**Importance of Data:**

* Every agency takes data a little bit differently, but nonetheless, in ABA, data is recorded frequently
* Data helps us track learners’ progress
* Allows us to see if the program needs to be modified
* Tracks their gains
* Can help us understand their problem behavior
  + When does it occur
  + How often
  + Frequency
  + Is the behavior plan working

**Steps of Measurement:**

1. Assessment

* Start with Curriculum Assessments:
* ABLLS-R: James Partington (2006)
* VB-MAPP: Mark Sundberg (2008)
* ESDM: Sally Rogers, Geraldine Dawson (2009)
* PEAK: Mark Dixon (2014, 2015)

1. Develop a Behavior/Education Plan

* IEP – Individualized Education Plan
* BSP – Behavior Service Plan
* These terms are sometimes used interchangeably depending on where you practice
* Example: Schools refer to IEPs, group homes refer to BSPs
* Purpose: to state goals in definable, measurable ways
* Outlines both positive (skill acquisition) and negative behavior (behavior reduction)
* Examples:
  + - The student will label 50 items with 80-100% accuracy
    - The student will raise her hand during a group lesson at least 2x
    - The student will reduce self-injurious biting behavior to near-zero levels
    - Goals are determined by assessment, observation, and caregiver input
  + Individualized per child
  + Comprehensive
  + Quantitative/Measurable

1. Implement Programs from Behavior/Education Plan
2. Data Collection

* Purpose: To measure progress
  + To track IEP/skill acquisition goals
  + Measure and track behavior

1. Analyze Data

* Don’t just collect data, ANALYZE!
  + Assess – is this working?
* Analyze in order to make changes
  + Updates
  + Modifications
* Data is only as effective as how you use it
* Data needs to be graphed and analyzed weekly
* Better to start with less data and have it meaningful than to have data on everything and it not be useful
* Make program updates and changes according to the data

1. Advance Programs

**Types of Data Collection:**

1. Percentage Correct (trial by trial)
   * Trial-by-trial data
   * Amount correct out of number of opportunities presented
   * Examples:
     + Score on a test
     + Questions answered correctly
     + Requests made (out of number of opportunities presented)
   * Advantages: gives a clear picture of learning
   * Disadvantages: data can be cumbersome
2. Y/N First Probe

* First trial of the session gets recorded – correct or incorrect
* Then throw your pencil down and teach
* Advantage: data collection is not cumbersome and does not interfere with teaching
* Disadvantages: instructors do not always run enough teaching trials; it can be difficult to see trends in data (is “no” really a “no” or is it a 60%?)

1. Rating Scale

* Rubric – defined by pre-determined scale
  + - Rate level of independence
    - Rate level of competence
    - Rate level of attending

1. Rate/Frequency of Occurrence/Non-Occurrence

* How often is something happening?
* Examples:
  + How often is the child hitting?
  + How often is the student raising his hand during a group lesson?
  + How many redirections are required to get the student back on task?
  + How many times is the student initiating to a peer at recess?

1. Duration

* How long is something lasting?
* Examples:
  + How long can the student stay on task?
  + How long does a tantrum last?
  + How long can a child engage in parallel play?

1. ABC

* Antecedent-Behavior-Consequence
* Used to determine function of negative behavior
* Disadvantage: can be cumbersome; data is not always analyzed
* Once we know function, move to frequency/duration

1. Task Analysis

* Great for life skills where the goal is independence
* Defined by the level of prompting required
* Backward or forward chain
* Examples:
  + Follows an independent schedule
  + Hygiene skills – e.g., handwashing
  + Morning routine
  + Desensitization

1. Interval Recording (partial/whole interval, time sampling)

* Time sampling that does not catch every instance of behavior
* Also called, “Discontinuous measurement”
* Suited for behaviors that do not have a discrete start and end (e.g., crying, tantrums, attending to task, etc.)
  + Partial interval recording
    - Did the behavior happen at any point during the interval?
    - Use when the goal is to decrease behavior as it over-estimates the duration of the behavior
  + Whole interval recording
    - Did the behavior occur for the entire interval?
    - Use when the goal is to increase behavior as it underestimates the duration of behavior
    - The longer the interval, the more whole interval will under-estimate the occurrence of behavior
  + Momentary time sampling
    - At the exact moment the interval ends, did the behavior occur?
    - Example: Is a student on task at circle time?
    - Not recommended for low frequency, short duration behaviors

1. Permanent Products

* “Any behavior that leaves an impact on the environment and can be recorded after the behavior occurs” (Cooper, Heron, Heward)
* You don’t have to be there for the behavior but can see what the behavior created
* Examples:
  + Number of homework pages completed correctly
  + Cutting/Scissor skill sheets completed accurately
  + Creative projects
  + Amount of trash left on the table after snack
  + Scratches/Marks as a result of self-injurious behavior
  + Etc.

1. Other:

* Narrative Accounts
* Academic Assessment

**Choosing the Correct Data Collection Method - Tips:**

* Think about what is the end goal? What do you want the data to show?
* Start small – don’t tackle all the goals at once
* Pick a few that are manageable and update/add accordingly
* While % goals seem simple, they can be hard to track in a classroom setting – think about other types of data that are easier to collect

**Data Collection – Discussion:**

* Ways to track it inconspicuously (so that it is not so cumbersome)
* Yes/No – first probe data
* Frequency – counter
* How to track data so that it is not so onerous on the care giver (i.e., self-monitoring systems)

**Data Collection Methods:**

* Paper and pencil graph
* Software
* \*\*This is where you can go into detail about how your agency collects data\*\*

**Baseline:**

* Do a baseline assessment of skills before starting to teach
* Why?
  + To assess if a client is already able to perform the skill
  + Help avoid unnecessary teaching if skill is baselined out of
  + To assess what level a child is at in the specific program
  + To determine which step to begin teaching
* Example:
  + Color Identification – end goal = student will identify at least 10 colors with 80-100% accuracy when presented in an array of 3 and asked, “show me \_\_\_”
  + Therefore – test the end goal
  + Gather 10 color cards – put out 3 at a time and ask, “show me \_\_\_\_”

**Feedback During Baseline:**

* Careful not to provide feedback on responses during baseline
* Any ideas why?
  + We do not want to accidentally teach the skill during baseline as it will skew our data
* Therefore, do not reinforce, error correct, or prompt
  + We want to know whether this is something that the student needs to be taught or not
* Reinforce for other skills like, “great sitting”, “I love your focus”, etc.

**Duration of Baseline:**

* If a student is getting 0%, baseline should be quick
* If a student is guessing at certain answers but getting them correct by chance, then spend 2 sessions baselining

**Pretest:**

* A pretest is conducted at the beginning of every new step within the program that needs to be taught
* Purposes:
  + To assess where to begin teaching that specific step
  + To avoid teaching a skill that has already been learned
* No prompting or reinforcement is given for the desired response
* Example: test blue when you get to that condition

**Baseline vs. Pretest:**

* Baseline
  + Conducted once at the commencement of a program
  + Example: test all colors
* Pretest
  + Conducted at the beginning of each step in the program
  + Example: test red, blue, yellow before teaching those specific colors

**Graphing Pretests:**

* Pretests should also be depicted with an ‘x’ at the beginning of each condition on a graph
* When it is evident that the student does not have the skill set being pretested (i.e., is getting all N’s), only run 2-3 trials before moving on to skill acquisition

**Program Advancement:**

* The most important part of data collection is the ANALYSIS
* How do we know when to move up a level in the program?
* How do we read and analyze the data?

**Mastery Criteria:**

* Mastery should, ideally, be across 2 instructors (unless otherwise specified) + first trial correct
* % Correct Data
  + 80% for 2 consecutive sessions (unless otherwise specified)
  + First trial must be correct
* Workbook Programs
  + 1 session at 80% or higher
* Y/N Data
  + 3 consecutive ‘yes’ scores
* Rating Scale Data
  + 2 consecutive sessions at ‘4’
  + OR 1 session at ‘5’

**Revision Criteria:**

* Unless otherwise discussed and specified by the BCBA, in conjunction with the team and primary instructor, the following revision criteria apply to all clients:
* Per Opportunity Data (i.e., % correct)
  + 5 data points at either a flat-line or downward trend
* Probe Data (i.e., Y/N Data)
  + 10 consecutive ‘N’ probe data points
* Rating Scale Data
  + 10 data points at ‘1’ or ‘2’
* Behavior Management Data
  + This is child specific and varies across clients
  + Teaching conditions and revisions for these programs should be discussed with the BCBA
* In any case where progress seems to be lacking, it is the instructor’s responsibility to inform the BCBA of the team so alternate strategies for teaching can be discussed

**Mastered Targets:**

* When teaching, mastered conditions of programs should be randomized with all current skill acquisition targets
* Maintenance data is collected separately from skill acquisition data
* Maintenance should be run daily, but data should be collected minimum once per week

**Mastered Programs:**

* When a student masters a program, the program should be filed at the back of the student’s data binder in reverse chronological order
* Then the “Mastered Program Sheet” should be filled out
* In addition, fill out a cue card and file it in the student’s ‘mastered’ recipe box
* Cue cards should include:
  + Program Name
  + Target Objective
  + SD
  + Correct Response
  + Example
  + Mastered Targets
* Maintenance should be run on all programs outlined on data sheet at least once per week and graphed on a maintenance data sheet

**Maintenance Schedule:**

* Maintenance schedule (unless otherwise specified):
  + 1x per week for 3 weeks
  + 1x per 2 weeks for 3 weeks
  + 1x per month for 3 months
  + 1x peer 3 months for 3 months

**References:**

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