**PS340: Exceptional Needs Children**

**Unit 7 Discussion Board Lecture**

Unit 7 introduces you to single-subject designs. These designs allow the behavior analyst to set up the specific ways in which the behavior intervention plans (BIPs) will be implemented in order to determine the effectiveness of the intervention. Comparing intervention data with baseline data, with regard to the level, trend, and variability of the data, will allow you to determine the effectiveness of your intervention. Examination of data, through the use of single-subject designs, will point out the functional relation between the intervention and the target behavior. This examination informs the behavior analyst as to whether changes are needed in the BIP. The importance of graphing baseline and intervention data is presented in this unit.

The Behavior Analyst Certification Board (BACB) has outlined professional and ethical codes of conduct for behavior analysts. These codes are designed to insure the highest standards for your work with your clients, your collaborations with other professionals, your supervision of those desiring to enter the field, and your responsibility to our science. Complying with the ethical guidelines that govern your profession will enable you to deliver ethical and effective services to your clients, as well as insure helpful collaborations with other professionals for the good of your clients. Through your compliance with the guidelines, you will also further the acceptance of, and regard for, applied behavior analysis (ABA).

Single-subject designs allow teachers to measure the effectiveness of intervention strategies for the target behavior. They require repeated measures of the behavior during the intervention. Single-subject designs have been used successfully to demonstrate the effectiveness of intervention strategies for students with behavioral, social, emotional, and academic difficulties.

The first step in implementing a single-subject design is to collect and record baseline data. Baseline data consist of information collected on the student’s target behavior prior to intervention and establishes a benchmark in which the student’s behavior can be measured. This data can indicate whether the student’s behavior is increasing, decreasing, or is unstable. A stable baseline provides the best context for determining if an intervention strategy is effective.

Once a stable baseline has been established, the next step is to implement the intervention strategy. The data collected during this period are the intervention data – or treatment data. A single-subject design compares the baseline data and the intervention data to reveal any changes in the target behavior and allows an assessment of the effectiveness of the intervention. Changes in the target behavior can be examined along one or more of three parameters: level, trend, and variability. Level is the average rate of the behavior during a condition. Trend is a consistent, one-direction change (increasing or decreasing) in the rate of the behavior during a condition. And, variability is the fluctuation in the rate of the behavior during a condition – basically, the data is “all over the map” with no distinct trend.

Three factors regarding the level, trend, and variability of behavior need to be examined to determine if there is a functional relationship between the behavior and the intervention, i.e., whether the intervention is having an effect on the target behavior:

1. The immediacy of the change in the behavior following a condition.
2. Any overlap of data points between conditions.
3. The degree of change in the behavior

There are various types of single-subject designs that can be used to measure the effectiveness of interventions: the AB design (Baseline-Intervention), the withdrawal design (Baseline – Intervention – Baseline), the alternating treatment design (Baseline – Intervention A – Intervention B), the changing criterion design, and the multiple-baseline design.

Let’s examine these designs in a bit more depth:

The **AB design** uses one set of baseline data (Condition A) and one set of intervention data (Condition B). The AB design cannot accurately determine the effectiveness of an intervention because it does not provide for replication of the procedure. Replication is the repeating of the intervention strategy to determine the likelihood that the change in the behavior was not due to external (extraneous) variables.

The **withdrawal design** (ABA or ABAB design – or variations of the two) adds a second baseline after the intervention strategy, and then reintroduces the intervention strategy after the second baseline – if it is an ABAB design. The withdrawal design provides replication of the intervention strategy; however, consideration of the ethical issues of withdrawing an effective intervention to return to a baseline condition must be made.

The **alternating treatment design** (ABAC) is similar to the withdrawal design, but instead of reintroducing the same intervention, a second, different intervention, is introduced (Condition C). Baselines and interventions can be repeated often in alternating treatment designs across multiple conditions, but each intervention should be implemented an equal number of times. The alternating treatment design provides replication of the intervention strategies and increases reliability, compares the results of two or more intervention strategies, and determines which intervention has been the most effective in modifying the student’s target behavior.

The **changing criterion design** evaluates the effectiveness of an intervention strategy by progressively increasing or decreasing the behavior in stepwise changes by manipulating the conditions of the intervention. The changing criterion design does not require withdrawal of the intervention, and does not delay the intervention or present any of the ethical issues related to withdrawing an effective intervention.

The **multiple-baseline design** is an extension of the AB design that allows the behavior analyst to examine intervention strategies across students, behaviors, and settings. The multiple-baseline across-behaviors design can facilitate the analysis of the effectiveness of an intervention strategy on two or more behaviors of one student in a single observation period. The multiple-baseline across-individuals design can facilitate the analysis of the effectiveness of an intervention strategy for two or more students with the same target behavior. The multiple-baseline across-settings design can facilitate the analysis of the effectiveness of the intervention strategy for one student in two or more settings. The multiple-baseline design provides replication of the intervention strategy and may provide information on causality between the behavior and the intervention when there is a change in the target behavior.

Thank you for viewing your Unit 7 lecture!

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