

## Data...How Does Yours Measure Up?



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## Why measure behavior?

- Measuring behavior prior to intervening gives us a baseline of what is occurring
- Can compare baseline to after intervention has begun
- Provides a rationale for needing behavioral intervention
- Be sure to watch for observer bias.

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## Operational Definitions

- Use active and observable terms
- Do not use the label as the description
  - The label is simply used to label—a definition is needed
- Clear and unambiguous
  - So each person observing the behavior will see the same thing
- Avoids using “feeling” or “intent” terms
  - If you can’t see it, how do you know?
- Inter-observer agreement (IOA) should be gathered and relatively high

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## Data Collection

- Ongoing data collection versus data collected for the functional assessment
- Data should be collected when the behavior is occurring
- Ask:
  - When does the behavior occur?
  - Where does it occur?
  - Does it occur with certain people only?
- Also observe when the behavior is not occurring for additional information

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## On-going Data Collection

- Once a system is used to gather baseline data, the same system should be used to monitor progress of intervention
- Determine who will collect on-going data
  - Someone who sees the behavior
  - Someone with the time to record the behavior
  - Someone who has been trained on taking the data
- Important to choose a measurement system suitable for the defined behaviors
  - Non-example: Self-report for lying
  - Example: Interval recording for on-task behavior
- Once a system has been chosen and developed, it should be tested for contextual fit & reliability

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## Permanent Product Recording

- What is it?
    - Gather information about the enduring outcome of a behavior
  - Counts a physical result
- Examples:
- Correctly completing homework problems
  - Number of assignments ripped or crumpled
  - Number of pencils thrown
  - Number of items broken
  - Photographs of self injury

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## Pros and Cons of Permanent Product

- Advantages
  - you do not need to observe the student while he or she is engaging in the behavior
  - Teachers can use without any major changes to their daily activities and responsibilities.
  - easy to use and can be applied to many different settings and situations.
  - can be filed or stored for review or verification later as needed.
- Disadvantages
  - not always clear whether the student actually created the product.
  - Sometimes a work assignment or item created is the product of another student's behavior but there is no way to identify who engaged in the behavior of interest.
  - At times, direct observational measures are more useful than permanent product recording because you can see how the student is engaging in a behavior and better understand the context in which these behaviors occur.

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## Use Permanent Product When...

- The behavior results in a lasting product or outcome.
- There is limited time/opportunity to observe the behavior
- Method can be combined with direct observation methods.

*NOTE: It is important to confirm, if possible, that the products created are due to the student's behavior and not the behavior of someone else.*

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## Event Recording/Frequency

- What is it?
  - Gather information about the number of times the behavior occurs over a specific time period
- Type of behavior
  - Clear beginning and end
  - Low-incidence
  - Examples:
    - Raising one's hand
    - Physical Aggression
    - Self-Injurious Behavior
    - Tantrums

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## Pros and Cons of Event/Frequency

- Advantages
  - Easy to implement and can be used while teaching class.
  - Wrist counters, tally marks, post-its, or paperclips
- Disadvantages
  - not as helpful when behavior occurs at a really high rate or for extended periods of time.
  - Behaviors that may occur at a high rate or over extended periods could include temper tantrums, reading, staring off into space, or talking to peers.

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- Event recording can be used if your objective is to increase
- A behavior can be easily counted when:
  - The behavior has a clear beginning and end so that you can easily tell when the behavior starts and when it ends, and
  - It does not happen at such a high rate that it is hard to document.

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## Duration Recording

- What is it?
  - Gather information about the length of time the behavior occurs
- Type of behavior
  - Clear beginning and end
  - Example: Sitting at the desk, Time "alone", cooperative play

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## Latency Recording

- What is it?
  - Gather information about the length of time it takes for a behavior to occur after a particular event takes place
- Type of behavior
  - Clear beginning
  - Examples:
    - Complying with a request to take a bath
    - Beginning an assignment after instruction

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- useful when you are interested in the length of time between a specific cue, event, or verbal prompt and the occurrence of a behavior.
- can tell you whether a student is getting better at starting to work on in-class assignments when prompted to begin working, preparing for class activities, or returning to class after lunch.

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## When to use:

- Clear beginning and end
- can be used to prevent problem behavior by identifying the length of time between a triggering event (also called an antecedent) and the occurrence of problem behavior.
- used to find out exactly when to prompt a new communication skill that will result in the same outcome as the problem behavior.
- can be used when a teacher is interested in the time it takes for a student to engage in an academic behavior after an instructional prompt is given.

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## Momentary Sample Recording

- What is it?
  - Gather information about presence or absence of a behavior **at the end** of each time interval
  - Look at the end of the interval and check if behavior is occurring at that time
- Type of behavior
  - Not clear beginning or end
  - High rate or long lasting
  - Ex. Reading

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## Pros and Cons

- advantage
  - a teacher does not need to be attending to a student's behavior all of the time.
- disadvantage
  - it can underestimate a student's behavior since the student may engage in a behavior throughout an interval but stop right before the end of the interval.

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## Partial Interval Recording

- What is it?
  - Gather information about presence of a behavior **anytime** during each time interval
  - Look throughout the interval and check when the behavior occurs
- Type of behavior
  - Fleeting behavior
  - Ex. Smiling

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## Whole Interval Recording

- What is it?
  - Gather information about presence of a behavior **throughout** the entire time interval
  - check only if the behavior occurs throughout the interval
  - Important that behavior occurs without interruption
  - Examples:
    - Being on-task
    - Self-stimulation
    - Skin-picking

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## Pros and Cons of Whole Interval

- Advantages
  - estimates the duration of a behavior
  - provides information about where behaviors are occurring or not occurring within an observational session.
- Disadvantage of whole interval recording is that
  - it requires an observer's undivided attention.
  - Observing and recording data can be challenging, especially if using a stopwatch since the person recording must attend to both the timing of intervals as well as the student.

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## So, how do you measure up? What method would you use...

- If the behavior generates a product?
- If the behavior can be counted and has a defined start and stop?
- If the behavior is difficult to count and lasts for a long time?
- If the behavior is difficult to count but happens quickly?
- If you want to know how long it takes to get a response after a demand?
- If it is important to know how long the behavior lasts?
- If you want to know that the behavior happens without interruption?

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## Other Methods of Data Collection

- Per opportunity—number of times the behavior occurs out of the possible opportunity
- Checklist—behaviors that are to occur are marked if they do
- Scatter plot—a designated time is charted out and data is collected on when behaviors occur
- Task Analysis—behavior is sequenced in order of occurrence
- Antecedent, Behavior, Consequence - data is collected on what occurred before and after the behavior
- Narrative data recording—taking written anecdotal notes of what is occurring

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## After data is collected...

- Data should be analyzed, shared and used to guide further actions

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## Activity: Mix it up!

Shape Groups: Review operational definition

- Letter Groups A & B: Collect frequency data
- Letter Groups C & D: Collect 10-second partial interval data
- Letter Groups E & F: Collect 10-second whole interval data

**Calculate Reliability (Inter-rater agreement)**

Number Groups: Discuss differences in data collection methods & agree on best fit for on-going measurement.

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## Remember

- The importance of
  - A good operational definition
  - Using the same label throughout
  - Addressing the function of the behavior
  - Addressing the problem routines
  - Using a sensitive method of measurement
  - Having reliable data
  - Having clear graphs

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## About Graphs

- In order to **determine the effects of an intervention**, it is important to:
  - Have clear data
  - Choose a sensitive scale
  - Use clear and consistent labels
  - Limit # of behaviors on one graph (3)
  - Add condition labels/lines
  - Add trend lines

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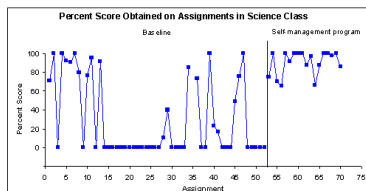
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## Line Graphs & Pie Charts & Bars - Oh my!

### ■ Line Graph



- Can identify patterns and trends across data and label specific conditions over time
- Uses & Limitations

<http://www.specialconnections.ku.edu/cqi-bin/cqiwrap/speconn/main.php?cat=assessment&section=main&subsection=ddm/graphing>

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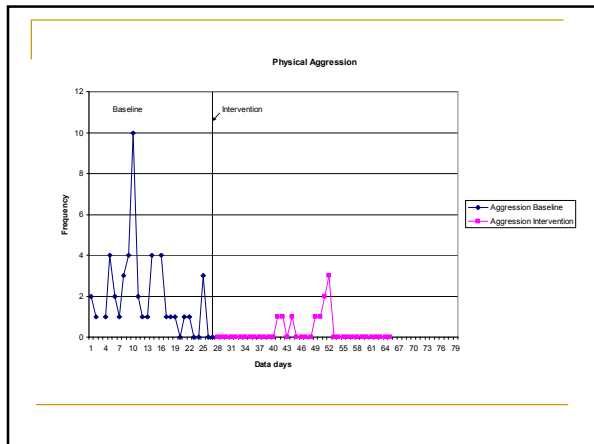
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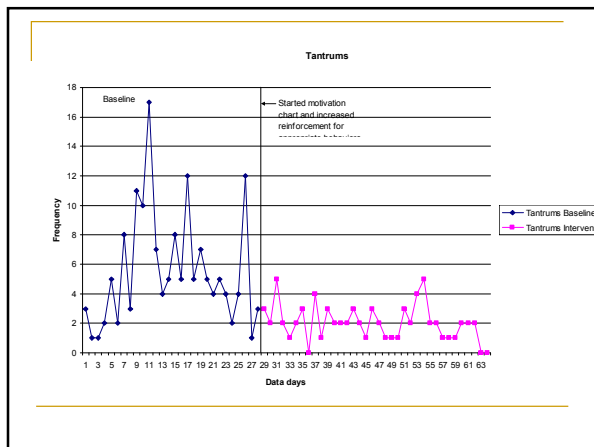
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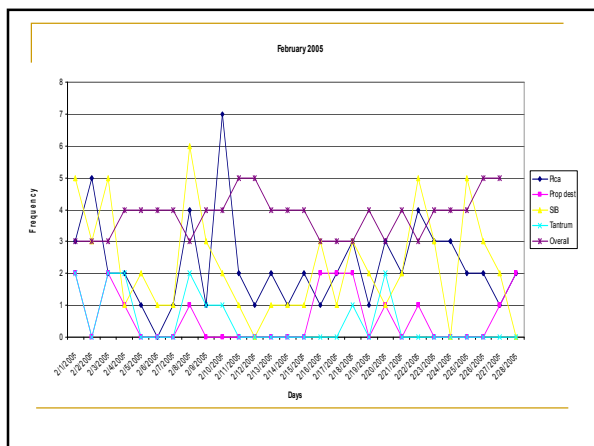
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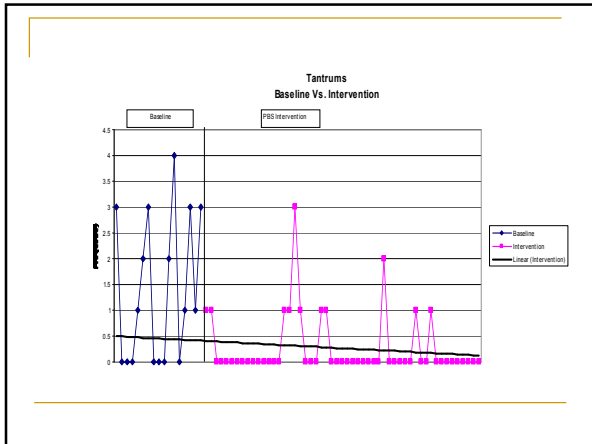
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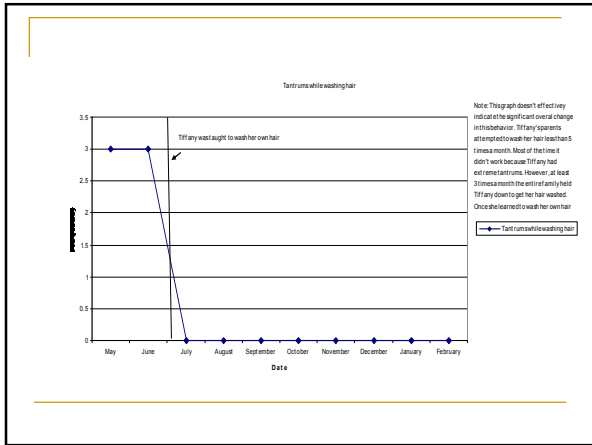
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## Bar Graphs

- Shows comparison between overall values or %

Class	Before study program	During study program
Math Class	51%	87%
English Class	40%	89%
Science Class	45%	82%

- Uses and Limitations?

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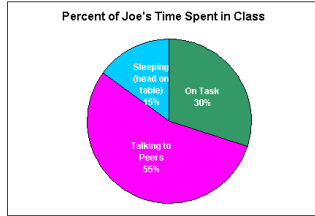
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## Pie Charts

- Shows ratio of portion to a whole (%)



- Uses and Limitations

<http://www.specialconnections.ku.edu/cgi-bin/cgiwrap/specconn/main.php?cat=assessment&section=main&subsection=ddm/graphing>

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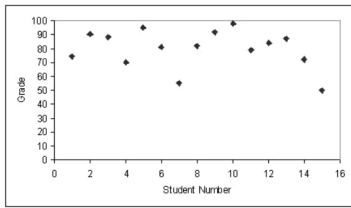
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## Scatter Plots

- Represents measures that are not necessarily collected consecutively



- Uses and limitations

<http://www.specialconnections.ku.edu/cgi-bin/cgiwrap/specconn/main.php?cat=assessment&section=main&subsection=ddm/graphing>

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## QUESTIONS????

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