

# 8

## Evaluating What You Are Doing

*Amanda comes home and watches her husband, Scott, setting the table with their daughter, Amy. She asks Scott how things are going. He says, “Well, sometimes I think she’s got it and other times it seems that she’s never seen a fork in her life!” They both have been working with Amy on this task for several months and wonder whether they should just give up and set the table themselves.*

*Peter and Beth have been trying to help their son, Tony, decrease the amount of time he spends humming very loudly. They’ve put time into determining why Tony seems to do this, and they think they’ve developed a good intervention plan. And yet, some days Tony seems content to quietly listen to music but on other days he hums as long and as loudly as ever. They don’t see an easy pattern so they are not sure what to do next.*

We all hope that the skills our children learn will make a big difference in our lives. Many of us also think that these changes will be readily noticed—for example, my daughter couldn’t talk but now she does; my son couldn’t tie his shoes, but now he can; we used to have to cut up his steak but now he uses a knife and fork with ease. Unfortunately, these positive changes usually do not show up suddenly in a type of “ah-ha!” phenomenon. Instead, most skills are learned gradually and via the accumulation of small improvements over time. We have watched teachers who were actually making progress with their students but didn’t realize that they were and were therefore ready to make changes to an

effective strategy. On the other hand, we have also observed teachers fail to make changes within ineffective lessons because they did not realize that their students were not making any progress.

We encourage parents to put in time and energy to figure out whether their teaching efforts are worthwhile. If you do not assess what you are doing, then you could be wasting not only your own time but also your child's. How can parents collect information that will help them make good decisions about how to proceed with a lesson or a behavior intervention strategy?

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### **Why Bother to Collect Data?**

One of the most important reasons to collect information about your child's performance is to help you answer the question, "Is this a good lesson?" If the answer is "yes," then you should continue to use your strategy. If the answer is "no," and you've given yourself adequate time to make that judgment, then you'll need to change your teaching strategy. The same rationale holds true for intervention plans for contextually inappropriate behavior (CIB).



Another reason to take data is that the changes in your child's skills may be subtle. If you don't look carefully for the change, you may miss the improving trend. Not only can you miss the improvement in your child, you may then miss the opportunity to congratulate yourself on a job well done as a teacher! Furthermore, gathering systematic information that shows slow but steady progress can help motivate you to continue with all the hard work it takes to design and implement an effective lesson.

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### **What Type of Information Should We Collect?**

Just as there are different skills to learn, different reward systems to use, and different teaching strategies to try, so too are there differ-

ent targets to gather information about. At times, you may be satisfied with a very general question such as “Are things getting better?” Your medical doctor often starts with this type of question—are you feeling better? If you say “yes,” the conversation may well end there. It is when you say “no” that more questions will be asked.

You likely have seen questionnaires that try to set general guidelines about your feelings or sense of what’s happening. For example, you might be asked to indicate how much you enjoyed watching a particular movie on a five-point scale—with a one meaning “hated it” and a five meaning “loved it.” You may construct a similar type of questionnaire about the skill you are working on with your child, to be completed by each family member once a month (or as often as you think appropriate). For example, if you are trying to improve your child’s expressive language skills, the questions may include:

*How often did Hannah initiate communicative exchanges this week?*

- a. 0 to 10 times
- b. 11-20 times
- c. 20-50 times
- d. more than 50 times

*How relaxed did Hannah appear while she was talking with her siblings?*

- a. very anxious
- b. somewhat anxious
- c. no reaction
- d. somewhat happy
- e. very happy

*How satisfied are you with Hannah’s communication skills?*

- a. very dissatisfied
- b. a little disappointed
- c. no reaction
- d. somewhat happy
- e. elated

Notice that you can include a range of specific numbers or you can use a range of general ratings. Furthermore, you can address more advanced or complex skill sets. For example, you can ask:

*How independent is Alex in completing the yard work?*

- a. Needs many spoken reminders (such as “check the mower gas level”)
- b. Needs some spoken reminders
- c. Needs written checklist
- d. Sometimes checks written list
- e. Does everything independently

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## **What Can/Should You Measure?**

As you read these examples, you may feel that there is a very large degree of subjective evaluation included in the process. Your ratings may change because you weren't feeling well that week, or perhaps something especially good happened to you and this helped put a rosy sheen on everything. That is why it may be more effective to develop assessment strategies that can provide precise and unbiased information.

What can you directly measure? Recall that we noted in the Introduction that a learner must “show what she knows.” There are many ways that someone can “show” you what she knows, as discussed in the sections below.

### **Keeping Track of Frequency**

You can count how many times something happens—such as how often a child asks for help, or how many times she screamed today. Counting occurrences is called taking a *frequency count*. To take a frequency count, you choose the length of time during which you will count a behavior. This will enable you to determine the *rate*, which is the frequency divided by the amount of time you use. For example, you may want to track how often your child asks for help during the morning. If you count 5 occurrences between 9:00 and 11:30, the rate is 2 per hour. You may want to compare that rate with what happens at another time of the day, such as in the evening. If the rate is very different then—perhaps only 0.5 per hour—then you would want to determine why your child appears more independent in the evening than the morning.

Figuring out the rate is very important in situations in which the time intervals are not equal. For example, you should not compare how often your child asked for help during the week with how often she asked

for help on the weekend since the time intervals are not the same. You can, however, compare the rates during the two different time periods.

### ***Keeping Track of Intensity***

You may be concerned about some feature or characteristic of an action, such as its *intensity*. Perhaps your daughter asks for help but most of the time she says it in a whisper so that it is very hard for anyone to understand her. Counting how often she asks for help will not provide the right information if your goal is to increase how loudly she speaks when asking for help. Or, perhaps your child can say, “No thank you” but screams it at the top of her lungs! The issue is not what she is saying but how she is saying it. In this case, you can measure intensity by devising a rating system in which 1 equals “inaudible,” 2 stands for “barely audible,” up to a 5 for “much too loud.”

### ***Measuring Duration***

You may be concerned about how long a particular behavior lasts—its *duration*. For example, you may realize that all three-year-olds have tantrums now and then but you are concerned that your child’s tantrums last for 45 minutes or more. A reasonable goal may involve reducing how long the tantrum lasts once it is started. In this case, you are not aiming to immediately eliminate all tantrums, because that is unrealistic. It is reasonable, however, to see if you can help your child decrease the length of her tantrums to five or so minutes.

It also makes sense to measure duration if you are teaching your child to complete a task more quickly. Perhaps Stephanie is teaching her son, Adam, to clean his room. He has learned to put away all of his toys accurately but Stephanie would like him to finish cleaning his room within 15 minutes of when she leaves his room. Currently, it takes him from one-half to a full hour to finish this task.

In this situation, it will be helpful for Stephanie to be very accurate about the duration it takes Adam to clean up. She may set a timer and also let Adam know that if he finishes before the timer rings, then he can play his favorite video game on the large screen TV. At first, she sets an easy goal—50 minutes—because she knows that he usually finishes within this limit. When he is successful at that level for several days, she resets the timer for five fewer minutes. This strategy will only work if

Stephanie accurately records how long it takes to clean the room. There are other specific goals that Stephanie can set, such as how many toys he is able to put back where they belong. In other words, Stephanie's goal will help define what she wants to count.

### **Measuring Accuracy**

Perhaps your child makes a valiant attempt to clean up the playroom but she places the toys almost randomly around the room. That is, there is very little *accuracy* connected with where she puts the toys. You would like to see the balls go in the ball-bin, the stuffed animals in another box, and the train set on its own special shelf. In this case, you don't need to measure how quickly your child cleans up but rather how many things are properly put away. Similarly, perhaps your teenaged son enjoys helping in your workroom but frequently puts the tools in the wrong location, thus making it harder for you to find things when you need them. It's great that he's willing to help but because his accuracy of placement is so poor, it is not really saving you any time.

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### **Writing Goals That Let You Measure the Progress You Are Looking For**

As we noted in Chapter 2, you will know you have written a good definition of a goal if two or more people can agree that they are observing the same action, and if your definition makes it clear how you can directly measure whether the goal has been accomplished. However, as explained above, there are different ways to measure progress. When you are writing your goals, you need to be sure to address the aspects of a behavior where you want to see progress. At times, how often something happens—its frequency—can be very important. For example, how many times did your son initiate a request for help? At other times, you may want to measure the rate of an action—as when you determine how many plates your child can put away within 10 minutes after dinner is completed. Sometimes, you will focus on the accuracy of a skill—as when you monitor whether your child puts the plates with the plates and the bowls with the bowls. In some cases, you will be most interested in the duration of an action—as when you time how long your child can play independently while you are doing some housework.

There is no one best way to measure all behaviors. You will need to consider what is most important about an action each time you decide to teach a skill. See Table 8-1 for examples of different types of data to collect.

**Table 8-1 | Types of Data Regarding Different Skills & CIBs**

<b>Skill</b>	<b>Your Goal</b>	<b>Type of Data</b>
Sorting silverware	Correctly sorts spoons, knives, forks	<i>Accuracy</i>
	Empties dishwasher utensil tray in a reasonable amount of time	<i>Rate</i>
Interactions with older sisters	Asks sisters for toy	<i>Frequency</i>
	Spends more time with sisters	<i>Duration</i>
	Improved quality of interaction	<i>Rating questionnaire for sisters</i>
Play skills	More time engaged in independent play	<i>Duration</i>
	Uses a wider variety of toys	<i>Number</i>
Fold towels	Folds neatly	<i>Accuracy</i>
	Folds many towels	<i>Number</i>
	Folds towels more quickly	<i>Rate</i>
Greetings	Appropriately waves when Dad arrives	<i>Prompt level</i>
	More variety to greetings	<i>Number of types</i>
Making cookies with Mom	Cracks eggs	<i>Accuracy</i>
	Completely presses cookie cutter through dough	<i>Intensity</i>
Temper tantrums	Reduce number of incidents	<i>Frequency</i>
	Shorter time for each tantrum	<i>Duration</i>
Aggression to sibling	Hits less often	<i>Frequency</i>
	Does not hit so hard	<i>Intensity</i>
Your own target?	?	?

## Measuring Things Done by Others

Up until now, we've focused on measuring actions taken by your child. However, you may find it valuable to measure changes involving other people, including yourself. For example, you may want your son with autism to agree to play a game suggested by your daughter. How well this skill develops depends in part upon how often your daughter initiates playing the game, and possibly how rewarding your daughter is to your son after playing the game. Similarly, how often your son asks for help will depend upon how many "needy" situations you create. If you simply wait for these situations to occur naturally, your son may not have sufficient opportunities to practice the new skill. Therefore, in addition to measuring how your son responds to your daughter's invitations to play and how often he asks for help, you should also measure how often your daughter asks your son to play and how many situations you create where your son could ask for help.

Here are some other examples where it would be useful to measure other people's actions:

- You decide to use a token system to encourage your child to use more complete sentence structure. How quickly your child acquires this new skill will depend upon how often you use the token system. Therefore, you may want to count how many tokens you've handed out in the morning.
- You want everyone in the family to ignore the latest swear word that your child has just picked up from school. In this situation, you may want to count how often each member of your family follows through by ignoring the new word. You could make a game out of this, rewarding the family member who ignores the best across the week!

Many lessons involve changing the intensity or even the type of prompt that you will use. In this case, it is the level of support that you use that you will be measuring, not whether your child actually engages in the behavior. For example, Harry is working on teaching his son, Theo, to cross the street when the light turns green. Should Harry count how often Theo successfully crosses the street? Of course not, since Harry will make certain that Theo always crosses the street in a safe manner. Instead, Harry can measure what kind of prompt he uses to assure a safe crossing, or how long before they reach the



street he needs to use a particular prompt (e.g., “What will you do if the light is red? What will you do if the light is green?”). In each of these examples, we need to measure what teachers and other people are doing who interact with our children.

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## How Much Information Should Be Collected?

In school, you may observe teachers or specialists taking data on every opportunity or trial that they set up. Early in a lesson, when minor alterations can result in important problems in skill acquisition, collecting a lot of information can be very important. But consider this situation: you’ve developed a task analysis for tooth brushing that involves sixteen steps. Your child has been working on this task for almost two years and has nearly mastered this skill. In fact, she only occasionally makes a mistake on two of the steps. Should you stand there and record her performance on all sixteen steps each time she brushes her teeth? We don’t think this represents a good investment of your time and effort. Recording your child’s performance on the two steps in question is the only “new” information you need.

Collecting, and then studying, information about performance always involves a degree of effort and expenditure of time. As your child acquires a skill, you will most likely need far less information to assure that progress continues. Take measurements only in so far as they help you answer your primary question—is this a good lesson or should I make a change? In fact, it is possible to gather too much information. That is, you can collect information that does not help you improve the lesson. In these cases, you end up wasting your limited resources.

There are two **situations where it is important to record every occurrence of a behavior:**

1. If the behavior is especially dangerous (e.g., you are working on decreasing how often your child lights matches in the house), or
2. If the behavior is a critical new skill (e.g., you are in the first two weeks of teaching your child to ask for a break).

On the other hand, if your child currently runs around the house 150 times each day, it may be impractical to try to record them all; furthermore, it is unlikely that recording each instance will add helpful

information to you. We advise you and your family to look over all of the lessons that you are planning to teach and consider these questions:

1. Which lessons are relatively new and which ones are nearly mastered?
2. Do any involve critical new skills?
3. Do any lessons target behaviors that are dangerous to your child or others?
4. Who is in the best position to record the information you deem important?

Only after you have considered these questions are you in a position to discuss how often information should be collected.

### **Sampling Behavior**

When you decide that you do not want or need to record each occurrence of an action, you may want to use a *sampling* strategy instead. This strategy is the same used by quality assurance managers in many situations. For example, a company cannot practically test every pen nib on every pen they produce. Instead, they sample in a systematic fashion some of the pens and measure the quality of that sample. So too can you choose to sample some of your child's specific behaviors.

One sampling strategy takes advantage of units of time—called an *interval sampling* strategy. For example, rather than count each time Sonja runs around the house, Lily simply chooses to note whether any running occurred within each block of 30 minutes. If Sonja gets home from school at 4:00 PM and goes to bed at 9:00 PM, then there are 10 intervals for Lily to record. The length of the interval will depend on how often the action typically occurs. Pick a length of time during which some intervals include the target action but others do not. By comparing the number of no-running intervals to the number of intervals with running, you will be able to measure progress—more intervals without Sonja running around means things are improving in this case.

Another way to sample high rate actions is to use *spot checks*—select specific times when you will observe whether the action is occurring or not. Set a timer and when it rings, immediately observe whether the behavior being measured is taking place. For example, Raymond is teaching his son Charlie to play quietly in the family room while he is not in the room. He lets Charlie know that if he does a “good job”

of playing like a big boy then he will get to watch his favorite cartoon video. Raymond leaves Charlie in the family room and sets a timer for five minutes. When it rings, he peeks into the room and notes that Charlie is still playing. He continues to spot check every five or so minutes for about 30 minutes. If Charlie has stayed in the room for 80 percent of the spot checks, he gets to watch the video. In this manner, Raymond does not have to observe everything his son is doing but can still accurately track Charlie's progress.

### **Product or Outcome Reviews**

Another way to monitor performance without directly observing your child is to measure the outcome or product of a task. For example, when Lucy tells Shelby to clean her bedroom, she does not have to watch what Shelby is doing. Instead, at a set time later, she can come into the room and determine how clean the room is. If the bed is neatly made, the clothes are put away in the proper place, the toys are stored correctly, and the floor is swept, then Lucy can decide that Shelby did a good job of cleaning. Similarly, if Lucy tells Shelby to get dressed, she does not have to watch Shelby getting dressed. Instead, she can set standards that are associated with proper dressing—zippers and buttons are closed, shirt is tucked neatly into pants, etc. Likewise, once Shelby has learned the basic steps of setting the table, Lucy will not need to watch her doing this. Instead, she can check whether all the plates and dinnerware have been properly set. You can readily see that using this type of strategy will help reduce time you spend measuring performance.




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### **Charting and Summarizing**

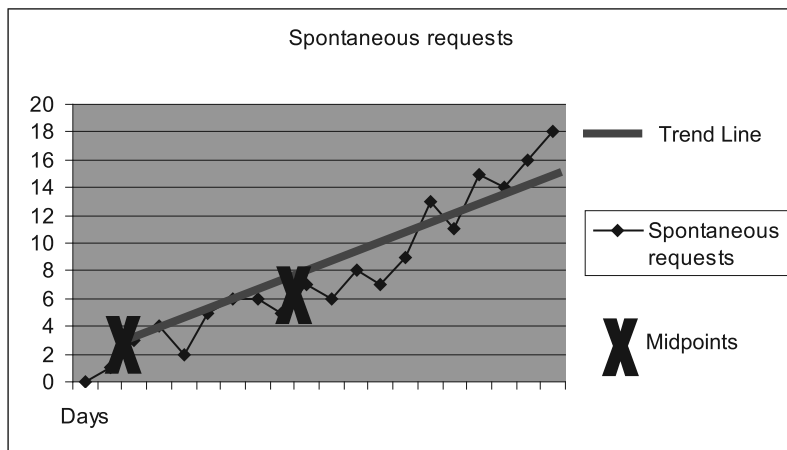
Taking measurements regarding your child's actions is only beneficial if it reveals information that helps you decide what to do about

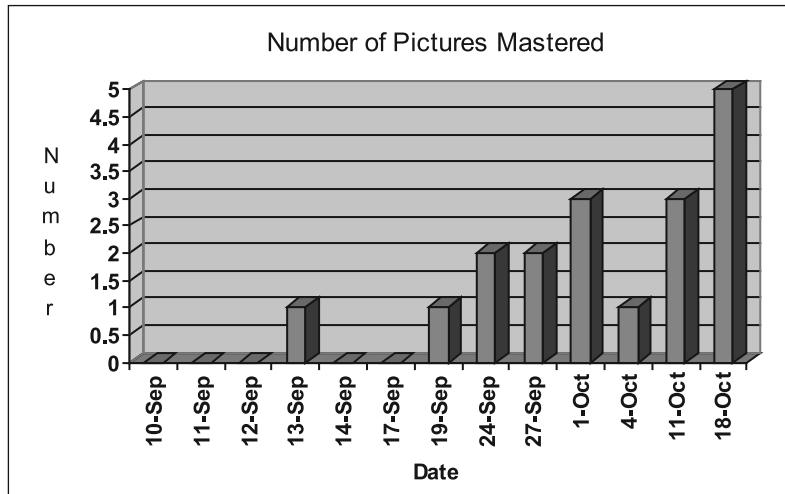
your lesson strategy. If the information indicates that steady progress has been made, then you will not want to change your strategy. If your information shows that little or no progress has been made, then you will need to consider revamping your lesson strategy. Therefore, the information collected needs to be summarized in a manner that helps you see the basic direction or *trend* of your child’s performance. Converting raw numbers into a visual model—a chart, graph, or table—is one way to help you find trends.

A chart or graph can be made by creating a grid noting your measurement information on one axis (the Y-axis, or the vertical axis) and noting time on the other axis (the X-axis, or horizontal axis). A line graph is made by using a single point to represent each piece of information (data), while a bar graph is made by filling in the space below a specific level. If you do not want to create the graph by hand, there are many user-friendly software programs (including Microsoft Excel®) that can help you create graphs and determine a trend line. If you do not use a program to find the trend line, then you may want to use some relatively simple strategies to note trends.

For example, Sidney is focusing on helping Sara increase the number of spontaneous requests she makes at home. He notes her progress by charting the number of spontaneous requests per day for ten days. Then he estimates the mid-point of the first three points and places an X at that point and does the same for the last three points. He then connects these lines to create a trend-line. He extends that line

**Graph 8-1** | Using Estimated Mid-points to Plot a Trend Line



**Graph 8-2** | Number of Pictures Mastered within PECS

on the chart and then looks to make sure that subsequent points are at or *above* that line. He knows that if the points start to consistently fall below that line, then Sara's progress would not be maintained. In the example shown in Graph 8-1, you can see that the points after the second X largely remain above that line. If you are trying to reduce a CIB, then you would be checking to see whether your points are remaining *below* your trend line. While there are more stringent and statistically powerful ways to find a trend line, this strategy typically is useful enough for family purposes.

Another strategy to chart progress is shown in Graph 8-2, which uses a bar graph approach. In this case, Sam is monitoring the number of pictures that John-Paul uses within his PECS communication book. Although there are some ups and downs from day to day, the overall pattern is clearly one that shows nice progress.

When you design a task analysis, you can place an area to graph your results on the same page where you list the sequence of steps in your task. Your graph can indicate the number of steps that your child performed without any help or prompting. For example, if your task analysis has 14 steps and your child performs 7 of these independently, then you would note 50 percent for that day. Since different tasks are associated with a different number of steps, using percent independent will allow you to compare progress across vastly different types of

goals. If you see that your child performs at 90 percent on a task, you may want to reduce how often you record her performance on that task. On the other hand, if your child's performance is hovering at 25 percent for several weeks, then you will want to reconsider how you are teaching that particular task.

You can also use a graph or similar visual aid to help you determine the level of expectation you want to maintain for a particular skill or CIB. For example, James is aiming for his son Carl to spontaneously ask for things around the house at least 10 times per day. James puts a chart on the kitchen wall that includes 10 open circles. Each time Carl asks anyone in the family for something without any prompting from them, they fill in one of the circles. When all 10 circles are filled in, then the family does not need to record any further information about Carl's requests. On a separate log, James can note how many days Carl has met the target. If the target is met for 8 out of 10 days, then James slightly raises the level of expectations for requests and tracks this increased level by adding more circles to the chart on the kitchen wall.

This strategy can be used to note your child's progress on behavioral goals when the goal is to achieve a level *below* a certain number. For example, Char knows that Jack frequently turns on the kitchen faucet to play with the water; he does this at least 20 times each day. While Char would like him to stop completely, she realizes it will take some time to achieve such a dramatic change. She also knows that if Jack turned the water on only 15 times, that would be a better day. She places 16 tokens on the refrigerator and tells Jack that if there is at least one token remaining by 8:30 PM (30 minutes before he starts his bedtime routines), then he will be able to have a favorite ice cream treat. Each time Jack turns on the faucet, Char removes one of the tokens and reminds him how he can earn the ice cream. If all the tokens have been removed by 8:30, Char does not allow him this treat. She records how many days he is successful at earning his treat. When he reaches four days in a row, she lowers the target level by one token. This way, she does not have to record each time she removes a token. She only needs to note how often the overall strategy is successful on a day-to-day basis. And her chart about successful days lets her quickly see when she should change the requirement for Jack's treat. This strategy is obviously similar to the token/point systems we described in Chapter 2.

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## Review

The evaluation strategies discussed in this chapter are truly the core of the Pyramid Approach. If we don't evaluate what we are doing, we can waste our own time and that of our children. Teaching your child new skills and reducing or eliminating problematic behaviors involves a great deal of time and effort on your part. To help assure that you are best using your resources, you must evaluate what you are doing. When we design a lesson or an intervention for a contextually inappropriate behavior, we can only guess what will be effective—we cannot guarantee the outcome. Therefore, plan to collect information in a manner that will help you decide whether you should continue with your current plan or modify it.

Once you've collected your information, you will need a system to help you analyze that information so that you will make sound decisions about your strategies.

The steps we should take to help evaluate skill development lesson plans are:

1. Pick a way to measure the target skill.
2. Try out your measurement system (does it make sense and appear reliable?).
3. Choose a level of success—X level by Y date—remembering that success can be measured by changes in rate, intensity, accuracy, duration, number, amount of prompting needed (e.g., “This is working!”).
4. Choose a level of failure—Z level by Y date (e.g., “This is not working.”).
5. Implement your teaching strategy.
6. Use your measurement system.
7. Evaluate your outcome and compare it to your expectation.
8. If you are successful, keep going.
9. If you are not successful, what will you change? Review your goal for your child, the reinforcers you are using, the types of prompts, and the other elements of lessons discussed in earlier chapters.

The final chapter of this book offers suggestions on how you can integrate the full Pyramid Approach into all the activities associated with living at home and in the community.