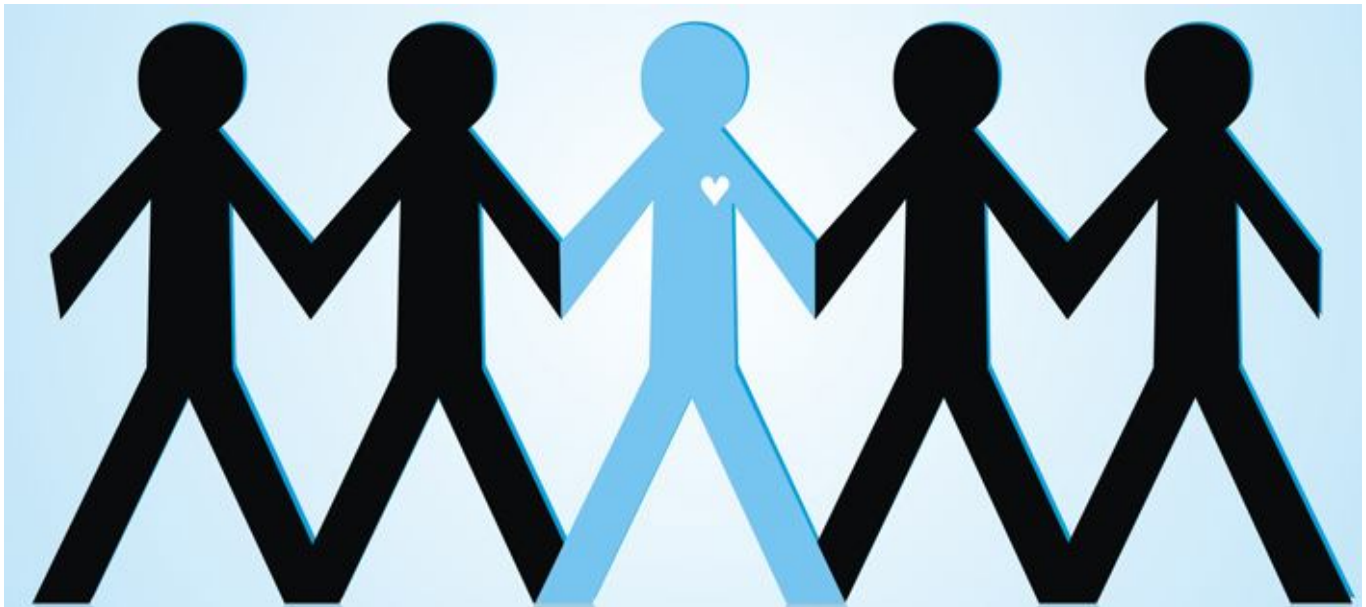


Data Collection Guide

Addressing Student Behavior: A Positive Approach



*Conducting Functional Behavioral Assessments and
Developing Positive Behavior Intervention Plans*

<http://www.escambia.k12.fl.us/pbis>

FREQUENCY & RATE

Description:

These methods involve counting the number of times a behavior occurs in a specific time period. Use these methods if the behavior can be easily counted and the behavior has a clear beginning and end. Do not use these methods if the behavior is occurring at such a high rate that an accurate count is impossible (e.g., pencil tapping) or the behavior occurs for extended periods of time (e.g., 2 tantrums, but the duration of each tantrum is one hour).

Examples:

Leaving one's seat, hitting another peer, throwing items, raising one's hand, yelling out an answer, asking to go to the bathroom, and being late or being on time to class.

Special Considerations:

A *frequency* measure should be used only when the length of observation time is consistent from day to day (e.g., always 2 hours).

A *rate* measure should be used if the length of observation time varies from day to day (e.g., 60 minutes of Monday, 300 minutes on Tuesday).

How to Collect the Data:

- Tally marks on a data sheet
- Tally marks on a dry erase board
- Wrist of golf counters
- Moving items from one pocket to a different "target" pocket as each behavior occurs (e.g., paperclips, pennies, buttons)
- Place a removable sticker on your shirt or pants

Summarizing the Data:

Frequency: At the end of the observation period, total the number of occurrences. For example, Anna left her seat 5 times during 7th period.

Rate: Count the number of times the behavior occurred in the time observed. Divide that count by the length of time the behavior was observed. For example, if Anna kicked a peer 30 times in a 10 minute observation, the rate would be 3 kicks per minute ($30 \text{ kicks} \div 10 \text{ minutes} = 3 \text{ kicks per minute}$).

DURATION

Description:

This method documents the length of a behavior by recording the time the behavior begins and ends. Use this method if your primary concern is the length of time the student engages in the behavior and the behavior has a clear beginning and end. Do not use this method if the behavior occurs with high frequency or the behavior starts and stops rapidly.

Examples:

Out of seat behavior, tantrums, and how long a student can remain on-task.

Special Considerations:

It can sometimes be difficult to accurately record the exact duration of the behavior. On the other hand, duration recording not only tells us how long the student engages in the behavior, but it automatically provides us with how many times the behavior occurred.

How to Collect the Data:

- Record the start and stop time on the data sheet
- Use a stopwatch
- Write the times on a dry erase board until time is available to document it on the data sheet

Summarizing the Data:

Duration can be summarized two different ways:

Percentage of observation with behavior: Sum the total number of min/sec/hrs that the behavior occurred during the observation, divide the sum by the total number of min/sec/hrs of the observation, and multiply by 100.

Average Duration of Behavior: Sum the total durations and divide by the total occurrences.

Example: During a 60 minute observation, David had 3 tantrums that lasted 3 min, 7 min, and then 5 min with a total duration of 15 minutes.

- % of observation with behavior $\rightarrow 15 \text{ minutes} \div 60 \text{ minutes} = .25 \times 100 = \text{Tantrums occurred during 25\% of the observation}$

Average Duration $\rightarrow 15 \text{ minutes} \div 3 \text{ tantrums} = \text{Average of 5 minutes per tantrum}$

INTERVALS

Description:

The observer divides the observation period into a number of smaller time periods or intervals, observes the student throughout each interval, and then records whether the behavior occurred or not in that interval. This method is considered a partial interval method and it is useful for understanding how behaviors are distributed across an observation. Use this method if the behavior occurs at a high frequency or if the behavior occurs continuously. Do not use this method if the behavior is a low frequency behavior.

Examples:

Crying, tantrums, talking with peers, and on-task/off-task behavior

Special Considerations:

Interval recording often takes less time and effort, especially if the behavior occurs at a high frequency, because the observer records the behavior only once during the interval, regardless of how many times the behavior occurs. However, interval recording only provides an estimate of the actual number of times that a behavior occurs. If the intervals are too long (e.g., 1 hour), the results can overestimate the frequency of behavior. The shorter the interval, the more accurate representation of how often the behavior is occurring. For example, if aggression occurred once per hour in a 5 hour observation, a 1 hour interval recording form would conclude that the behavior occurred during 100% of intervals (1 occurrence in each 1 hour interval). However, if a ten minute interval recording form was used, the results would conclude that the same behavior occurred during only 16.7% of intervals (5 of the 10 minute intervals contained behavior out of a possible 30 intervals)

How to Collect the Data:

To use interval recording, break the observation period into short intervals of time. Then simply note whether the behavior occurred ("yes") or did not occur ("no") during the interval. Regardless of whether the behavior occurs once, twice, or five times, it is checked only **once** to indicate that it occurred during the interval.

For example, suppose a teacher is recording whether or not a child disrupts the class during each 10 minute interval in the class period. The teacher sets a timer to beep every 10 minutes. When the disruptive behavior occurs, the teacher marks the corresponding interval on the data sheet. Once an interval is marked, the teacher does not have to record the behavior until the next interval begins.

Summarizing the Data:

When using interval recording, the level of the behavior is reported as the percentage of intervals in which the behavior occurred. To calculate the % of intervals, count the number of intervals in which the behavior was recorded, divide by the total number of intervals during the observation period and multiply by 100.

Example: Mary was out of her seat during 4 out of 10 intervals → $4 \div 10 = .40 \times 100 =$ Mary was out of her seat during 40% of intervals recorded during the observation.

OPPORTUNITIES

Description:

This method is useful for determining how often the behavior occurred when given the opportunity. Use this method if the opportunity to engage in the behavior is easily observed and the opportunities are not high in frequency. Do not use this method if the opportunity to engage in the behavior is continuous or if the opportunity is not always easy to observe.

Examples:

Compliance or non-compliance with requests, completing assignments, greeting peers, and responding appropriately when told “no”

Special Considerations:

The definition of an opportunity must be previously established prior to collecting this type of data. For example, if the team would like for the student to comply with teacher requests, the opportunity would be defined as anytime the teacher makes a request of Jorrell. This type of method can reduce the number of times the observer has to record data; however, the observer must remember to record each opportunity in order to produce an accurate representation of the behavior.

How to Collect the Data:

Simply use a plus (+) or minus (-) to indicate whether the behavior occurred when the opportunity was presented. This can easily be recorded on a data sheet or dry erase board. Creative methods can also be used to track this data, such as golf counters (one for + and the other for -), different colored stickers or labels, marbles in two different jars, or tally marks under + and - categories.

Summarizing the Data:

The data is summarized by calculating the percentage of opportunities. To calculate, sum the total number of times the behavior did occur when an opportunity was presented (+), divide by the total number of opportunities (+ and -), and multiply by 100.

Example: The teacher presented requests to Jorrell 15 times on Monday. Jorrell complied with 10 of those requests. So, $10 \div 15 = .66 \times 100 =$ Jorrell complied with requests during 66.7% of opportunities.

LATENCY

Description:

Use latency recording when you're interested in how long a student takes to **begin** performing a particular behavior once the opportunity has been presented. For example, if a teacher makes a request for a student to put an activity away, the observer would be interested in the length of time it takes for the student to comply with the request. Use this method if the opportunity and the behavior have a clear beginning and end. Do not use this method if the opportunities are continuous or if they start and stop rapidly.

Examples:

Starting an assignment, compliance with requests, and time between peer instigation and aggression

Special Considerations:

Latency and Duration both measure time; however, latency is how long it takes to start the behavior and duration is how long the behavior lasts. As with duration, latency can also be difficult at times to record the exact length of time it takes for the behavior to start. On the other hand, latency is a helpful measure if the goal is to reduce the amount of time it takes for a student to start an appropriate behavior or increase the amount of time between an environmental trigger and the occurrence of inappropriate behavior.

How to Collect the Data:

To record latency data, note when the opportunity is presented (e.g., request given) and when the student begins the response (e.g., compliance with requests). This can be done by using a stopwatch and recording the start and stop times on a data sheet or dry erase board.

Summarizing the Data:

This data is summarized by calculating the average latency (average time it takes for the behavior to start). To calculate, sum all of the latencies and divide by the total number of opportunities.

Example: Shelly's teacher assigned work 4 times during the observation. Shelly took 60 seconds, 90 seconds, 35 seconds, and 50 seconds to start the four assignments. So, $60 + 90 + 35 + 50 = 235 \div 4 =$ Shelly took an average of 58.75 seconds to start her assignments during the observation.

TIME SAMPLING

Description:

Time sampling is a variation of interval recording. Small samples of time (30 seconds) are set up within larger intervals (5 minutes). Instead of noting whether a behavior occurred or did not occur within an entire interval (5 minutes), the observer only looks at the student during a sample of time (30 seconds), usually at the beginning or end of an interval, and records whether the behavior is occurring at that instant or small sample of time. Use this method if the teacher is interested in group performance (multiple behaviors of multiple students). Do not use this method for low frequency behavior.

Examples:

Talking, on-task/off-task behavior, screaming, and in-seat/out-of-seat

Special Considerations:

This method requires less effort because the observer does not have to observe the behavior for the entire interval, just a portion of the interval or at a specific time in the interval. Time sampling enables the observer to observe one or more behaviors of one or more students, even if the observer has other commitments during the day. Instead of continuously looking for behavior, it gives the observer more time to record the observations and it is convenient when behavior cannot be observed continuously. However, time sampling is less accurate than interval recording. It can often underestimate the occurrence of behavior. For instance, if a behavior occurs at times other than the time sample when the observer is recording, the data will often display low levels of behavior. Even though the behaviors did occur, the data shows that it did not, simply because it did not occur in the small window of time that was observed.

How to Collect the Data:

The observer divides the observation period into intervals of time, but only observes and records the behavior during part of each interval (e.g., only 1 min during each 15 min interval, momentarily at the end of the 10 minute interval).

Example: If the teacher wants to record a student's on-task behavior, the observer could set a timer to beep every 10 minutes and then record the occurrence of on-task behavior only if the student is on-task when the timer beeped.

Summarizing the Data:

Time sampling data are usually presented as percent of intervals in which responding occurred. To calculate the % of intervals, count the number of intervals in which the behavior was recorded, divide by the total number of intervals during the observation period and multiply by 100.

Example: Sam was talking during 20 out of 30 intervals → $20 \div 30 = .66 \times 100 =$ Sam was talking during 66.6% of intervals recorded during the observation.

Behavior Rating Scale (BRS)

Directions:

1. Complete the BRS for each target behavior (problem and replacement/pro-social).
2. Operationally define each of the target behaviors and write the definition in the key.
3. Determine the best method for measuring each target behavior (i.e. frequency, duration, intensity).
4. Establish appropriate anchor points for recording behavioral occurrence.
5. List each target behavior on the left-hand side of the form.
6. Determine the start date for collecting data and write it on the form.
7. Determine who will complete the BRS (i.e. the primary teacher must complete the scale, but other team members who see the student on a regular basis and would be able to provide important information may also be included).
8. Complete the BRS at the end of each day, routine, or observational period by circling the number that best corresponds with the rater's perception of the student's behavior for that measurement period.
9. Connect the points for each behavior from day to day.
10. The graph will readily provide the team with a visual description of the student's behavioral changes.

EXAMPLE

Student: Johnny

School: _____

Behavior		Date									
Task Engagement appropriate behavior	>10 min		5	5	5	5	5	5	5	5	5
	8-10 min		4	4	4	4	4	4	4	4	4
	5-7 min		3	3	3	3	3	3	3	3	3
	2-4 min		2	2	2	2	2	2	2	2	2
	0-1 minute		1	1	1	1	1	1	1	1	1
Tantrums problem behavior	10+ daily		5	5	5	5	5	5	5	5	5
	7-9		4	4	4	4	4	4	4	4	4
	4-6		3	3	3	3	3	3	3	3	3
	2-3		2	2	2	2	2	2	2	2	2
	0-1/day		1	1	1	1	1	1	1	1	1

KEY:

1. **Task Engagement:** Rate your perception of the amount of time Johnny remains in his seat with eyes focused on the teacher and/or work materials during independent academic work.
2. **Tantrums:** Rate your perception of the number of times Johnny engages in screaming, kicking furniture and/or people, and throwing objects (all 3 behaviors must be present).

ABC ANALYSIS

Description:

This method involves recording the environmental variables related to the problem behavior. When the behavior of interest occurs, the observer records the target behavior, the antecedent (event that immediately preceded the behavior), and the consequence (event that immediately followed the behavior). Use this method during a functional assessment observation to identify information regarding the possible function of the target behavior. If using this method as a progress monitoring data collection method, use only with behaviors that are not high in frequency and are easy to observe and count. Do not use this method with high frequency behaviors.

Examples:

Throwing items, inappropriate comments to peers, leaving one's seat, hitting or other forms of aggression, walking out of class without permission, and refusal to follow instructions.

Special Considerations:

The ABC method is typically used during functional assessments and not for routine day to day data. Because it requires the observer to record multiple variables, it may require more time and effort to record every instance of behavior, especially high frequency behaviors.

The ABC method only demonstrates correlation relationships between the problem behavior and observed antecedents and consequences. Functional relationships are not demonstrated, but can be hypothesized based on patterns of ABC relationships observed.

How to Collect the Data:

- Record contextual information (e.g., date, time, activity taking place, people present, and location).
- When a problem behavior occurs, immediately record the event that happened right before the behavior (antecedent) and the event that happened right after the behavior (consequence)

Summarizing the Data:

If the team is using the information as part of the functional assessment, the team should look at the patterns across behavior, such as a certain time of day, activity occurring, or antecedent observed.

If the team is using the information to monitor the progress of a PBIP, the data should be summarized as a frequency count. At the end of each observation period, total the number of occurrences of behavior. For example, Joseph walked out of class 3 times.

SCATTERPLOT

Description:

The scatterplot method is an interval recording method that is typically used during functional assessment to identify the time of day that the problem behavior most often occurs. The observer divides the observation period into a number of smaller time periods or intervals, observes the student throughout each interval, and then records whether the behavior occurred or did not occur in that interval. This method reveals temporal patterns of behavior across the observation period as well as patterns that may be associated with specific environmental events (e.g., the behavior always occurs from 1:30 – 2:00 during math instruction). Use this method if the team wants to know when or how often the behavior is occurring. Do not use this method if the team is trying to identify specific antecedents or consequences associated with the behavior.

Examples:

Fighting, non-compliance, distracting peers, on-task/off-task behavior, and tantrums.

Special Considerations:

As with interval recording, the scatterplot often takes less time and effort, especially if the behavior occurs at a high frequency, because the observer records the behavior only once during the interval, regardless of how many times the behavior occurs. However, the scatterplot method can often overestimate the occurrence of behavior if the intervals are too long.

The scatterplot method can be useful in determining optimal times for someone to directly observe the occurrence of the target behavior. Once patterns exist across certain times, the team can start to identify variables that may be contributing to the behavior.

How to Collect the Data:

To use a scatterplot, break the observation period into short intervals of time. The data sheet is set up in a matrix format with the time intervals down the left side of the matrix and the date across the top. When behavior occurs, document whether the behavior occurred or did not occur during the interval. A key is typically provided on the data sheet that informs the observer how to mark each interval (e.g., color in the square, make an “x” or leave it blank). After several days or weeks of data collection, the observer may start to see a pattern across the scatterplot matrix that will provide information about possible patterns of time and behavior.

Summarizing the Data:

The scatterplot is typically reported as the percentage of intervals in which the behavior occurred. To calculate the % of intervals, count the number of intervals in which the behavior was recorded, divide by the total number of intervals during the observation period and multiply by 100.

Example: Mary was out of her seat during 4 out of 10 intervals → $4 \div 10 = .40 \times 100 =$ Mary was out of her seat during 40% of intervals on 8/31/09.

PERMANENT PRODUCT

Description:

This method involves selecting a product or result that indicates the occurrence of the target or replacement behavior and a response is recorded if the product is or is not produced. It is not recommended to use this method as the primary method of data collection. Permanent products should support a primary direct observation method (e.g., frequency, interval).

Examples:

of correctly completed homework problems, tokens for appropriate behavior, and referrals

Special Considerations:

A benefit of this method is that the observer does not necessarily have to be present when the behavior occurs. The occurrence of the behavior is indicated by the product or lack of product produced. A limitation of this method is that the observer cannot always determine who engaged in the behavior that led to the product recorded (e.g., someone else completing homework).

How to Collect the Data:

The method of collecting the data depends on the product that the team has chosen.

Summarizing the Data:

Summarizing permanent product data is specific to the type of product. If the team is targeting homework completion, they could calculate the percentage of opportunities to complete the homework for each week or month. If the team wants to track the number of tokens a student receives for appropriate behavior, they could calculate the frequency of tokens received per day.

Choosing a Data Collection Method

Type of Behavior	Data Collection Method
The behavior does not occur that often	Frequency, Rate, ABC
We need to know exactly how many times the behavior occurs per day	Frequency, Rate, ABC
The behavior is easy to count and the length of observation time is consistent day to day	Frequency, ABC
The behavior is easy to count but the length of observation time varies day to day	Rate
The behavior occurs for long periods of time and the beginning and end of the behavior is observable	Duration
The behavior does not occur often, but when it does, it occurs at long durations	Duration
We need to know the length of time the behavior occurs	Duration
We need to know how often or specific times that a behavior occurs	Interval, Scatterplot
The behavior occurs at a high frequency	Interval, Scatterplot, Time Sampling
The behavior occurs frequently and the duration of the behavior is really short.	Interval, Scatterplot, Time Sampling
The behavior occurs constantly	Interval, Scatterplot, Time Sampling
The student is presented with opportunities to engage in an appropriate behavior	Opportunities
We need to know how long it takes for a student to start engaging in a behavior when presented with the opportunity	Latency
The observer needs to record multiple behaviors of multiple students at one time	Time Sampling
We need documentation of a specific intervention (e.g., token economy)	Permanent Product
We need extra data to support our primary method of data collection (e.g., referrals)	Permanent Product