

Antecedent-Based Intervention (ABI)

Brief Introduction

Antecedent-based intervention (ABI) is an evidence-based practice used to address both interfering and on-task behaviors. This practice is most often used after a functional behavior assessment (FBA) has been conducted to identify the function of the interfering behavior.

Fact Sheet Adapted from:

Hume, K. (2013). *Antecedent-based intervention (ABI) fact sheet*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, The National Professional Development Center on Autism Spectrum Disorders.

Neitzel, J. (2009). *Overview of antecedent-based interventions*. Chapel Hill, NC: The National Professional Development Center on Autism Spectrum Disorders, Frank Porter Graham Child Development Institute, The University of North Carolina.

Description

ABIs are a collection of strategies in which environmental modifications are used to change the conditions in a setting that prompt a learner with ASD to engage in an interfering behavior. For example, many interfering behaviors continue to occur because the environmental conditions in a particular setting have become linked to the behavior over time. The goal of ABI is to identify factors that reinforce the interfering behavior and then modify the environment or activity so that the factor no longer elicits the interfering behavior. Common ABI procedures include 1) using highly preferred activities/items to increase interest level; 2) changing the schedule/routine; 3) implementing pre-activity interventions (e.g., providing a warning about the next activity, providing information about schedule changes); 4) offering choices; 5) altering the manner in which instruction is provided; and 6) enriching the environment so that learners with ASD have access to sensory stimuli that serve the same function as the interfering behavior (e.g., clay to play with during class, toys/objects that require motor manipulation). ABI strategies often are used in conjunction with other evidence-based practices such as functional communication training (FCT), extinction, and reinforcement (Neitzel, 2009).

ABI meets evidence-based criteria with 32 single-case design studies. According to the evidence-based studies, this intervention has been effective for toddlers (0–2 years) to young adults (19–22 years) with ASD. ABI can be used effectively to address social, communication, behavior, play, school-readiness, academic, motor, and adaptive skills.

Matrix of ABI by Outcome and Age (years)

Social			Communication			Behavior			Joint Attention			Play			Cognitive			School Readiness			Academic			Motor			Adaptive			Vocational			Mental Health		
0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22	0-5	6-14	15-22			

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Antecedent-Based Intervention (ABI) Research Summary

Ages	Skills/Intervention Goals	Settings	Outcome
0–22 years	Social, Communication, Behavior, Play, Cognitive, School Readiness, Academic, Motor, Adaptive	Home, School, Community	EBP

*The information found in the Research Summary table is updated yearly following a literature review of new research and this age range reflects information from this review.

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Steps for Implementation

Antecedent-based interventions (ABI) are a collection of practices in which environmental modifications are used to change the conditions in a setting that prompt a learner with ASD to engage in an interfering behavior. The goal of ABI is to identify the conditions in the setting that are reinforcing the interfering behavior and then to modify the environment or activity so that the environmental conditions no longer elicit the interfering behavior.

Step 1. Identifying the Interfering Behavior

In Step 1, teachers/practitioners identify an interfering behavior for a learner with ASD that they would like to decrease. In most cases, the interfering behavior is one that is interfering with learning and development (e.g., self-stimulating, repetitive, self-injurious, stereotypical). Therefore, teachers/practitioners complete a high-quality functional behavioral assessment (FBA) to identify the function of the interfering behavior and select an ABI strategy that addresses the function of the behavior and can be used to decrease the interfering behavior. Please refer to *Functional Behavioral Assessment: Steps for Implementation* (National Professional Development Center on ASD, 2008) to acquire more in-depth information about the following FBA strategies.

A. Teachers/practitioners use direct observation methods that generally include:

- i. A-B-C data charts: A-B-C data charts help team members determine what happens right before the behavior (the antecedent), the behavior that occurs, and what happens immediately after the behavior (the consequence). These data provide insight into why the learner may be engaging in a particular behavior.
- ii. Scatterplots: Scatterplots help team members determine:
 - the possible functions of the behavior,
 - when the behavior is occurring, and
 - times of the day when an intervention might be implemented to reduce the interfering behavior.

B. Teachers/practitioners use direct assessment results to identify:

- i. where the behavior is happening;
- ii. with whom the behavior is occurring;
- iii. when the behavior is happening;
- iv. activities during which the behavior occurs;
- v. what other students are doing when the behavior starts;
- vi. what teachers/adults are doing when the behavior starts;

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- vii. proximity of other students, teachers, and/or adults;
 - viii. the noise level in the environment;
 - ix. the number of individuals in the area;
 - x. other environmental conditions (e.g., lighting, door open/closed); and
 - xi. the function of the behavior (i.e., *to get or obtain something*—obtaining internal stimulation, wanting something because it feels good, obtaining attention, obtaining activities or objects; or *to escape or avoid*—obtaining internal stimulation, not wanting something because it feels bad, escaping or avoiding attention, avoiding tasks or activities).
- C. Teachers/practitioners develop a hypothesis statement for the interfering behavior that includes:
- i. the setting events (i.e., the environment or conditions in which the behavior occurs), immediate antecedents, and immediate consequences that surround the interfering behavior;
 - ii. a restatement and refinement of the description of the interfering behavior that is occurring; and
 - iii. the function the behavior serves (i.e., *get/obtain, escape/avoid*).
- D. Teachers/practitioners identify an overall goal for the learner that will be accomplished as a result of the intervention.

Step 2. Collecting Baseline Data

Once the interfering behavior is identified, teachers/practitioners collect baseline data to determine how often the learner with ASD is currently engaging in the interfering behavior. Baseline data give teachers/practitioners a starting point from which they can evaluate whether the interfering behavior decreases as a result of ABI.

- A. Teachers/practitioners measure a learner’s engagement in the interfering behavior before implementing ABI by collecting:
- i. Frequency data: Frequency data measures how often a learner engages in a particular behavior. *Event sampling*, a method for collecting data on behaviors that occur infrequently, is used to record every instance of the interfering behavior. Data are then used to identify a potential pattern in a learner’s behavior over a period of days or weeks.
 - ii. Duration data: Duration data records how long a learner engages in a particular behavior during a class, activity, or treatment session. For example, a teacher might collect data on how long a learner with ASD engages in hand mouthing during math class. 2. Teachers/practitioners collect baseline data for a minimum of four days before implementing ABI.

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- B. Teachers/practitioners collect baseline data in numerous settings and/or activities.

It often is useful to have more than one practitioner collect baseline data over the course of several days to compare findings. Moreover, by collecting data in multiple settings, teachers/practitioners can potentially recognize patterns of behavior. For example, does the learner engage in the interfering behavior more often in one setting than another? This kind of information helps teachers/practitioners identify activities or settings that can be modified using ABI strategies.

Step 3. Implementing ABI

In Step 3, teachers/practitioners identify and implement ABI strategies that directly address the function of the interfering behavior to prevent its future occurrence.

- A. Teachers/practitioners identify one of the following ABI strategies that directly addresses the function of the interfering behavior:
- i. Using learner preferences
 - ii. Changing schedules/routines
 - iii. Implementing pre-activity interventions
 - iv. Using choice-making
 - v. Altering how instruction is delivered
 - vi. Enriching the environment
- B. Teachers/practitioners implement the selected ABI strategy by creating a lesson plan that includes:
- i. weekly objectives for the learner with ASD that will lead to a decrease in an interfering behavior;
 - ii. a statement of the strategy and what the teacher will do (e.g., adapting instructions for assignments); and
 - iii. the materials needed to implement the ABI strategy.
- C. Teachers/practitioners ignore the interfering behavior when it occurs.

Extinction often is used in conjunction with ABI strategies. With this evidence-based practice, teachers/practitioners no longer provide reinforcement for the interfering behavior by ignoring it, which eventually leads to a decrease in or elimination of the interfering behavior. Please refer to *Extinction: Steps for Implementation* (National Professional Development Center on ASD, 2008) for more information about extinction.

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- D. Teachers/practitioners provide learners with reinforcement each time they:
- i. do not engage in the interfering behavior, and
 - ii. complete the weekly objective.

Please refer to *Positive Reinforcement: Steps for Implementation* (National Professional Development Center on ASD, 2008) for more information about reinforcement.

Step 4. Monitoring Learner Progress

- E. Teachers/practitioners use progress monitoring data to evaluate whether the interfering behavior is decreasing as result of the intervention.

The same data collection sheets that were used to collect baseline data can be used to track learner progress.

- F. Teachers/practitioners use progress monitoring data to adjust intervention strategies if the interfering behavior does not decrease.

If the interfering behavior is not decreasing, teachers/practitioners must try to identify potential reasons for this. The following questions may be helpful during this problem-solving process.

- Is the interfering behavior well defined? That is, is it observable and measurable?
- Are ABI strategies being implemented consistently by all staff?
- Do the ABI strategies directly address the function of the behavior identified during the FBA?