (tight shirts may require assistance)	
Removes pants or skirts (may need help unzipping and unbuttoning)	
Puts on shoes (needs help discriminating right from left and tying)	
Puts on pants (may need help zipping and buttoning up)	
Adjusts clothing	
Matches own socks	
Matches own shoes	
Puts dirty clothes in a hamper	

Fig. 8.10 Functional activities in a day

DRESSING − BY ABOUT 48 MONTHS	
Undresses (but may need help with tight pullover clothes)	
Dresses (may need help with back buttons and zippers such as on a dress)	
Puts on coat	
Puts on socks	
Puts on pants	
Buckles and unbuckles most buckles (some may be more difficult)	
Zips and unzips front zippers	
Buttons and unbuttons front buttons	
Snaps and unsnaps front snaps	
Identifies which clothes to wear for various weather conditions	
Attempts to lace shoes	
Puts on shoes (discriminating right from left with a prompt)	
Attempts to tie shoes	
Hangs up own clothes on a hook	
Hangs up own clothes on a hanger (with assistance)	
Folds own clothes (with assistance)	
Puts clothes in drawer	

BATHING AND GROOMING − BY ABOUT 18 MONTHS	
Wipes nose with a tissue (with assistance)	
Washes hands (with assistance)	
Dries hands (with assistance)	
Attempts tooth-brushing (with assistance)	

BATHING AND GROOMING − BY ABOUT 30 MONTHS	
Attempts to use a washcloth and soap while bathing (with assistance)	
Brushes teeth (with assistance)	
Washes face (with assistance)	
Dries face	
Attempts to wash hands independently	
Dries hands	
Attempts to brush hair (with assistance)	

Fig. 8.10 (continued)

BATHING AND GROOMING − BY ABOUT 48 MONTHS	
Wipes nose with a tissue and puts it in the trash	
Gets in and out of a bath tub with minimal assistance	
Uses a washcloth and soap when bathing	
Washes hair (with assistance, especially for longer hair)	
Dries self after a bath or shower	
Brushes teeth	
Flosses teeth (with assistance)	
Washes hands	
Washes face	
Dries both face and hands	
Hangs up towel after washing	
Brushes hair (with assistance, especially for longer hair)	

FEEDING − BY ABOUT 18 MONTHS	
Eats finger foods	
Drinks from a cup by self	
Uses a spoon to scoop food	
Sucks from a straw	

FEEDING − BY ABOUT 30 MONTHS	
Uses a fork to pick up food	
Uses a napkin to wipe face and hands	
Carries own lunch box or plate to table	
Opens own lunch box	
Opens Ziploc bags	
Unwraps partially opened food packaging	
Puts a straw into a juice box	
Peels a banana	
Takes off own bib	

FEEDING – BY ABOUT 48 MONTHS	
Uses the side of a fork to cut softer foods	
Uses a knife for spreading	
Uses a knife for cutting (softer foods)	
Keeps eating area reasonably clean while eating	
Unwraps most food packaging	
Opens milk or juice container	
Pours liquids into a cup or bowl (from a small pitcher or lunch thermos)	
Helps to prepare simple foods (spreading, stirring, using cookie cutters, holding a beater, measuring ingredients, pouring ingredients)	
Helps to set the table for meal s	
Takes dishes to the sink	
Wipes the table with a sponge or dish towel	

Fig. 8.10 (continued)

TOILETING − READINESS SKILLS − BY ABOUT 24 MONTHS	
Responds to reinforcement	
Follows simple directions	
Seems uncomfortable in soiled diapers	
Remains dry for 2 hours at a time	
Bowel movements are predictable and regular	
Pulls pants down	
Pulls pants up	
Can sit still for 2 minutes at a time	

TOILETING − BY ABOUT 36 MONTHS	
Has learned a word, sign or PECS for using the toilet (e.g., potty, pee, sign for toilet)	
Mands to use the toilet	
Unbuttons, unsnaps or unzips pants	
Sits on toilet	
Urinates on toilet	
Wipes after urinating (girls)	
Defecates on toilet	
Wipes after defecating (with assistance)	
Pulls underwear up	
Pulls pants up	
Zips, snaps or buttons pants (with some assistance)	
Flushes toilet	
Washes hands (with some assistance)	
Dries hands	

TOILETING − BY ABOUT 48 MONTHS	
Aims into toilet standing (boys)	
Wipes self (girls wipe from front to back)	
Zips front zippers	
Buttons front buttons	
Snaps front snaps	
Washes and dries hands - as part of the toileting routine	
Night-time trained (may still have accidents)	

Fig. 8.10 (continued)

(Q9) In the following case, what skills increased for Raja and what skills decreased for her that contributed to her overall quality of life? Why is it important to focus on both skill building and behavior reduction for individuals?

(Q10) The staff team in Raja's home continue taking data on the target behaviors and continue sending the data to the behavior analyst. As the behavior analyst continues to graph the data she notices that over the last three months, the data have been consistently level and stable. At what point should the staff stop collecting

data? When can the behavior analyst terminate Raja's services? Have all the dimensions of applied behavior analysis been met?

Additional Web Links
Measuring Behavior: A Case Study Unit
https://iris.peabody.vanderbilt.edu/wp-content/uploads/pdf_case_studies/ics_measbeh.pdf
Behavioral Cusps
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1284293/pdf/11317984.pdf

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