Module: **Antecedent-Based Interventions**

Evidence-Based Practice Brief: Antecedent-Based Interventions

This evidence-based practice brief on antecedent-based interventions includes the following components:

1. **Overview, which gives a quick summary of salient features of the practice, including what it is, who it can be used with, what skills it has been used with, settings for instruction, and additional literature documenting its use in practice**
2. **Steps for Implementation, detailing how to implement the practice in a practitioner-friendly step-by-step process**
3. **Implementation Checklist, to be used to monitor fidelity of the use of the practice**
4. **Evidence Base Summary, which details the NPDC-ASD criteria for inclusion as an evidence-based practice and the specific studies that meet the criteria for this practice**

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Overview of Antecedent-Based Interventions (ABI)

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.

Antecedent-based interventions (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. Most of the studies in the evidence base focused on determining the effectiveness of ABI procedures to reduce repetitive, stereotypical, self-stimulatory, and self-injurious behaviors in learners with ASD. In one study, researchers also analyzed the effects of ABI strategies on engagement and on-task behavior. ABI are a collection of strategies in which environmental modifications are used to change the conditions in the 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 are reinforcing 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.

Evidence

ABI meets evidence-based criteria with three single-subject and two group design studies across the preschool, elementary, and middle/high school age groups. It is particularly effective at reducing interfering behaviors including self-injurious, stereotypical, and self-stimulatory behaviors. ABI also have been shown to be effective in increasing engagement and on-task behavior in learners with ASD.

With what ages are ABI effective?

According to the evidence-based studies, this intervention has been effective for learners with ASD who ranged in age from 3 to 16 years.

What skills or intervention goals can be addressed by ABI?

ABI are most often used with learners with ASD who exhibit interfering behaviors, especially self-injurious, repetitive, and stereotypical behaviors. The studies in the evidence base also focused on promoting engagement and on-task behaviors in learners with ASD.

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Evidence Base for Antecedent-Based Interventions

The National Professional Development Center on ASD has adopted the following definition of evidence-based practices.

To be considered an evidence-based practice for individuals with ASD, efficacy must be established through peer-reviewed research in scientific journals using:

- *randomized or quasi-experimental design studies.* Two high quality experimental or quasi-experimental group design studies,
- *single-subject design studies.* Three different investigators or research groups must have conducted five high quality single subject design studies, or
- *combination of evidence.* One high quality randomized or quasi-experimental group design study and three high quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies).

High quality randomized or quasi experimental design studies do not have critical design flaws that create confounds to the studies, and design features allow readers/consumers to rule out competing hypotheses for study findings. High quality in single subject design studies is reflected by a) the absence of critical design flaws that create confounds and b) the demonstration of experimental control at least three times in each study.

This definition and criteria are based on the following sources:

Horner, R., Carr, E., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children, 71,* 165-180.

Nathan, P., & Gorman, J. M. (2002). *A guide to treatments that work.* NY: Oxford University Press.

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. D., Thompson, B., & Harris, K. (2004). *Quality indicators for research in special education and guidelines for evidence-based practices: Executive summary.* Arlington, VA: Council for Exceptional Children Division for Research.

Rogers, S. J., & Vismara, L. A. (2008). Evidence based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*(1), 8-38.

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Using these criteria, the empirical studies referenced below provided documentation for supporting the use of antecedent-based interventions as an evidence-based practice.

Preschool

Dadds, M., Schwartz, S., Adams, T., & Rose, S. (1988). The effects of social context and verbal skill on the stereotypic and task-involved behavior of autistic children. *Journal of Child Psychology & Psychiatry, 29*(5), 669-676.

Runco, M. A., Charlop, M. H., & Schreibman, L. (1986). The occurrence of autistic children's self-stimulation as a function of familiar versus unfamiliar stimulus conditions. *Journal of Autism & Developmental Disorders, 16*(1), 31-44.

Schilling, D. L., & Schwartz, I. S. (2004). Alternative seating for young children with autism spectrum disorder: Effects on classroom behavior. *Journal of Autism & Developmental Disorders, 34*(4), 423-432.

Elementary

Dadds, M., Schwartz, S., Adams, T., & Rose, S. (1988). The effects of social context and verbal skill on the stereotypic and task-involved behavior of autistic children. *Journal of Child Psychology & Psychiatry, 29*(5), 669-676.

Runco, M. A., Charlop, M. H., & Schreibman, L. (1986). The occurrence of autistic children's self-stimulation as a function of familiar versus unfamiliar stimulus conditions. *Journal of Autism & Developmental Disorders, 16*(1), 31-44.

Middle/High School

Ahearn, W. H., Clark, K. M., DeBar, R., & Florentino, C. (2005). On the role of preference in response competition. *Journal of Applied Behavior Analysis, 38*(2), 247-250.

Moore, J., Fisher, W., & Pennington, A. (2004). Systematic application and removal of protective equipment in the assessment of multiple topographies of self-injury. *Journal of Applied Behavior Analysis, 37*(1), 73-77.

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In what settings can ABI be effectively used?

The evidence-based studies were conducted mainly in clinic-based settings or in one-to-one teaching sessions with learners with ASD. However, in one study, ABI procedures were implemented in a combination of settings (i.e., regular classroom, resource room). Although most of the research did not demonstrate the use of ABI strategies in more naturalistic settings (e.g., during ongoing classroom routines and activities, in the home, in community-based settings), the results of the one study conducted in a regular classroom suggest that ABI procedures could be effectively implemented in more naturalistic settings as well.

Evidence Base

The studies cited in this section document that this practice meets the NPDC on ASD's criteria for an evidence-based practice. This list is not exhaustive; other quality studies may exist that were not included.

Preschool

Dadds, M., Schwartz, S., Adams, T., & Rose, S. (1988). The effects of social context and verbal skill on the stereotypic and task-involved behaviour of autistic children. *Journal of Child Psychology & Psychiatry, 29*(5), 669-676.

Runco, M. A., Charlop, M. H., & Schreibman, L. (1986). The occurrence of autistic children's self-stimulation as a function of familiar versus unfamiliar stimulus conditions. *Journal of Autism & Developmental Disorders, 16*(1), 31-44.

Schilling, D. L., & Schwartz, I. S. (2004). Alternative seating for young children with autism spectrum disorder: Effects on classroom behavior. *Journal of Autism & Developmental Disorders, 34*(4), 423-432.

Elementary

Dadds, M., Schwartz, S., Adams, T., & Rose, S. (1988). The effects of social context and verbal skill on the stereotypic and task-involved behaviour of autistic children. *Journal of Child Psychology & Psychiatry, 29*(5), 669-676.

Runco, M. A., Charlop, M. H., & Schreibman, L. (1986). The occurrence of autistic children's self-stimulation as a function of familiar versus unfamiliar stimulus conditions. *Journal of Autism & Developmental Disorders, 16*(1), 31-44.

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Middle/High School

Ahearn, W. H., Clark, K. M., DeBar, R., & Florentino, C. (2005). On the role of preference in response competition. *Journal of Applied Behavior Analysis, 38*(2), 247-250.

Moore, J., Fisher, W., & Pennington, A. (2004). Systematic application and removal of protective equipment in the assessment of multiple topographies of self-injury. *Journal of Applied Behavior Analysis, 37*(1), 73-77.

Selected Additional References

Charlop, M. H. (1986). Setting effects on the occurrence of autistic children's immediate echolalia. *Journal of Autism & Developmental Disorders, 16*(4), 473-483.

Dunlap, G., Dyer, K., & Koegel, R. L. (1983). Autistic self-stimulation and intertrial interval duration. *American Journal of Mental Retardation*, 88, 194-202.

Gerdtz, J. (2000). Evaluating behavioral treatment of disruptive classroom behaviors of an adolescent with autism. *Research on Social Work Practice*, *10*(1), 198-211.

Van Camp, C. M., Vollmer, T. R., & Daniel, D. (2001). A systematic evaluation of stimulus preference, response effort, and ABI in the treatment of automatically reinforced self-injury. *Behavior Therapy, 32*(3), 603-614.

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Steps for Implementation: Antecedent-Based Interventions (ABI)

Neitzel, J. (2009). *Steps for implementation: Antecedent-based interventions .* Chapel Hill, NC: The National Professional Development Center on Autism Spectrum Disorders, FPG Child Development Institute, The University of North Carolina.

Antecedent-based interventions (ABI) are a collection of practices in which environmental modifications are used to change the conditions in the 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-stimulation, 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.**

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

    a. A-B-C data charts and

A-B-C data charts help team members determine what happens right before the behavior (the antecedent), the behavior that occurs, and what happens directly after the behavior (the consequence). These data provide insight into why the learner may be engaging in a particular behavior.

    b. 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.

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

    a. where the behavior is happening;

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b. with whom the behavior is occurring;

c. when the behavior is happening;

d. activities during which the behavior occurs;

e. what other students are doing when the behavior starts;

f. what teachers/adults are doing when the behavior starts;

g. proximity of other students, teachers, and/or adults;

h. the noise level in the environment;

i. the number of individuals in the area;

j. other environmental conditions (e.g., lighting, door open/closed); and

k. 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).

3. Teachers/practitioners develop a hypothesis statement for the interfering behavior that includes:

   a. the setting events (i.e., the environment or conditions in which the behavior occurs), immediate antecedents, and immediate consequences that surround the interfering behavior;

   b. a restatement and refinement of the description of the interfering behavior that is occurring; and

   c. the function the behavior serves (i.e., get/obtain, escape/avoid).

EXAMPLE: Kenny repeatedly bangs his head on his desk when his teacher asks him to complete an in-class assignment because he does not want to complete the task, and his teacher then walks away and Kenny does not have to do his work.

EXAMPLE: Mary flaps her hands, rocks back and forth, and yells loudly each time the bell rings to switch classes because she does not like the noise, and she then needs help from a staff member to calm down and leave the room. This often results in Mary missing part of or the entire next class.

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4. Teachers/practitioners identify an overall goal for the learner that will be accomplished as a result of the intervention.

EXAMPLE: Kenny will complete in-class assignments without banging his head.

EXAMPLE: 1) Mary will engage in minimal hand-flapping and body rocking when the bell rings at the end of each class period.
2) Mary will not yell when the bell rings at the end of each class period.
3) Mary will walk to class independently when the bell rings at the end of each class period.

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.

1. Teachers/practitioners measure a learner's engagement in the interfering behavior before implementing ABI by collecting

    a. frequency data and

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 of a learner's behavior over a period of days or weeks. Table 1 provides an example of an event sampling data collection sheet.

Table 1. Example of Event Sampling Data Collection Sheet

Date	Bites hand	Total	Before, during, or after reinforcement
7/26/08	XXXXXXXXXXXX	13	Before
7/27/08	XXXXXXXXXXXXXXX	16	Before
7/28/08	XXXXXXXXXXXXX	14	Before
7/29/08	XXXXXXXXXX	11	Before

    b. duration data.

Duration data are used to record 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. Table 2 provides an example of a duration data collection sheet.

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Table 2. Example of Duration Data Collection Sheet

Date	Start time	End Time	Total minutes	Before, during, or after reinforcement
7/26/08	9:00	9:15	15	Before
7/27/08	9:05	9:20	15	Before
7/28/08	9:00	9:13	13	Before
7/29/08	9:10	9:30	20	Before

Baseline data give teachers/practitioners a starting point from which they can evaluate whether the interfering behavior decreases as a result of ABI.

2. Teachers/practitioners collect baseline data for a minimum of four days before implementing ABI.

3. 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. Also, 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.

1. Teachers/practitioners identify one of the following ABI strategies that directly addresses the function of the interfering behavior:

    a. using learner preferences,

    b. changing schedules/routines,

    c. implementing pre-activity interventions,

    d. using choice-making,

    e. altering how instruction is delivered, or

    f. enriching the environment.

Table 3 provides descriptions and examples of each of these ABI strategies.

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Table 3. Descriptions and Examples of ABI Strategies

ABI strategy	Description	Functions addressed	Examples
Using learner preferences	Tasks/activities are modified to increase interest.	Escape/avoid	• Incorporating dinosaurs into a finger painting activity • Using a Spiderman notebook for journal entries
Altering the environment	Routines and schedules are changed to decrease interfering behaviors.	Escape/avoid	• Changing seating • Changing line up procedures • Providing activities during wait time • Providing snack after non-preferred activity • Providing sufficient space between students • Clearly marking areas of the classroom (e.g., work, leisure) • Providing study carrels • Providing a kitchen timer during non-preferred tasks
Implementing pre-activity interventions	Intervention is implemented before a task associated with the interfering behavior.	Escape/avoid	• Providing a warning about an upcoming activity • Going over an assignment before class starts • Providing information about schedule changes • Using activity schedules
Using choice-making	Choice of materials or tasks is offered during activities or settings where the interfering behavior occurs.	Escape/avoid	• Choosing where to sit at snack • Choosing which activity to complete first • Choosing which toy to play with during free play • Choosing whether to write with a pencil or a pen
Altering how instruction is delivered	Instruction is modified so that learner clearly understands what is expected.	Escape/avoid	• Providing written rather than verbal instructions • Providing instructions in a checklist rather than paragraph
Enriching the environment	Providing access to appropriate behaviors (rocking chair)	Get/obtain	• Allowing quiet play with clay or doodling during lectures • Allowing chewing gum instead of playing with saliva

Cihak, Alberto, & Frederick (2007); Kern, Choutka, & Sokol (2002); Luiselli (2008)

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2. Teachers/practitioners implement the selected ABI strategy by creating a lesson plan that includes:

    a. weekly objectives for the learner with ASD that will lead to a decrease in an interfering behavior,

    b. a statement of the strategy and what the teacher will do (e.g., adapting instructions for assignments), and

    c. the materials needed to implement the ABI strategy.

The lesson plan provides teachers/practitioners with a structure for identifying what will be needed to implement the strategy effectively and how the environment will be modified to decrease the occurrence of the interfering behavior. Table 4 provides a sample lesson plan.

Table 4. Sample ABI Lesson Plan

Date: *Week of 11/17/08 -11/21 /08* Classroom: *Math class* Teacher: *Mrs. Banks* Learner's name: *Kenny* Interfering behavior: *Banging head on desk when asked to complete an in-class assignment*
Objectives for this week: 1. *Kenny will complete one in-class assignment with minimal head banging (i.e., less than three times).*
Strategy: *Altering how instruction is delivered* To implement the strategy, I will: 1. *Give Kenny written instructions for assignments rather than providing them verbally.* 2. *Modify worksheet instructions by providing Kenny with a checklist for completing the task.* 3. *Ignore Kenny when he bangs his head while also pointing to written instructions again.* 4. *Let Kenny have 10 minutes of computer time after completing an in-class assignment with minimal head banging (i.e., less than three times).*
Materials needed: 1. *Sentence strips: "Complete these math problems." "Finish your work."* 2. *Checklists for all worksheets that need to be completed this week.*

3. Teachers/practitioners ignore the interfering behavior when it occurs.

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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.

EXAMPLE: Mrs. Banks gives Kenny written instructions to complete an in-class math assignment. Kenny immediately starts banging his head. Mrs. Banks ignores the behavior and points to the sentence strip again which says, "Complete these math problems." Kenny looks at Mrs. Banks and starts banging his head again. Again, Mrs. Banks points to the sentence strip. Kenny bangs his head two more times and then starts the assignment.

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

4. Teachers/practitioners provide learners with reinforcement each time they:

    a. do not engage in the interfering behavior, and

    b. complete the weekly objective.

EXAMPLE: During math class, Mrs. Banks gives Kenny written instructions to complete an in-class assignment. Kenny bangs his head on his desk one time and then follows the checklist instructions provided with the math worksheet. After 10 minutes, Kenny completes the assignment and Mrs. Banks tells Kenny that he can play on the computer for 10 minutes.

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

1. 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.

Table 5. Example of Event Sampling Data Collection Sheet

Date	Bites hand	Total	Before, during, or after reinforcement
7/26/08	XXXXXXXXXXXX	13	Before
7/27/08	XXXXXXXXXXXXXXX	16	Before
7/28/08	XXXXXXXXXXXXX	14	Before
7/29/08	XXXXXXXXXX	11	Before
7/30/08	XXXXXXXX	9	During
7/31/08	XXXXX	6	During
8/01/08	XXX	3	During

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Table 6. Example of Duration Data Collection Sheet

Date	Start time	End Time	Total minutes	Before, during, or after reinforcement
7/26/08	9:00	9:15	15	Before
7/27/08	9:05	9:20	15	Before
7/28/08	9:00	9:13	13	Before
7/29/08	9:10	9:30	20	Before
7/30/08	9:10	9:22	12	During
7/31/08	9:15	9:25	10	During
8/01/08	9:05	9:10	5	During

2. 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?

References

Cihak, D., Alberto, P. A., & Frederick, L. D. (2007). Use of brief functional analysis and intervention in public settings. *Journal of Positive Behavior Interventions, 9*(2), 80-93.

Kern, L., Choutka, C. M., & Sokol, N. G. (2002). Assessment-based antecedent interventions used in natural settings to reduce challenging behavior: An analysis of the literature. *Education and Treatment of Children, 25*(1), 113-130.

Luiselli, J. K. (2008). Antecedent (preventive) intervention. In J. K. Luiselli, D. C. Russo, W. P. Christian, & S. M. Wilczynski (Eds.). *Effective practices for children with autism: Educational and behavioral support interventions that work* (pp. 393-412). NY: Oxford University Press.

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Implementation Checklist for Antecedent-Based Interventions (ABI)

Neitzel, J. (2009). *Implementation checklist for 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.

***Instructions**:* The Implementation Checklist includes each step for implementing antecedent-based interventions (ABI). Please complete all of the requested information including the site and state, individual being observed, and the learner's initials. To assure that a practice is being implemented as intended, an observation is *always* preferable. This may not always be possible. Thus, items may be scored based on observations with the implementer, discussions and/or record review as appropriate. Within the table, record a 2 (implemented), 1 (partially implemented), 0 (did not implement), or NA (not applicable) next to each step observed to indicate to what extent the step was implemented/addressed during your observation. Use the last page of the checklist to record the target skill, your comments, whether others were present, and plans for next steps for each observation.

Site: _____ State: _____

Individual(s) Observed: _____ Learner's Initials: _____

Skills below can be implemented by a practitioner, parent or other team member.

	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Planning (Steps 1-2)									
Step 1. Identifying the Interfering Behavior	**Score****								
1. Use direct observation methods to identify the function of the interfering behavior that include:									
a. A-B-C data charts and									
b. scatterplots.									
2. Use direct assessment results to identify:									
a. where the behavior is happening;									
b. with whom the behavior is occurring;									
c. when the behavior is happening;									

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	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 1. Identifying the Interfering Behavior (cont.)		**Score****							
d. activities during which the behavior occurs;									
e. what other students are doing when the behavior starts;									
f. what teachers/adults are doing when the behavior starts;									
g. proximity to other students, teachers, and/or adults;									
h. the noise level in the environment;									
i. the number of individuals in the area;									
j. other environmental conditions; and									
k. the function of the behavior.									
3. Develop a hypothesis statement for the interfering behavior that includes:									
a. the setting events, immediate antecedents, and immediate consequences;									
b. a restatement and refinement of the description of the interfering behavior; and									
c. the function the behavior serves.									
4. Identify an overall goal for the learner.									

***Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable*

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	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 2. Collecting Baseline Data									
1. Measure a learner's engagement in the interfering behavior before implementing ABI by collecting the following:									
a. frequency data and									
b. duration data.									
2. Collect baseline data for a minimum of four days before implementing ABI.									
3. Collect baseline data in numerous settings and/or activities.									
Intervention (Step 3)									
Step 3. Implementing Stimulus Control									
1. Identify one of the following ABI strategies that directly addresses the function of the interfering behavior: a. using learner preferences, b. changing schedules/routines, c. implementing pre-activity interventions, d. using choice-making, e. altering how instruction is delivered, or f. enriching the environment.									
2. Implement the selected ABI strategy by creating a lesson plan that includes:									
a. weekly objectives for the learner with ASD that will lead to a decrease in the interfering behavior,									
b. a statement of the strategy and what the teacher will do, and									
c. the materials needed to implement the ABI strategy.									
3. Ignore the interfering behavior when it occurs.									

***Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable*

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	Observation	1	2	3	4	5	6	7	8
	Date								
	Observer's Initials								
Step 3. Implementing Stimulus Control (cont.)									
4. Provide reinforcement each time the learner with ASD:									
a. does not engage in the interfering behavior and									
b. completes the weekly objective.									
Progress Monitoring (Step 4)									
Step 4. Monitoring Learner Progress									
1. Use progress monitoring data to evaluate whether the interfering behavior is decreasing as a result of the intervention.									
2. Use progress monitoring data to adjust intervention strategies if the interfering behavior does not decrease.									

***Scoring Key: 2 = implemented; 1 = partially implemented; 0 = did not implement; NA = not applicable*

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Date	Observer Initials	Target Skill/Behavior, Comments, and Plans for Next Steps
Date	**Observer Initials**	**Target Skill/Behavior, Comments, and Plans for Next Steps**
Date	**Observer Initials**	**Target Skill/Behavior, Comments, and Plans for Next Steps**
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Date	Observer Initials	Target Skill/Behavior, Comments, and Plans for Next Steps
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Antecedent-Based Interventions Data Sheet: Frequency

Directions: Complete the following data collection sheet to determine how frequently a learner with ASD is engaging in a particular behavior. In the ***Behavior*** column, simply use tally marks to record each occurrence of the behavior.

Learner: _____

Setting	**Date**	**Length of observation**	**Behavior:**	**Total # of times**	**Before, during, or after intervention**

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Antecedent-Based Interventions Data Sheet: Duration

Directions: Complete the following data collection sheet to determine how long a learner with ASD is engaging in a particular behavior.

Learner: _____

Setting	Date	Start time	End Time	Total minutes	Before, during, or after intervention

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Preference Assessment Worksheet: Early Childhood

Date: _____ **Activity:** _____

Learner: _____

Directions: To identify the preferences of a learner with ASD, observe him/her for at least 30 minutes during a free choice activity time. Every 2 to 5 minutes, circle the material or toy that the learner is interacting with or looking at. If the material/toy is not listed in the following chart, please record in the blank spaces at the bottom of the page. After the observation is complete, identify which material/toy the learner with ASD interacted with the most. Complete at least 3 observations to identify highly preferred materials or toys. Highly preferred materials/toys can then be incorporated into non-preferred activities to increase motivation and engagement.

Animals	Animals	Animals	Animals	Animals	Animals	Animals	Animals
Blocks	Blocks	Blocks	Blocks	Blocks	Blocks	Blocks	Blocks
Books	Books	Books	Books	Books	Books	Books	Books
Bristle blocks	Bristle blocks	Bristle blocks	Bristle blocks	Bristle blocks	Bristle blocks	Bristle blocks	Bristle blocks
Cars	Cars	Cars/	Cars	Cars	Cars	Cars	Cars
Computer	Computer	Computer	Computer	Computer	Computer	Computer	Computer
Dolls	Dolls	Dolls	Dolls	Dolls	Dolls	Dolls	Dolls
Gross motor	Gross motor	Gross motor	Gross motor	Gross motor	Gross motor	Gross motor	Gross motor
Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen	Kitchen
Letters	Letters	Letters	Letters	Letters	Letters	Letters	Letters
Little people	Little people	Little people	Little people	Little people	Little people	Little people	Little people
Paint	Paint	Paint	Paint	Paint	Paint	Paint	Paint
Playdough	Playdough	Playdough	Playdough	Playdough	Playdough	Playdough	Playdough
Pop up toy	Pop up toy	Pop up toy	Pop up toy	Pop up toy	Pop up toy	Pop up toy	Pop up toy
Put in toy	Put in toy	Put in toy	Put in toy	Put in toy	Put in toy	Put in toy	Put in toy
Puzzles	Puzzles	Puzzles	Puzzles	Puzzles	Puzzles	Puzzles	Puzzles
Sensory toy	Sensory toy	Sensory toy	Sensory toy	Sensory toy	Sensory toy	Sensory toy	Sensory toy
Sorting toy	Sorting toy	Sorting toy	Sorting toy	Sorting toy	Sorting toy	Sorting toy	Sorting toy
Stack toy	Stack toy	Stack toy	Stack toy	Stack toy	Stack toy	Stack toy	Stack toy
Swing	Swing	Swing	Swing	Swing	Swing	Swing	Swing
Trains	Trains	Trains	Trains	Trains	Trains	Trains	Trains
Water/ sand table	Water/ sand table	Water/ sand table	Water/ sand table	Water/ sand table	Water/ sand table	Water/ sand table	Water/ sand table

*Module: A*ntecedent-Based Interventions

Preference Assessment Worksheet: Elementary, Middle, High School

Date: _____ **Activity:** _____

Learner: _____

Directions: To identify the preferences of a learner with ASD, observe him/her for at least 30 minutes during a free choice activity time (e.g., individual work time, recess, lunch, activity period). Every 2 to 5 minutes, circle the material that the learner is interacting with or looking at. If the material/toy is not listed in the following chart, please record in the blank spaces at the bottom of the page. After the observation is complete, identify which material the learner with ASD interacted with the most. Complete at least 3 observations to identify highly preferred materials. Highly preferred materials can then be incorporated into non-preferred activities to increase motivation and engagement.

Balls	**Balls**	**Balls**	**Balls**	**Balls**	**Balls**	**Balls**	**Balls**
Board game	**Board game**	**Board game**	**Board game**	**Board game**	**Board game**	**Board game**	**Board game**
Books	**Books**	**Books**	**Books**	**Books**	**Books**	**Books**	**Books**
Card game	**Card game**	**Card game**	**Card game**	**Card game**	**Card game**	**Card game**	**Card game**
Comic books	**Comic books**	**Comic books**	**Comic books**	**Comic books**	**Comic books**	**Comic books**	**Comic books**
Computer	**Computer**	**Computer**	**Computer**	**Computer**	**Computer**	**Computer**	**Computer**
Cooking	**Cooking**	**Cooking**	**Cooking**	**Cooking**	**Cooking**	**Cooking**	**Cooking**
Gross motor	**Gross motor**	**Gross motor**	**Gross motor**	**Gross motor**	**Gross motor**	**Gross motor**	**Gross motor**
Paint	**Paint**	**Paint**	**Paint**	**Paint**	**Paint**	**Paint**	**Paint**
Puzzles	**Puzzles**	**Puzzles**	**Puzzles**	**Puzzles**	**Puzzles**	**Puzzles**	**Puzzles**
Sand/water	**Sand/water**	**Sand/water**	**Sand/water**	**Sand/water**	**Sand/water**	**Sand/water**	**Sand/water**
Sensory material	**Sensory material**	**Sensory material**	**Sensory material**	**Sensory material**	**Sensory material**	**Sensory material**	**Sensory material**
Swings	**Swings**	**Swings**	**Swings**	**Swings**	**Swings**	**Swings**	**Swings**
Writing	**Writing**	**Writing**	**Writing**	**Writing**	**Writing**	**Writing**	**Writing**