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A Systematic Review of the Acceptability of Functional Behavior Assessments and Behavior Intervention Plans

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Abstract

Functional Behavior Assessments (FBA) and Behavior Intervention Plans (BIP) are assessment and intervention procedures that are used to address maladaptive behaviors among school children and youth. Kazdin (1977) defined intervention acceptability as the subjective evaluation and judgment of intervention success, which can impact intervention development, effectiveness, and usage. Given the limited research in the field, the purpose of this systematic review was to explore the extent to which acceptability assessments have been conducted regarding FBAs and BIPs and how this information may be used to inform intervention development or modification. PsycINFO and ERIC(EBSCO) database searches identified 11 studies, including a total of 46 participants, for review. These studies satisfied inclusion criteria that required them to be written in English, published between 1994 and 2022, and include an FBA or a BIP, with an associated acceptability assessment. Acceptability assessments needed to have been conducted with school professionals in school settings and studies could not have been systematic reviews, meta-analyses, or case studies. The results indicated that most studies utilized a single-case experimental design with participants of all grade levels. Participants ranged in their racial and ethnic backgrounds, and most participants were male and students with disabilities. Acceptability assessments were overwhelmingly completed by teachers following intervention implementation. No studies reported whether acceptability assessments were used to justify revising or removing information gathered during an FBA or BIP. Limitations related to the use of search terms, databases, publication bias, and coding procedures are offered for consideration.

Keywords: functional behavior assessments, behavior intervention plan, intervention acceptability

A SYSTEMATIC REVIEW OF THE ACCEPTABILITY OF FUNCTIONAL BEHAVIOR ASSESSMENTS AND BEHAVIOR INTERVENTION PLANS

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A Systematic Review of the Acceptability of FBAs and BIPs

Functional Behavior Assessments (FBA) and Behavior Intervention Plans (BIP) are assessment and intervention procedures used to address the maladaptive behaviors of school children and youth. The purpose of an FBA is to evaluate the events that occur before and after maladaptive behaviors to aid in determining the functions of maladaptive behaviors (Collins & Zirkel, 2017). This information may then become the foundation for the development of a student's BIP, which serves the purpose of reducing identified maladaptive behaviors while working to increase behaviors that will support a student's ability to learn in the classroom and school environments (Collins & Zirkel, 2017). For example, if after the completion of an FBA, it is determined that following a directive to complete work in the classroom, a student leaves their classroom without permission, a BIP may then be developed with strategies to increase the student's ability to complete classwork, coping techniques to address their task-based frustration, and decrease the behavior of escaping the environment.

The U.S. Department of Education (2016) indicates that FBAs and BIPs should be used in school settings to address problematic student behaviors that impact students' ability to learn. Further, the 2004 amendment of the Individuals with Disabilities Education Act (IDEA), requires the use of FBAs and BIPs when a change in placement is recommended, for special education students whose conduct is determined to be a manifestation of their identified disability. For example, if a student with a special education identification of Emotional Disturbance was involved in a physical altercation, the Committee on Special Education (CSE) would need to hold a behavioral manifestation meeting, to determine if the behaviors exhibited by the student were a manifestation of symptoms of their identified educational disability. If the CSE determines the behaviors were a manifestation of the student's disability, they would then need

to review all available options to support the student's ability to be safe and successful at school. One of these options, changing the student's placement from a general education classroom setting to a special education classroom setting, could not occur unless an FBA was completed and a BIP had been implemented. If the student's conduct is not determined to be a manifestation of their identified disability, completion of an FBA and implementation of a BIP would not be required.

Differences exist between required FBA and BIP components depending on the regulations provided by each state education agency (Zirkel, 2016). For example, the New York State Office of Special Education (2011) specifies that an FBA must be conducted when (a) a student with a disability is engaging in behaviors that impede their learning or the learning of others, despite the use of classroom- and school-wide interventions, (b) a student's behavior creates a risk of harm to themselves or others, (c) a student is being considered for placement in a restrictive program to address the behaviors of concern, or (d) the behaviors of concern are linked to a student's disability following disciplinary action. Concerning BIPs, the New York State Office of Special Education (2016) stipulates that a BIP must provide a baseline measure of the behaviors of concern across activities, settings, people, and times of the day, in order to provide information about the maladaptive behaviors, including their frequency, duration, intensity, and latency. Additionally, the need for a BIP must be documented in the student's Individualized Education Plan (IEP) and reviewed at least annually by the Committee on Special Education (CSE) (New York State Office of Special Education, 2011). In contrast, Connecticut state law only requires that an FBA and BIP be completed when a student has been secluded or restrained 4 times within 20 days, and Hawaii state law mandates an FBA and BIP for school removals exceeding 10 cumulative days. It is also important to note that while these federal and state regulations

stipulate when an FBA must be conducted, they also indicate that these same stipulations should only be *considered* when a special education committee discusses a student's need for a BIP, making it likely that recommendations for students to receive an FBA and not a BIP could occur. For example, because BIPs are generated based on the results of FBAs, if the results of an FBA do not indicate that a student's behaviors are adversely impacting the learning process, a BIP would not be created.

Although there are state differences in the regulations associated with FBAs and BIPs, there is ample evidence to suggest that FBAs are being used in school settings. Johnson and colleagues (2018) conducted a web-based survey examining school psychologists' assessment practices during the 2016-17 school year. A total of 199 respondents, who were either a member of the National Association of School Psychologists (NASP) or graduated from a NASP-approved program completed the survey. Overall, 82% of respondents reported that their site conducted FBAs, and up to 20% of their workdays were dedicated to tasks associated with FBAs. Because specific definitions of FBA practices are not included in current federal and state legislation, variability exists in the specific procedures school psychologists follow. For example, it was reported that 60% of the respondents used standardized interview forms, 56% of the respondents engaged in observations, and 44% of the respondents used an antecedent-behavior-consequence (ABC) form. In addition, a review of student records was completed by 94% of respondents whereas 60% utilized ratings scales that directly inquired about the function, antecedents, or consequences of maladaptive behaviors or a student's social-emotional, behavioral, or adaptive skills within their FBAs.

Although a limitation of this study is that it did not directly examine the frequency of BIPs, resulting in a lack of information regarding school psychologists' use and involvement, there is some emerging evidence that FBAs are being incorporated into the empirical literature.

Specifically, Bruni and colleagues (2017) examined the outcomes of school-based behavior reduction intervention studies that were published from 2009 to 2014. Overall, 30 studies were reviewed with the finding that school-based intervention literature began to include more FBA-related studies as a result of FBAs being recognized by the U.S. Department of Education as an important component of behavioral interventions in schools. In 1999, 23% of school-based studies included an FBA. This estimate increased to 44% following the 2004 reauthorization of IDEA, which specified circumstances in which the completion of an FBA would be required. In summary, this study provides evidence that the specification of FBA use in special education regulations has led to its increasing role in schools, as well as empirical literature examining school-based interventions.

The Effectiveness of FBAs and BIPs in School Settings

Federal and state education guidelines have incorporated FBAs and BIPs due to the considerable empirical literature demonstrating that these practices improve school outcomes for children and youth who are experiencing emotional and behavioral difficulties. In a meta-analysis of single case research designs that examined the effectiveness of interventions derived from school-based FBAs, Goh and Bambara (2012) sought to quantitatively synthesize the overall effectiveness on student outcomes that were assessed following implementation of the intervention over time (i.e., maintenance), and across skills or settings (i.e., generalization). A total of 83 studies conducted between 1997 to 2008 were analyzed and the percentage of nonoverlapping data (PND) was computed, to generate effect sizes. Results indicated that

interventions derived from FBAs resulted in moderate reductions (median PND = 80%) in students' problem behaviors and large increases (median PND = 90%) in prosocial and related skills. In addition, for those studies (n = 17) that examined maintenance of intervention effects, large (median PND = 100%) behavioral improvements were observed one week to two years after intervention implementation. These findings present strong evidence that FBA-based interventions are effective for students who require individualized behavioral interventions in school settings. However, only studies published between 1997 and 2008 that employed single-subject experimental research designs were reviewed. In addition, limited information was collected regarding characteristics associated with the participants (e.g., school personnel demographics), the assessment practices associated with intervention development (e.g., type of functional behavior assessment), and the usage of assessment measures to evaluate intervention implementation. All these elements are important in determining how to increase the effectiveness of behavioral interventions in school and related settings.

More recently, the U.S. Department of Education (2016) conducted a systematic review to investigate the effects of FBA-based interventions on increasing school engagement and decreasing problematic behaviors for children identified with or at risk for emotional disturbances. A total of 17 single-case research studies, published between 1994 and 2015, were descriptively reviewed with respect to study characteristics, evidence level, and intervention effects. Overall, study characteristics indicated that participants were between the ages of 5 to 18 years, and reversal-withdrawal single-case experimental research designs were predominately used (i.e., range, 73% to 87.5% of studies). Additionally, FBA-based interventions were found to have positive effects on students' school engagement (74% of studies), as well as significant reductions in problem behavior (68% of studies). Although the study provided additional

information regarding characteristics associated with participants and more detailed information regarding the type of single-case experimental research design, the assessment practices associated with intervention development (e.g., type of functional behavior assessment), and usage of assessment measures to evaluate intervention implementation were not examined. Further, this study was limited in terms of the scope of the sample (i.e., only children identified with or at risk for an educational classification of emotional disturbance) and restricted to only examining studies that incorporated single-case research designs. As a result, the generalizability of this study's findings may be limited.

Social Validity and Intervention Acceptability

Results of Goh and Bambara's (2012) meta-analysis and the U.S. Department of Education's (2016) systematic review of single-case research designs presented strong evidence that FBA-based interventions are effective for students who require individualized behavioral interventions in school settings. However, a number of factors may impact the effectiveness and usage of FBA-based interventions in schools, and these factors have largely been ignored in prior systematic reviews.

One such factor, social validity, can impact intervention development, effectiveness, and usage. Wolf (1978) conceptualized social validity as the need for society to validate interventions subjectively on three levels: the goal, effects, and procedures. These levels of social validity examine whether (a) specific intervention goals are truly what society wants, (b) consumers are satisfied with the intervention results, and (c) participants, caregivers, and other consumers consider the intervention procedures to be acceptable. One component of social validity, intervention acceptability, has been the most frequently examined aspect in the school psychology literature. Kazdin (1977) defined intervention acceptability as the subjective

evaluation and judgment of intervention success and noted that it may differ based on who evaluates a given intervention (e.g., child or teacher). Since Wolf and Kazdin's seminal work, conceptual models of intervention acceptability have been proposed and measures have been developed to examine factors that impact intervention acceptability.

Conceptual Model of Intervention Acceptability

Early conceptual models of intervention acceptability proposed a bidirectional and interdependent relationship between intervention acceptability, integrity, effectiveness, and use (Eckert & Hintze, 2000; Reimers et al., 1987; Witt & Elliott, 1985). These early models suggest that if an intervention is considered by consumers as acceptable, an increase in the intervention's use and complete implementation would result in improved outcomes and greater acceptability. More recently, Carter (2007) expanded the conceptual understanding of acceptability by reviewing studies related to intervention acceptability that were published from 1990 to 2005 and compared those with studies conducted prior to 1990. In doing so, she identified additional factors that were not addressed in previous conceptual models of intervention acceptability, including considering the (a) severity of the problem, (b) type of intervention, (c) intrusiveness of the intervention, (d) professional affiliation of the individual developing the intervention, and (e) professional expertise of the individual developing the intervention. Despite the emergence of conceptual models of intervention acceptability, limited empirical work has directly tested these models. Studies that have been conducted primarily examined the early conceptual models of intervention acceptability and focused on the relationship between intervention acceptability and intervention effectiveness. These studies (Allinder & Oats, 1997; Dart et al., 2012; Eckert et al. 2017; Mautone et al., 2009) reported a small to moderate relationship (r_{range} = .256 to .346) between intervention acceptability and intervention effectiveness, which highlights the

importance of illuminating various perspectives throughout intervention development and implementation. In particular, during the process of creating and implementing FBAs and BIPs, Hirsch and colleagues (2020) highlighted the importance of considering how interventionists struggle to meet the resource-heavy demands of these processes, including the time needed to collect data, monitoring and addressing multiple challenging behaviors in a single classroom, and the lack of training regarding the effective implementation of social-emotional and behavioral interventions.

Intervention Acceptability Assessments

To assess consumers' perceptions of interventions, acceptability assessments have been developed that vary based on the rater, setting, and conceptualization of acceptability. Although the Treatment Evaluation Inventory (Kazdin, 1980) was the first acceptability measure developed, it primarily focused on parents' perceptions of interventions developed for children with problem behaviors who were receiving services in hospital or clinical settings. To assess the acceptability of school-based interventions, a number of measures were developed. The Intervention Rating Profile (Witt & Martens, 1983) and Behavior Intervention Rating Scale (von Brock & Elliott, 1987) were developed to measure teachers' perceptions of classroom-based intervention acceptability and effectiveness. The Children's Intervention Rating Profile (Witt & Elliott, 1985) was developed to assess children's acceptability of school-based interventions. More recently a number of measures were developed by Chafouleas and colleagues that emphasize both intervention acceptability and usage, two aspects that are important for assessing the viability of interventions and reflect an expansion of the acceptability conceptualization. Specifically, Chafouleas and colleagues gathered information from students and adults regarding their perceptions of interventions. They also assessed adults' perception and endorsement of

intervention use. These assessments include the Usage Rating Profile—Intervention Revised (Briesch et al., 2013), Children's Usage Rating Profile (Briesch & Chafouleas, 2009), and the Usage Rating Profile—Assessment (Miller et al., 2013).

Despite the proliferation of intervention acceptability assessment measures, as well as the development of measures that tap multiple constructs, the methodology has been criticized (Finn & Sladeczek, 2001; Gresham & Lopez, 1996) due to (a) the limited information obtained from the rating scales, (b) the inability to differentiate an intervention approach from the overall context of an intervention program, and (c) the biases inherent in self-report data. As a result, there has been increased interest in exploring additional methods that assess the multidimensional construct of intervention acceptability, which includes the use of intervention acceptability questionnaires in conjunction with consultations, semi-structured interviews, and intervention integrity evaluations (Finn & Sladeczek, 2001). Currently, there is limited research examining whether the more traditional acceptability assessments or newly proposed methods have been used, particularly with respect to FBA and BIPs.

Factors Impacting Intervention Acceptability

Although intervention acceptability assessments have been developed and utilized, additional factors that may influence intervention acceptability ratings have been explored as well. Miltenberger (1990) conducted a qualitative review of intervention acceptability research and reported that interventions were more likely to be rated as acceptable if they were (a) presented with appropriate rationales, (b) consistent with the orientation of the intervention agent, (c) viewed as the least restrictive and disruptive, (d) considered necessary to improve outcomes, (e) thought to be the most effective option, (f) resulting in limited, negative side effects, and (g) resulting in decreased implementation time.

Carter (2007) broadened Miltenberger's review by examining variables that have been found to influence intervention acceptability for individuals with developmental disabilities and highlighted additional factors that may influence intervention acceptability ratings. These factors included the (a) severity of the problem, (b) type of treatment, (c) intrusiveness of the intervention, (d) professional affiliation of the individual rating the intervention, and (e) professional expertise of the individual rating the intervention. While these studies identified additional factors that influence intervention acceptability ratings, neither focused on intervention acceptability within the context of FBAs and BIPs.

Impact of Acceptability on FBAs and BIPs

The importance of using intervention acceptability measures, within the context of FBA-based interventions, has been discussed. For example, it has been argued that including intervention acceptability measures within the context of planning FBA-based interventions will result in more effective intervention results (DeJager & Filter, 2015; Goh & Bambara, 2012; Hunt et al. 2003; McCahill et al. 2014; Nelson et al. 1999; Reid & Nelson, 2002). Although the mechanism accounting for this has not been experimentally evaluated, some researchers (DeJager & Filter 2015; Goh & Bambara 2012; Hunt et al. 2003) have argued that intervention acceptability assessments provide school-based professionals the opportunity to collaborate and reflect on FBA results and proposed interventions, which may increase knowledge and education of proposed interventions, thereby increasing the likelihood of usage and positive outcomes for students' maladaptive behavior. The latter is the goal of FBAs and BIPs in school-settings and from a practical perspective, justifies the examination of the acceptability of practices associated with these assessments and intervention plans.

Although the importance of intervention acceptability has largely been emphasized in the school-based literature concerning the effectiveness and usage of FBA-based interventions (DeJager & Filter, 2015; Goh & Bambara, 2012; Hendrickson et al. 1999; Hunt et al. 2003; Ingram et al. 2005; McCahill et al. 2014; Nelson et al. 1999; Reid & Nelson, 2002), it has been insufficiently explored. For example, Silva et al. (2019) systematically reviewed the inclusion of acceptability measurements in the school-based intervention literature between 2005 and 2017. A total of 268 studies were included in the review and the majority examined interventions that targeted academic skills (45.1%) or behavioral outcomes (44.7%). A smaller percentage of studies targeted students' mental health (19.8%), social skills (19.4%), or academic engagement (11.9%). Results of their analyses examining the prevalence of intervention acceptability assessments indicated that 33% of the studies included an assessment, and this was typically completed by teachers at the conclusion of the intervention. Half of the acceptability assessment measures were published, whereas the remaining measures were created by the study's authors, with no investigation of the psychometric properties. However, it is important to note that many of the published acceptability assessment measures were adapted for use in the studies and there were inconsistencies regarding how the assessment results were reported (e.g., item or total scores), which made it difficult to synthesize outcomes. Additionally, examining whether FBAs or BIPs were conducted within the context of the studies was not considered. As a result, it is unclear how the usage of FBAs and BIPs impacts acceptability measures.

Purpose of the Present Study

The purpose of the present study was to conduct a systematic review to investigate the extent to which acceptability assessments have been administered in regard to FBAs and BIPs. Four aims were associated with the proposed systematic review and included determining: (a)

the frequency of acceptability assessments conducted with FBAs and BIPs, (b) whether there were differences in acceptability assessments across school levels (e.g., elementary, middle, and high school), classroom settings (e.g., restrictive or non-restrictive educational settings), and types of respondents (e.g., teachers, teaching assistants, paraprofessionals, 1:1 aides, parents, or students), (c) descriptive outcomes on acceptability assessment measurements, and (d) whether information obtained from FBA and BIP acceptability assessments was used to inform subsequent intervention development or modification.

Method

This review's methodology was devised following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021) and recent exemplars of systematic reviews (Dean & Chang, 2021; Sanches-Ferreira et al., 2021; Silva et al., 2019; Yohannan & Carlson, 2019). As a result, systematic procedures to search for and identify studies, as well as code and synthesize identified variables, are included and described below.

Study Identification and Search Procedures

To ensure a comprehensive review of the current literature, studies were identified in two stages. During the first stage, a series of key terms, which appear in Appendix A, were searched in the APA PsycInfo (PsycINFO) and Education Resources Information Center (ERIC) databases. These databases were selected because they are core databases for school psychology, psychology, education, and related fields. Following consultation with a university librarian with expertise in systematic review methodology, star stem was not used because it would generate too many studies that would not align with the study aims. In addition, my search was restricted to articles published between 1994 and 2022, which captures the early FBA and BIP empirical literature reviewed (i.e., Goh & Bambara, 2012; U.S. Department of Education, 2016) and

provides an updated review of the current literature. The electronic database searches included the keywords: *functional behavioral assessments, behavioral intervention plans,* and *acceptability assessments*. In addition, a series of terms were searched in combination with the aforementioned keywords using the operator "AND." These terms included: *elementary, middle, and high school, restrictive educational settings, non-restrictive educational settings, teachers, teaching assistants, paraprofessionals, 1:1 aide, parents, students, intervention development,* and *intervention modification.* These terms were selected with assistance from those identified in the aforementioned exemplars of systematic reviews (Dean & Chang, 2021; Sanches-Ferreira et al., 2021; Silva et al., 2019; Yohannan & Carlson, 2019). Prior to the second stage of this search, and following the commencement of the screening process, duplications of identified studies, which may have appeared as results following the use of various combinations of keywords that were searched in electronic databases, were identified by Covidence (see Data Management) and excluded.

The second stage of this search involved an ancestral review to ensure that all relevant studies were located for inclusion in the current systematic review. This occurred following the completion of the initial screening and coding of studies. During this stage, the primary author manually reviewed the references of studies that met the inclusion criteria. If a study's title included any one of the previously identified keywords, the primary investigator ensured it was not a duplicate of a study that had already been screened, before screening the study following original coding procedures.

Manual Content and Development

A coding manual was developed to guide the processes, and use of Excel for documentation related to the screening, ancestral review, and full research article review of identified studies (see Appendix A). The primary investigator piloted the coding manual with studies identified in initial searches of the PsycINFO and ERIC(EBSCO) databases. Any resulting changes to the manual were noted by the date of the change and an explanatory narrative that was double underlined.

Data Management

Research articles identified from initial searches of the PsycINFO and ERIC(EBSCO) databases, as well as ancestral reviews, were uploaded to Covidence (2014), for retrieval during the screening and full-text review processes. The Covidence (2014) system follows PRISMA guidelines (Page et al., 2021) and purports to streamline the systematic review process. It does so by removing duplicates generated from searches, making identified articles easy to access throughout the screening process, and allowing for the creation and population of data.

Inclusion Criteria

Studies identified from the PsycINFO and ERIC(EBSCO) databases needed to meet the following criteria, as outlined in the coding manual found in Appendix A, for inclusion in the current study:

1. The study was written in English.
2. The study was published between 1994 and 2022.
3. The study was not a systematic review, meta-analysis, or case study.
4. The study included either an FBA or a BIP.
5. The study included an acceptability assessment associated with an FBA, BIP, or procedures derived from an FBA or BIP.

6. The study was conducted in an elementary, middle, or high school setting.
7. The study was conducted in either restrictive or non-restrictive public school classroom settings.
8. The study was conducted with teachers, teaching assistants, paraprofessionals, 1:1 aides, parents, or students, as respondents.

Screening Procedures

A two-step screening procedure was followed to identify research articles that met all specified inclusion criteria for this systematic review. The first step of the screening procedure required that the title and abstract of identified research articles satisfy all inclusion criteria: (a) the study was written in English, (b) the study was published between 1994 and 2022, (c) the study was not a systematic review, meta-analysis, or case study, (d) the study included either an FBA or a BIP, (e) the study included an acceptability assessment associated with an FBA, BIP, or procedures derived from an FBA or BIP, (f) the study was conducted in an elementary, middle, or high school setting, (g) the study was conducted in either restrictive or non-restrictive public school classroom settings; and (h) the study was conducted with teachers, teaching assistants, paraprofessionals, 1:1 aides, parents, or students, as respondents. Given these stringent guidelines, this stage of the screening process was completed solely by the first author. Following the conclusion of the title and abstract screening stage, research articles that met all inclusion criteria underwent a full-text review, to ensure that all inclusion criteria were satisfied and Covidence was utilized throughout.

Consistent with the PRISMA guidelines (Page et al., 2021), the results of the screening process were reported in a flow diagram (see Figure 1). This diagram includes the number of studies identified in the initial search and the number excluded at each screening stage.

Coding Procedures

Following the conclusion of the screening process, research articles that met all inclusion criteria underwent a full article review and data extraction in Covidence, where the following variables were coded: basic study characteristics (e.g., research methodology and participant demographics), assessment practices (e.g., the frequency of acceptability assessments conducted with FBAs and BIPs), acceptability assessments (e.g., differences in acceptability assessments across school levels, classroom settings, and types of respondents), and usage (e.g., descriptive outcomes on acceptability assessment measurements and whether information obtained from FBA and BIP acceptability assessments was used to inform subsequent intervention development or modification). Coding procedures for the full-text review and data extraction in Covidence can be found in the coding manual (Appendix A).

Coder Training and Reliability

During the coding process, weekly meetings were held to review the coding manual to prevent observer drift. In addition, I was available to discuss any questions regarding coding. All coding was completed by this author (primary coder) and a graduate student who served as a secondary coder for this study. The secondary coder was trained on the coding manual and achieved at least 90% agreement with the primary coder on a sample of 5 practice studies prior to coding independently. If the secondary coder did not achieve at least 90% agreement on the 5 sample studies, they met with the primary coder, received feedback, and practiced again on a new set of sample studies until they reached at least 90% agreement and were deemed proficient.

Results

Excluding duplicates (n = 394), initial search and ancestral review procedures returned a total of 508 studies for screening (see Figure 1). A total of 497 studies (n = 95.7%) were excluded for irrelevance based on title and abstract screening in Covidence. No additional studies

were identified for full-text screening through an ancestral review. Altogether, 11 studies were screened for inclusion in the full-text review, with no exclusions occurring during this final stage of screening. All 11 studies (100%), that were identified for full-text screening, met the inclusion criteria for data extraction in this study.

Basic Study Characteristics and Participant Demographics

Basic study characteristics are outlined in Table 1. All included studies that examined the use of acceptability assessments in the FBA and BIP decision-making processes were published within the last two decades (range, 2003 to 2014) The majority of these studies used a single-case experimental design methodology (90.9%), with only one study utilizing a non-experimental design (9.09%).

Participant demographics are also presented in Table 1. There was a total of 46 participants across all studies combined, with a range of 2 to 10 participants per study. The majority of participants were male (n = 43, 93.4%), with females accounting for 6.5% of included participants. Participants' ages ranged from 5 to 17 years. Although only 63% of the included studies reported specific information about participants' age, 90.9% of studies provided data about participants' grade levels, with one not reporting on participants' grade levels. Included participants' grades ranged from Kindergarten through twelfth grade. Approximately 52% of participants reported disabilities or received special education services, with the educational classifications of Emotional Disturbance or Behavioral Disorder (30.4%), Autism (7%), Speech-Language Impairment (6.52%), Learning Disability (4.34%), and Other Health Impairment for ADHD (2.17%).

Racial or ethnic data were only reported for 54% of the participants. Among this group, the majority of participants were White (48%). Black or African American participants

accounted for 25.9% of participants included in the review. Individuals with Latino/Latina backgrounds accounted for 22.2% of the participants and those with multiracial backgrounds accounted for less than 1% of the participants included in the review.

Acceptability Assessment Practices

All 11 studies included in this systematic review reported on findings of acceptability assessments administered in relation to FBAs. To examine research aim 1, information pertaining to the type of acceptability assessment administered, referrer, presenting problem, administrator of the acceptability assessment, and audience completing the acceptability assessment was determined for each study and is presented in Table 2.

The majority of studies administered a formal or published acceptability assessment (n = 6, 54.54%), created the administered acceptability measure (n = 2, 18.18%), or conducted a semi-structured interview to gather information related to acceptability (n = 1, 9.09%). The type of acceptability assessment administered was not reported in two studies (18.18%).

Most studies administered acceptability assessments following intervention implementation (n = 9, 81.81%). Four studies administered acceptability assessments prior to intervention implementation (36.36%). None of the eleven included studies administered acceptability assessments during intervention implementation.

When considering the referrer, or individual recommending participants for an FBA or BIP, the majority were teachers (n = 7, 63.63%). School administrators acted as referrers in three studies (27.27%) and parents referred participants in one study (9.09%). Two studies did not report the referrer (18.18%). Special Education providers, medical personnel, and teaching assistants/paraprofessionals/1:1 aides were not accounted for in any of the studies (n = 0, 0%).

When reviewing the participants' presenting problem, disruption was reported in six studies (54.54%). Off-task behaviors were reported in six of the eleven studies (54.54%). In two studies, noncompliance (18.18%) was reported for its participants. Two studies also indicated that physical aggression was the presenting concern (18.18%). Finally, verbal aggression was noted in two studies, as the presenting problem (18.18%). No studies reported self-harm or elopement as presenting problems for participants.

Most studies did not report the administrator of the acceptability assessments (n = 8, 72.72%). In three studies, researchers administered acceptability assessments (18.18%). One study noted that school personnel facilitated the administration of acceptability assessments to students (9.09%). No intervention agents administered acceptability assessments.

In regard to the audience, or those who completed acceptability assessments, all studies indicated teachers' acceptability (n = 11, 100%) was assessed. In addition, studies reported that acceptability assessments were also conducted with students (n = 5, 45.45%), parents (n = 3, 27.27%), teaching assistants (n = 3, 27.27%), principals (n = 1, 9.09%), or school psychologists (n = 1, 9.09%). No studies included special education providers or medical personnel as their audience.

In four instances, terms that were not included in the coding manual were indicated in studies that met inclusion. This included an Individualized Education Plan (IEP) team acting as the referrer in one study (9.09%) and a principal (9.09%), peers (9.09%), and school psychologists (9.09%) completing acceptability assessments as the audience in two other studies.

Differences in Acceptability Assessments

To examine research aim 2, an overview of the frequency of FBA and BIP acceptability assessments, across school levels (e.g., elementary, middle, and high school), classroom settings

(e.g., restrictive, or non-restrictive educational settings), and the audience completing acceptability assessments (e.g., teachers, teaching assistants, paraprofessionals, 1:1 aide, parents, or students), was examined and is presented in Table 3.

A review of the participants' school levels indicated that most were enrolled in elementary (n = 6, 37.5%) or middle school (n = 5, 31.25%). Only two studies included participants in high school settings (n = 2, 12.5%). Three studies included participants from two or more school levels (12.5%), and one study included participants who were enrolled in elementary and middle school settings (6.25%). Additionally, most participants were enrolled in non-restrictive, or general education, classroom settings (n = 9, 81.81%). Two studies included participants who received their education in self-contained classrooms (n = 2, 18.18%), which reflects one type of restricted educational setting.

All studies included an acceptability assessment that was completed by a teacher (n = 11, 100%). Fewer acceptability assessments were completed by either teaching assistants, paraprofessionals, or 1:1 aides (n = 3, 10.00%), or completed by parents (n = 3, 10.00%). In addition, there were eight instances where acceptability assessments were administered to two or more groups. Two studies (6.66%) administered acceptability assessments to students and teachers, two (6.66%) administered acceptability assessments to students, teachers, and parents, and another two (6.66%) administered acceptability assessments to teachers and teaching assistants/paraprofessionals/1:1 aides. Finally, one study (3.33%) collected acceptability data from teachers, students, and their peers, and another study (3.33%) administered acceptability assessments to parents, principals, school psychologists, teaching assistants, and teachers.

Usage of Acceptability Assessments

To examine the third and fourth research aims, a review of the outcomes of acceptability assessment measurements conducted with FBAs and BIPs, and how this information was used to inform subsequent intervention development or modification, is presented in Table 4. Results indicated that no studies reported whether acceptability measures were used to justify revising, adding, or removing information gathered during the course of an FBA (*n* = 11, 0%). Although not included in the coding manual, the majority of studies (*n* =9, 81,81%) did not complete BIPs. For the two studies that did include BIPs (18.18%), neither reported whether acceptability assessments were used to justify revising, adding, or removing information gathered during the implementation of a BIP.

Additional descriptive outcomes of the reported study effects are presented in Table 4. A small percentage of studies (*n* = 3, 27.27%) reported a standardized measure of treatment effect (i.e., PND), with a corresponding positive change in behavior. However, an examination of the treatment effect was variable and ranged from ineffective (*n* = 1, 9.09%), questionable effectiveness (*n* = 1, 9.09%), effective (*n* = 1, 9.09%), and very effective (*n* = 3, 27.27%). Only one study (9.09%) proposed a hypothesized direction of improvement, which was later substantiated by the study results and corresponding effect size.

Interscorer Reliability

The interscorer agreement was calculated on a variable-by-variable basis (Reed & Azulay, 2011), and the total number of agreements was divided by the total number of agreements plus disagreements and then multiplied by 100. When disagreements arose in coding, the primary and secondary coders met to discuss the discrepancy and reached a consensus. During the full-text screening stage, 100% agreement was achieved. Following completion of the full-text screening stage, 33% of the studies (*n* = 4) were then randomly selected for data

extraction, and high interscorer agreement (85.40%) was attained, which ranged from 50 to 100%. Most disagreements occurred when reviewing the timing of acceptability assessments.

Discussion

FBAs and BIPs are assessment and intervention procedures that are used to address maladaptive behaviors among school children and youth. It is believed that including intervention acceptability measures, which are subjective evaluations of the judgment of intervention success, within the context of planning FBA-based interventions, would result in more effective intervention results (DeJager & Filter, 2015; Goh & Bambara, 2012; Hunt et al. 2003; Kazdin, 1977; McCahill et al., 2014; Nelson et al., 1999; Reid & Nelson, 2002). It has also been argued that intervention acceptability assessments allow school-based professionals to collaborate and reflect on FBA results and proposed interventions, which may increase knowledge and education of proposed interventions and their usage and positive outcomes (DeJager & Filter 2015; Goh & Bambara 2012; Hunt et al. 2003). As there is limited research examining whether traditional or newly proposed acceptability assessment methods have been used, particularly with FBAs and BIPs (Finn & Sladeczek, 2001; Gresham & Lopez, 1996), the present study systematically reviewed the published literature and explored the extent to which acceptability assessments have been conducted within the context of FBAs and BIPs. The role of acceptability assessment in informing intervention development or modification was also examined. The results of this study provide, in the context of studies incorporating FBA and BIPS, current study characteristics, information related to the types of acceptability measures that are in use, the individuals administering acceptability assessments, and the timing of acceptability measures.

General Characteristics

The small number of studies identified for this systematic review, with their publication dates within the last two decades (range, 2003 to 2014), and the most recent study being published in 2014, corroborate the conjecture that there is limited research examining how acceptability assessments methods have been used in the context of FBAs and BIPs (Finn & Sladeczek, 2001; Gresham & Lopez, 1996). One factor that may have contributed to the small number of studies identified pertains to the specific parameters of this study. The purpose of this systematic review was to explore the extent to which researchers are examining how acceptability assessments have been conducted, in the context of FBAs and BIPs in school settings, and how this information may be used to inform intervention development or modification. As only a small number of research studies are examining this issue, it may be unlikely that school-based professionals are considering these practices. Another factor that may have contributed to the small number of studies identified pertains to the terminology used in this review. During the screening process, a number of studies used a different term (i.e., functional analyses), which reflects a more complex analytical procedure that is related to FBAs, but not commonly used in school settings. Functional analyses examine the causes and consequences of behavior and are often conducted in clinical settings, such as hospitals. Although this information can be included in an FBA, FBAs are utilized in school settings and include other environmental data-for example, interviews with teachers and caregivers, observations of the target student, social,-emotional, and behavioral rating scales, and school records reviews. As a result, it is possible that the use of the term FBA, which was specifically selected for this systematic review because it is the terminology that appears in special education regulations, may have greatly reduced the number of studies that were generated for review, including those published after 2014.

Of those studies included in the systematic review, the overwhelming majority utilized a single-case experimental design, which is consistent with methodological approaches used in the context of FBAs (Janosky, 2005), and resulted in a relatively small number of students participating in the studies. In studies that reported participants' demographic information, all grade levels were examined, more than half of the studies included students with disabilities, and a range of racial and ethnic backgrounds were reflected. These findings suggest that there was demographic diversity in the samples included in the reviewed studies.

Unlike the demographic characteristics pertaining to grade level, disability status, and race or ethnicity, there was limited heterogeneity in the participants' gender. Most of the participants in the reviewed studies included male students. Data from the US Department of Education (2021) indicates that males are approximately twice as likely to be eligible for an educational classification of Emotional Disturbance (ED) than females. Although participants included in the reviewed studies may not have had an ED classification, males were still more likely to be referred due to a variety of behavioral concerns. This finding is consistent with those from the study conducted by Hirsch and colleagues (2023), which looked at the demographic characteristics associated with FBAs and BIPs. Findings of this study indicated that more males were assessed across several disability categories, than females. Overall, this information suggests that within the context of studies employing FBAs and BIPs, male participants are more likely to be included in the sample.

Acceptability Assessments

All studies included in this systematic review used published or informal measures that exclusively focused on the construct of acceptability. This is consistent with the findings from Silva and colleagues'' (2019) systematic review, in which half of the acceptability assessment measures used were published and the remaining measures were created by the study's authors. It has been recommended that acceptability assessments be supplemented with alternative approaches, such as intervention acceptability questionnaires, in conjunction with consultations, intervention integrity evaluations, and semi-structured interviews (Finn & Sladeczek, 2001; Gresham & Lopez, 1996). A review of the studies included within this systematic review revealed that information gathered from intervention integrity and acceptability assessment measures was not used to inform one another. Only one study included in this systematic review utilized a semi-structured interview, and it appears to have been administered in lieu of a published intervention acceptability assessment.

Most studies administered acceptability assessments following intervention implementation. Although this result surpasses the findings reported by Silva and colleagues (2019), which indicated that only 33% of the reviewed studies completed post-intervention acceptability assessments. However, the use of a single assessment may result in missed opportunities to dynamically examine the correspondence between FBA results and the resulting effectiveness of intervention procedures outlined in a BIP.

The majority of acceptability assessments were conducted with teachers, students, parents, teaching assistants, principals, and school psychologists. No studies included in this systematic review assessed acceptability with special education teachers or medical personnel. These findings are consistent with those reported by Silva and colleagues (2019), where most

studies conducted acceptability assessments with teachers, followed by students, and parents. Whereas Silva and colleagues identified that student acceptability was assessed 59.26% of the time, the findings of this systematic review indicated that student acceptability assessments were conducted 45.45% of the time.

Teachers overwhelmingly accounted for the referrals, which is consistent with referral practices in school settings. It is also plausible that other school professionals who spend time with students in the classrooms (e.g., teaching assistants/paraprofessionals/1:1 aides) would also make referrals. However, the findings of this study indicate they did not provide referrals in any of the included studies. This finding may be related to hierarchical school structures, which mandate that teachers initiate referrals. Teachers become key stakeholders with FBAs completed in school settings because they spend most of their day with students and are typically responsible for providing academic instruction as well as classroom behavior management practices. As a result, they can collect data and share invaluable anecdotal information related to likely settings in which maladaptive behaviors are likely to emerge, along with the duration of, precursors to, and consequences of these behaviors. These are all variables that are typically examined within the context of an FBA. Although parents can initiate referrals, the low parent referral rate reported in this systematic review may be accounted for by the fact that all the participants were solicited via school-based referrals, which increases the likelihood that teachers served a the referral source. In this study, the one parent that acted as a referrer did so as a member of their child's IEP team.

Disruption (54.55%) and off-task (54.55%) behaviors were noted as the primary referral problems for most of the included studies, although noncompliance (18.18%), physical aggression (18.18%), and verbal aggression (18.18%)were also indicated as presenting problems.

These findings are consistent with those reported by Blood and Neel (2007), who found that behaviors associated with aggression and classroom disturbance, such as off-task behaviors and classroom disruption, were most frequently addressed in FBAs and BIPs.

Overview of Acceptability Assessments

Whereas this systematic review found that more studies were conducted in elementary schools (37.5%) and middle schools (31.25%), Silva and colleagues (2019) reported that most participants were in elementary school grades (55.22%). This discrepancy is largely related to the fact that Silva and colleagues (2019) sought to provide a comprehensive review of how acceptability assessments in intervention research are measured and reported. As a result, they systematically reviewed the inclusion of acceptability measurements in intervention studies and were not restricted to studies that only included FBAs and BIPs. As a result, their systematic review included 268 studies, whereas the present systematic review had more stringent inclusionary criteria and only identified 11 studies. In addition, these findings can be understood in the context of the educational system's emphasis on early intervention, which focuses on providing support early in a student's schooling, which typically reflects elementary and middle school, with the hope of quickly ameliorating developmental areas of concern, to improve long-term outcomes.

All studies within this systematic review included an acceptability assessment that was completed by a teacher, which is consistent with the results reported by Silva and colleagues (2019). Most acceptability measures are developed for use by teachers and obtaining their perspective is important within the context of considering students' behavioral needs and supports, given that teachers spend more time with students than any other adult throughout their school day. Even so, it is important to solicit and consider the perspectives of other adults who

engage with these students, as they may provide a different viewpoint regarding the students' behavioral needs, especially if they are working with the students in alternative settings where the teacher is not present. For example, teaching assistants, 1:1 or paraprofessional aides, who typically work with students throughout the day, including during enrichment classes, recess, and lunch, might have additional perspectives that are important to consider within the context of FBAs and BIPs.

Usage of Acceptability Assessments

The results of this systematic review indicated that no studies reported whether acceptability measures were used to justify revising, adding, or removing information gathered during an FBA or BIP. One factor that may account for these findings relates to the timing of the acceptability assessments. For those studies that conducted an acceptability assessment, all completed the administration at the conclusion of an intervention. Alternatives, such as dynamic acceptability assessments, may be advantageous to support this process. Acceptability assessments can be conducted before, during, or after intervention administration. Foster and Mash (1999) argued that acceptability should not be conceptualized as a single outcome, but rather a process that is evaluated at multiple points during intervention implementation. This would allow for the consideration of elements that change in response to shifting views and contexts related to an intervention. The information gained from dynamic assessments could then be used to alter undesirable aspects of an intervention, increase consumer satisfaction, improve intervention procedures and overall effectiveness, and show stakeholders their feedback is valued (Finney, 1991; Schwartz & Baer, 1991).

Limitations

Limitations of this systematic review should be considered when appraising its findings. First, no data-based search is exhaustive and if other search terms were incorporated, it may have increased the number of research articles located for screening and inclusion in this study. For example, although "Functional Behavioral Assessments" was used as a search term in this study, the term "functional analyses" is also recognized and could have been included as a search term. Second, although the PsycINFO and ERIC databases were selected because they serve as core databases for school psychology, psychology, education, and related fields, additional unpublished and relevant literature may have been identified if alternative databases (e.g., ProQuest Dissertations and Theses Global) were utilized. Third, publication bias may have impacted the amount of available information related to this study's areas of interest. Fourth, ISA was not calculated during the initial screening stage, which was completed solely by the first author, utilizing clear and strict rules. As a result, it is possible that the initial screening process was less reliable than subsequent screening stages. Fifth, there were a few instances where presented information did not fit the identified codes and resulted in codes being added, which is not compliant with best practice guidelines for systematic reviews (see Change Table of manual). Finally, the methodological quality of the reviewed studies was not assessed. As a result, it is unclear whether the included studies were methodologically sound and whether the reported findings were reliable and valid. As a result, the findings of this systematic review should be limited to the descriptive findings regarding the extent to which acceptability assessments have been conducted with FBAs and BIPs.

Future Research Directions

There are a few research directions that should be considered based on the results of this systematic review. First, to gather more information related to the use of acceptability assessments in connection to behavioral interventions, a more exhaustive systematic review should be conducted that focuses more broadly on interventions, through the use of the broader terms “function-based interventions” and “non-function-based interventions.” Second, expanding the inclusion criteria to allow for intervention data collected across a variety of settings, such as treatment settings that specialize in conducting FBAs, would also be helpful in expanding the literature search. Third, because no studies examined the relationship between acceptability assessments and FBA and BIPs, additional research should be conducted that directly examines this relationship. Future research studies should consider using mixed methods to understand the relationship between acceptability assessments and FBAs and BIPs. Further, secondary data analyses of current school records regarding the use of FBAs and BIPs could be used to assess current school-based procedures, including any sociodemographic differences across students that receive FBAs or BIPs, as well as the frequency of acceptability assessments administrations and FBAs and BIPs.

Conclusion

FBAs and BIPs are assessment and intervention procedures that are used to address maladaptive behaviors among school children and youth. Research examining the use of acceptability assessments with FBAs and BIPs is limited. This systematic review aimed to explore the extent to which acceptability assessments have been conducted in regard to FBAs and BIPs and how they are used to inform subsequent intervention development or modification. A small number of studies published within the last two decades were identified for this

systematic review. The studies used published or informal acceptability measures, which were mostly administered following intervention implementation. No studies reported whether acceptability measures were used to justify revising, adding, or removing information gathered during an FBA or BIP. As such, the results of the current review suggest that the literature regarding the acceptability of FBAs and BIPs remains largely underdeveloped. Therefore, additional research should be conducted to directly examine the relation between acceptability assessments and FBA and BIPs.

Table 1

Basic Study Characteristics and Participant Demographics

Study	Research Methodology	*N*	*N* Female	*N* Male	Age	School Grade	Disability Status	*N* Race or Ethnicity
Barreras (2008)	SCED	10	0	10	NR	7-8	No disability; Educational Disability	Black=1; Latinx=5; White=4;
Bergstrom (2003)	SCED	3	1	2	NR	2-3	No disability; Educational Disability	NR
Ingram et al. (2005)	SCED	2	0	2	NR	6	No disability	NR
Jensen (2008)	SCED	6	1	5	NR	3-5	No disability	Black=4; White=2
Murdock et al. (2005)	NED	8	0	8	12-15	7-9	Educational disability	NR
Mustian (2010)	SCED	2*	0	2	10-11	5	No disability	Black=2
Nahgahgwon et al. (2010)	SCED	3	0	3	5-6	K-1	No disability	Latinx=1; White=2
Reeves (2014)	SCED	3	1	2	5-12	K-1, 6	Educational disability	NR
Reeves et al. (2013)	SCED	3	0	3	7	1	Educational disability	NR
Starosta (2010)	SCED	3	0	3	9-12	NR	Educational disability	Multiracial=1; White=2
Turton (2009)	SCED	3	0	3	14-17	8-9, 12	Educational disability	White=3

Note. NR = Not Reported. N/A=Not Applicable. SCED= single-case experimental design; NED= non-experimental design; *Not all participants are accounted for.

Table 2

Assessment Practices

Study	Type	Timing	Referrer	Presenting Problem(s)	Administrator	Audience
Barreras (2008)	Formal	Following	Teachers	Disruption Noncompliance Physical Aggression Verbal Aggression	NR	Student Teacher Parent
Bergstrom (2003)	Formal	Following	School Administrator	Disruption	NR	Parent Principal* School Psychologist*; Teaching Assistant Teacher
Ingram et al. (2005)	Semi	Following	Teachers	Off-task	Researcher	Teacher
Jensen (2008)	Created	Prior	School Administrator Teachers	Disruption Noncompliance Off-task Physical Aggression Verbal Aggression	NR	Student Teacher Parent
Murdock et al. (2005)	NR	Following	NR	NR	Researcher	Student Teacher
Mustian (2010)	NR	Following	Teachers	Off-task	Researcher	Teacher
Nahgahgwon et al. (2010)	Formal	Prior & Following	NR	Disruption	NR	Teacher
Reeves (2014)	Formal	Prior	Teachers	Off-task	NR	Teacher Teaching Assistant

Reeves et al. (2013)	Created	Following	IEP Team*	Off-task	NR	Teacher Teaching Assistant
Starosta (2010)	Formal	Following	School Administrator Teachers	Disruption Off-task	NR; School Personnel	Student Teacher
Turton (2009)	Formal	Prior & Following	Teachers Parents	Disruption	NR	Student Teacher Peers*

Note. NR = Not Reported. Formal = A formal or published acceptability assessment was administered; Created=An acceptability measure created by the study's researchers was administered; Semi=A semi-structured interview was conducted. Prior=Acceptability assessment completed prior to intervention implementation; Following=Acceptability assessment completed following intervention implementation. *This term was not included in the coding manual; however, it was reported for the studies that met inclusion.

Table 3

Overview of Acceptability Assessments

	Frequency of FBAs		Frequency of BIPs	
Study Characteristics	%	(*n*)	%	(*n*)
School Level				
Elementary School	37.50	(6)	0	(0)
Middle School	31.25	(5)	0	(0)
High School	12.50	(2)	0	(0)
Combined	18.75	(3)	0	(0)
Classroom Setting				
Restrictive educational setting	18.18	(2)	0	(0)
Non-restrictive educational setting	81.81	(9)	0	(0)
Audience				
Teachers	36.66	(11)	0	(0)
Teaching Assistants/Paraprofessionals/ 1:1 Aide	10.00	(3)	0	(0)
Parents	10.00	(3)	0	(0)
Students	16.66	(5)	0	(0)
Combined audience	26.66	(8)	0	(0)

Table 4

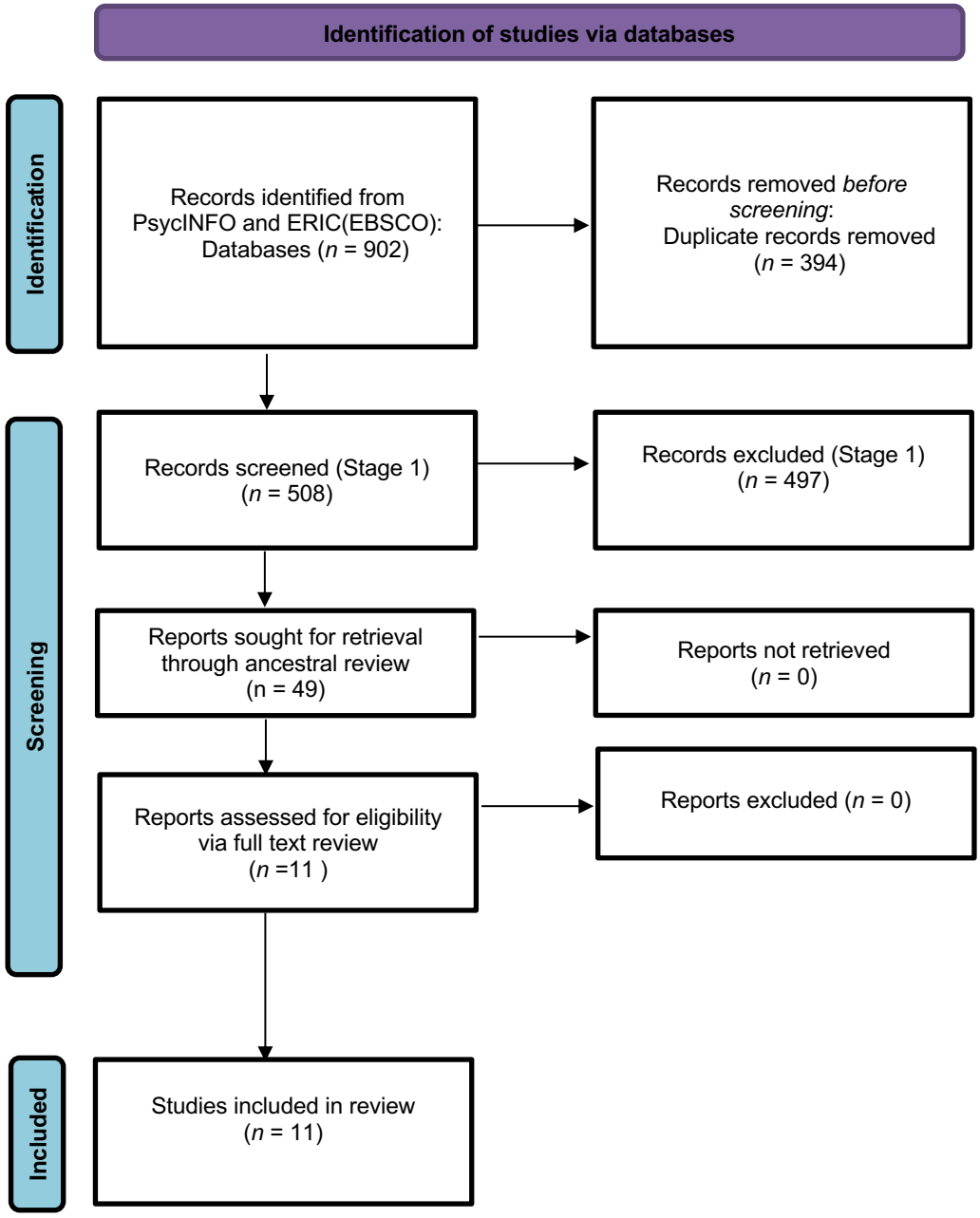
Usage of Acceptability Assessments and Study Outcomes

Study	Use of Acceptability Information (FBA)	Use of Acceptability Information (BIP)	Effect Size Reported?	Type of Reported Effect Size	Positive or Negative Effect Size	Hypothesized Improvement	Effect Size Strength
Barreras (2008)	NR	BIP not completed*	Yes	PND	Positive	Yes	58.33%-83.33%
Bergstrom (2003)	NR	BIP not completed*	Yes	PND	Positive	NR	79%-100%
Ingram et al. (2005)	NR	NR	No	N/A	N/A	NR	N/A
Jensen (2008)	NR	BIP not completed*	No	N/A	N/A	NR	N/A
Murdock et al. (2005)	NR	BIP not completed*	No	N/A	N/A	NR	N/A
Mustian (2010)	NR	NR	No	N/A	N/A	NR	N/A
Nahgahgwon et al. (2010)	NR	BIP not completed*	No	N/A	N/A	NR	N/A
Reeves (2014)	NR	BIP not completed*	No	N/A	N/A	NR	N/A
Reeves et al. (2013)	NR	BIP not completed*	No	N/A	N/A	NR	N/A
Starosta (2010)	NR	BIP not completed*	Yes	PND	Positive	NR	17%-100%
Turton (2009)	NR	BIP not completed*	No	N/A	N/A	NR	N/A

*Note.*NR = Not Reported. N/A=Not Applicable. *This variable was not included in the coding manual, however it was indicated in studies that met inclusion.

Figure 1

PRISMA 2020 Flow Diagram for Identification of Studies via Databases



Appendix A

Coding Manual: A Systematic Review of the Acceptability of Behavioral Intervention Plans

Updated: Sept 20, 2023

Researcher:
Siani Y.M. Amidon, Syracuse University

Secondary Coder:
Monique Antoine, Syracuse University

Search and Storage Procedures

Search Terms

- Functional behavioral assessments
- Behavioral intervention plans
- Acceptability assessments

AND (supplemental terms)

- Elementary school
- Middle school
- High school
- Restrictive educational settings
- Non-restrictive educational settings
- Teachers
- Teaching assistants
- Paraprofessionals
- 1:1 aide
- Parents
- Students
- Intervention development
- Intervention modification

Search Procedure

- Go to EBSCOhost interface
- Above the search field select "choose databases"
- Select: PsycInfo and ERIC and input search terms with the following:
    - Functional behavioral assessment AND all supplemental terms
    - Behavior intervention plan AND all supplemental terms
    - Acceptability assessments AND all supplemental terms

Databases

- APA PsycInfo
- Education Resources Information Center (ERIC)

Storage Procedures

- Upon completing search procedures, all database search results were imported to Covidence as .ris files.

A Systematic Review of the Acceptability of Functional Behavior Assessments and Behavioral Intervention Plans

Core Guidelines for Coding:

- This manual will be referenced during each step of the coding process.
- All coding data will be compiled in an Excel file, which will include tabs to organize coding data.

Screening, Stage 1: Title and Abstract Screening

- Go to www.covidence.org and log in.
- Under "Your Reviews," click on "SR Acceptability of FBAs and BIPs."
- Under the "Title and abstract screening" section, click "Continue" to reach the page with all studies that need to be screened.
- Sort studies by author to allow for the identification of duplicates.
- Read the title and abstract for each study.
- Click "No" (i.e., exclude) or "Yes" (i.e., include) to the right of each study based on screening procedures listed below.

Stage 1 Screening: Title and Abstract Screening		
Variable	**Coding**	**Notes**
Coder	1= Siani Y.M. Amidon 2= Research Assistant 1	Investigator Research Assistant 1
Exclusion	"No" (Exclude) = Study can be excluded based on title and abstract alone "Yes" (Include) = Study can NOT be excluded based on the title and abstract alone	Only read the title and abstract of the study. Click "No" (exclude the study) if any of the following are true: 1. The study is not written in English, 2. The study was published prior to 1994. 3. The study is a systematic review, meta-analysis, or case study, 4. The study does not include either an FBA or a BIP 5. The study did not include an acceptability assessment associated with an FBA, BIP, or procedures derived from an FBA or BIP. 6. The study was not conducted in an elementary, middle, or high school setting. 7. The study was not conducted in either restrictive or non-restrictive public school classroom settings. 8. The study was not conducted with teachers, teaching assistants, paraprofessionals, 1:1 aides, parents, or students, as respondents. Click "Yes" (include the study) ONLY if none of the above are true.

Screening, Stage 2: Full Text Review

Coding Procedures

- Open your coding google sheets spreadsheet
- Select the "Inclusion Criteria Coding" tab
- Go to www.covidence.org and log in.
- Under "Your Reviews," click on "SR Acceptability of FBAs and BIPs."
- Under "Full Text Review," click "Continue" to reach the page with all studies that need to be screened.
- Under each study's title, click the blue link found under the "Full Text" button to access each article's PDF.
- Read the title and abstract for each study.
- Code each study, according to the procedures listed below, in the Excel document.
    - Once you allocate a code of "0" in a variable column of Excel for an article, coding for that article can stop.
- Select "Include or Exclude" in Covidence once you have made your final decision for each article.

Stage 2 Screening: Full Text Screening		
Variable	**Coding**	**Notes**
Full Text	**0 = Exclude:** Full text cannot be accessed through PDF, hyperlink or otherwise. **1 = Include:** Full text has been accessed and uploaded to Covidence.	
Language of the study	**0 = Exclude:** Language other than English **1 = Include:** English	What language is the study written in? If it is not written in English, do not continue screening, and code "Does study meet inclusion?" criteria as 0.
Year	**0 = Exclude:** Published prior to the year 1994 **1 = Include:** Published in 1994 or later	
Source Type	**0 = Exclude:** The study is a systematic review, meta-analysis, or case study, **1 = Include:** The study is not a systematic review, meta-analysis, or case study.	
FBA or BIP	**0=Exclude:** The study **DOES NOT** include either an FBA or a BIP. **1=Include:** The study **INCLUDES** either an FBA or BIP.	
Acceptability Assessment	**0=Exclude:** The study **DOES NOT** include an acceptability assessment associated with an FBA, BIP, or procedures derived from an FBA or BIP. **1=Include:** The study **INCLUDES** an acceptability assessment associated with an FBA, BIP, or procedures derived from an FBA or BIP.	This can also be referred to as "Social Validity."
Grade-level	**0=Exclude:** The study **WAS NOT** conducted in an elementary, middle, or high school setting; **1=Include:** The study **WAS** conducted in an elementary, middle, or high school setting;	Studies involving preschools will be excluded from this systematic review, even if they are part of an elementary school setting.

Classroom Setting	**0= EXCLUDE:** The study **WAS NOT** conducted in either restrictive or non-restrictive public school classroom settings. **1=INCLUDE:** The study **WAS** conducted in either a restrictive or non-restrictive public school classroom settings.	The following are characteristics of non-restrictive classroom settings: • They do not receive support from a special education teacher, • They maintain the district's student-to-teacher classroom ratio, • They follow the district's grade-level curriculum, and • They are housed within school district buildings and classrooms.
Respondents	**0=EXCLUDE:** The study **WAS NOT** conducted with teachers, teaching assistants, paraprofessionals, 1:1 aide, parents, or students, as respondents. **1=INCLUDE:** The study **WAS** conducted with teachers, teaching assistants, parents, or students, as respondents.	
Does study meet inclusion criteria?	**0=EXCLUDE:** No, all variables/inclusion criteria were not met. **1=INCLUDE:** Yes, all variables/inclusion criteria were met.	To be coded as a 1, all previous rows, had to have been coded as 1.

Duplicate Removal

- Before stage two screening, all duplicate studies will have been removed by the Covidence data management system.

Ancestral Review

Procedure:

- Once all studies have been screened for inclusion, the reference section of those that have met inclusion criteria will be examined to identify studies that may have been missed in the initial coding phase.
- All citations that may be applicable will be compared to the master list of studies, to ensure that it had not already been included.
- If there are any citations not in the master list, they will be added to a document labeled "Ancestral Review Articles."

Storage and Screening:

- The primary investigator will compile a list of all studies identified from the ancestral review, and title it "Ancestral Review Articles."
- In the "Ancestral Review Screening" sheet, this researcher will:
    - Enter the APA citation of the newly identified study
    - Copy and paste the abstract
- The primary investigator will then screen the citations using the above coding procedures.

Coding Procedures for Ancestral Review Identification:

Variable	Coding	Notes
N additional references	Type in the number of additional references you identified from the ancestral review that WERE NOT already in the master list	If no additional studies were identified, type "0"
Additional references citation(s)	Type in the citation(s) of the additional references you identified in APA format	Separate citations by a semicolon (;).

Stage 3: Full Article Data Extraction

Preparation Procedures:

- Once all stage 2 coding has been completed, this researcher will compile all studies from both the original and ancestral screening, that met the inclusion criteria, into the "Full Article Review" sheet.
- This researcher will then ensure that all citations and corresponding PDFs are in Covidence.

Full Article Review Procedures:

- Open the "Full Article Review" sheet.
- For each study assigned to you:
    - Open PDF from Covidence and use it to code following the steps below.
    - Direct any questions that come up during coding to the primary researcher.
    - For any variable in which multiple codes are applicable, list and separate them with a semicolon.

Coding Procedures for Full Article Review:

Variable	Coding	Notes
General Characteristics		
Research Methodology	0 = Not reported 1= Experimental—group design 2= Single-case design 3 = Non-experimental	Indicate the procedures used to determine the research design. Experimental—group design: Participants are randomly assigned to alternative conditions (e.g., one treatment vs. one control) and data are analyzed at a group-wide level (i.e., analysis is looking at group statistics like averages, rather than data for individual participants in isolation). May include within-subjects or between-subjects methodologies. Single-case design (SCED): Types of SCED may include "multiple baseline," "alternating treatments," "reversal," or "changing criterion." Data are analyzed at the individual level (i.e., changes in the individual's behavior are examined, rather than group differences and averages) Non-experimental: Includes correlational designs, case studies, quasi-experimental designs (i.e., when participants are not or cannot be randomly assigned to groups)
Year of Publication	Record the year of the study's publication. 0= Not reported	This information can be found in its citation.
N	Number of participants in the study 0= Not reported	The total number of participants that were included in the study, which is not necessarily the total number of participants recruited.
N Females	Number of females in the study 0= Not reported	
N Males	Number of males in the study 0= Not reported	
Age (Mean)	Mean age of participants (in years) 0= Not reported	

Age (Youngest)	Age of youngest participant (in years) 0= Not reported	
Age (Oldest)	Age of oldest participant (in years) 0= Not reported	
Variable	**Coding**	**Notes**
	Basic Characteristics	
School Grade	0 = Not reported 1= All in Kindergarten 1 = All in 1st 2 = All in 2nd 3 = All in 3rd 4 = All in 4th 5 = All in 5th 6 = All in 6th 7 = All in 7th 8 = All in 8th 9 = All in 9th 10 = All in 10th 11 = All in 11th 12 = All in 12th	
Disability Status	0= No disability 1=Educational disability 2=Not reported	
N Latinx	Number of participants who were Latinx, Latina, Latino, or Hispanic 0= Not reported	
N White	Number of participants who were White or Caucasian 0= Not reported	
N Black	Number of participants who were Black or African American 0= Not reported	
N American Indian or Alaska Native	Number of participants who were Native American 0= Not reported	
N Asian	Number of participants who were Asian (Far East, Southeast Asia, or the Indian subcontinent) 0= Not reported	

N Native Hawaiian or Other Pacific Islander	Number of participants who were Native Hawaiian or OPI (Hawaii, Guam, Samoa, or other Pacific Islands) 0= Not reported	
N Multiracial	Number of participants of two or more races 0= Not reported	
N English Language Learners (ELLs)	Number of participants who are English Language Learners 0= Not reported	

Type of Acceptability Assessment		
Acceptability Assessment	0= Not reported. 1= A formal or published acceptability measure was administered. 2= An acceptability measure created by the study's researchers was used. 3= A semi-structured interview was conducted.	**How was information related to FBA and/or BIP acceptability gained?** **What type of acceptability measure was administered?** Was the acceptability measure created by the study's researchers (1), a formal or published acceptability measure (0), or was a semi-structured interview conducted with a respondent (2)?

Timing of an Acceptability Assessment		
Timing	0= Not reported. 1= Prior to intervention implementation. 2= During intervention implementation. 3= Following intervention implementation.	**At what point during intervention implementation was an acceptability administered?** **Prior to intervention implementation:** Before any interventions were implemented with a student. This includes during the FBA and BIP creation and formalization. **During intervention implementation:** This encompasses the period of time that interventions and strategies listed within a BIP are being utilized and/or implemented. This includes any acceptability assessments that may have been administered during progress-monitoring sessions. **Following intervention implementation:** This includes acceptability assessments that were administered following the end of a behavioral intervention or progress-monitoring period.

Administration of the Acceptability Assessment		
Referrer	0= Not reported 1= School Administrator 2=Teacher 3=Teaching Assistant/ Paraprofessional/1:1 aide 4=Parent 5=Special Education provider 6=Medical personnel 7=IEP Team	**Who is referring the student for an FBA or BIP?** 9/27/2023-This team was reported in a study that met inclusion.
Presenting Problem	0= Not reported. 1= Physical Aggression 2= Verbal Aggression 3= Disruption 4= Off-task behavior 5= Noncompliance 6= Self-Harm 7= Elopement	**What are the behaviors of concern that necessitate completion of an FBA and/or BIP?**
Administrator	0= Not reported. 1= Researcher 2= Intervention Agent 3= School Personnel	**Who administered the FBA and/or BIP acceptability assessment?** Researcher: An individual conducting research pertaining to FBA and/or BIP acceptability. Intervention Agent: An individual who is in charge of creating, implementing, planning, assessing, or progress monitoring the use of behavioral interventions for a student. School Personnel: An individual who is employed by a school district.
Audience	0= Not reported Students 1= Teachers 2= Teaching Assistant/ Paraprofessional/1:1 aide 3= Parent 4= Special Education provider 5= Medical personnel 6=Principal	**Who is being assessed for acceptability?** 9/27/2023-These individuals were identified in studies that met inclusion.

	7=School Psychologist 8=Peers	
Use of acceptability information related to an FBA	0= Not reported 1= Acceptability information used to justify a revision to an FBA 2= Acceptability information used to justify adding information to an FBA 3=Acceptability information used to justify discontinuing information within an FBA	**Was information gathered from an acceptability assessment used to justify revising, adding to, or discontinuing information gathered during the FBA process?**
Use of acceptability information related to a BIP	0= Not reported 1= A BIP was not completed following an FBA 2=BIP not completed 3= Acceptability information used to justify a revision to an intervention listed in a BIP 4= Acceptability information used to justify adding to an intervention listed in a BIP 5=Acceptability information used to justify discontinuing an intervention within a BIP	**Was information gathered from an acceptability assessment used to justify revising, adding to, or discontinuing an intervention within a BIP?** For 1= A BIP was not completed following an FBA, this involves situations in which it was determined that FBA data did not support creation of a BIP. 9/27/2023-Studies implemented interventions outside of a formalized BIP.

Study Effects		
Effect Size Reported	0= Not reported. 1= Effect size reported.	**Was an effect size reported in the study?** The following information can be found in the results section of the research article.
Type of Reported Effect Size	0= Not reported. 1= Pearson r correlation ® 2= Standardized means difference (SMD) 3= Cohen's *d* effect size 4= Odd ratio 5= Coefficient of determination (R^2) 6= Partial eta-squared (η2) 7= Cohen's f^2 method of effect size 8=Percentage of nonoverlapping data (PND) 9=Improvement rate difference (IRD) 10=Percentage of data exceeding a median trend (PEM-T) 11=Tau for nonoverlap with baseline trend control (Tau-*U*)	**If reported, what was the type of effect size?**
Positive or Negative Effect Size	0= Not reported. 1= Positive effect size reported 2= Negative effect size reported.	**If an effect size was reported, was it positive or negative?**
Hypothesized Improvement	0= Not reported. 1= Improvement in the hypothesized direction 2= Improvement not in the hypothesized direction	**If reported, was the effect size in the hypothesized direction of improvement?**

Effect Size Strength	0=Not reported. 1= Small 2 = Medium 3 = Large 4 = Other	**What is the strength of the reported effect size?** Depending on the statistical analysis used, the strength of the reported effect size can be determined using the following guidelines: If correlation *r* was used: *r* = .10 - .19, small *r* = .20 - .29, moderate *r* = .30 or <, large If SMD used: SMD= 0.2-0.5, small SMD= 0.5-0.8, medium, SMD > 0.8, large If Cohen's *d* was used: *d* = .20 - .49, small *d* = .50 - .79, moderate *d* = .80 or <, large If Odds Ratio was used: OR = 1.44 - 2.47, small OR = .2.48 – 4.26, medium/moderate OR = 4.27 or <, large If R^2 was used: R^2 = .02 - .12, small R^2 = .13 - .25, medium R^2 = .26 or <, large If partial eta squared was used: η2 = 0.01, small η2 = 0.06, medium effect η2 = 0.14, large If f^2 was used: f^2 = 0.02, small f^2 = 0.15, medium f^2 = 0.35, large

		If PND was used: PND= 90% or < , very effective PND= .70 and .90, effective PND=.50 and .70, questionable effects PND=.50 or >, ineffective If IRD was used: PND= .50 or >, small/questionable PND=.50 and .70, moderate PND= .70 or <, large/very If PEM-T used: PEM-T=.90 or <, highly effective PEM-T=.70 and .90, moderately effective PEM-T=.50 and .70, questionable PEM-T=.50 or >, ineffective If Tau-*U* used: Tau-*U* =.65 or >, weak or small effect Tau-*U*=.66 and .92, medium to high effect Tau-*U*=.93 to 1, large or strong effect

CHANGE TABLE

<table>
<tr><th colspan="2">Pilot Coding – Round 1</th></tr>
<tr><th>Questions/Concerns from Round 1</th><th>Changes Made to Manual for Round 2</th></tr>
<tr><td></td><td></td></tr>
<tr><th colspan="2">Pilot Coding – Round 2</th></tr>
<tr><th>Questions/Concerns from Round 2</th><th>Changes Made to Manual for Round 3</th></tr>
<tr><td></td><td></td></tr>
<tr><th colspan="2">Pilot Coding – Round 3</th></tr>
<tr><th>Questions/Concerns from Round 3</th><th>Changes Made to Manual for Final Manual (More or less rounds depending on ISA)</th></tr>
<tr><td></td><td></td></tr>
<tr><th colspan="2">Changes to Final Manual during Data Extraction Stage</th></tr>
<tr><td colspan="2">9/27/2023-Additions to the “Administration of the Acceptability Assessment” section
Referrer
7=IEP Team
Audience
6=Principal
7=School Psychologist
8=Peers
Use of acceptability information related to a BIP
2=BIP not completed</td></tr>
</table>

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Curriculum Vitae

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EDUCATION

2026 (expected)	Ph.D., Syracuse University, School Psychology *Graduate Student, School Psychology Program (APA and NASP approved)*
2013	M.A., C.A.S., SUNY Oswego State, Major: School Psychology
2009	B.A., SUNY Binghamton University, Major: Psychology, Minor: Italian

PROFESSIONAL EXPERIENCE

1/23-present Instructor of Record, Syracuse University, NY. Responsible for teaching two weekly classes as the sole instructor for "PSY443: Lab in Child Psychology" and "PSY 432: Applied Behavior Analysis". Duties included: creating teaching materials, leading activities, and grading all student assignments.

8/22-12/23 Graduate Teaching Assistant, Syracuse University, NY. Responsible for supporting the instructor of record and students taking "PSY335: Child Development". Duties included holding office hours, attending planning meetings, exam make-up sessions, presenting on the role of School Psychologists, and grading assignments

8/21-5/22 Graduate Teaching Assistant, Syracuse University, NY. Responsible for teaching a total of eight 55-minute recitation sections on a weekly basis, in-person, to review course content and support student learning for "PSY205: Foundations of Human Behavior". Duties also include holding office hours, exam review sessions, and grading assignments.

9/20-6/21 School Psychologist, West Genesee Central School District, Homer, NY. Served as the school psychologist at East Hill Elementary. Responsibilities included completing psychological evaluations, consultations, leading the building's crisis team, and serving as Sub-Committee Chairperson for the building's CSE Committee.

10/18-6/20 School Psychologist, Homer Central School District, Homer, NY. Served as the school psychologist at Homer Elementary. Responsibilities included completing psychological evaluations, consultations, leading the building's crisis team, and serving as Sub-Committee Chairperson/Chairperson for 504, CPSE, and CSE Committees.

7/14-6/18 School Psychologist, OCM BOCES, Cortland, NY. Served five to twenty-one-year-old students, diagnosed with a range of disabilities, across thirty districts. Responsibilities included leading the crisis team at the Charles H. McEvoy campus and consulting with teachers and school districts.

8/13-6/14 School Psychologist, Chesterfield County Public Schools, Chesterfield, VA. Served as building school psychologist, and provided ELL support, in two elementary schools, a middle school, and a high school. Responsibilities included completing psychoeducational evaluations, running consultation meetings, and planning, implementing, and monitoring social-emotional and academic interventions.

8/12-6/13 Internship in School Psychology, Chesterfield County Public Schools, Chesterfield, VA. Interned forty hours a week, under supervision of a doctorate trained School Psychologist. Duties included completing psychoeducational evaluations and conducting behavioral observations, holding individual and group counseling sessions, and implementing interventions.

1/12-5/12 School Psychology Practicum, Baldwinsville Central School District, Baldwinsville, NY.
Practiced skills related to assessment, academic and behavioral intervention,

9/11-1/12 and teacher consultation in an elementary school setting.

School Psychology Practicum, Syracuse City School District, Syracuse, NY.
Practiced skills related to assessment and academic and behavioral intervention

1/11-5/11 with ELLs in a bilingual elementary school setting.

School Psychology Counseling Practicum, Syracuse City School District, Syracuse, NY.
Practiced skills related to assessment, academic and behavioral intervention, and teacher consultation in an elementary school setting.

OTHER PROFESSIONAL EXPERIENCE

6/13-8/14 In-Home Behavioral Treatment Clinician, Henrico, VA. In the home setting, provided families with resources and interventions to improve the behaviors, adaptive skills, and communication skills of children with disabilities.

1/08-5/08 Tutor, SUNY Binghamton University, Institute for Child Development, Binghamton, NY. Implemented research-based individually designed reading programs to children with diagnosed with Learning Disabilities. Implemented

behavioral and educational interventions designed for children diagnosed with Autism.

RESEARCH EXPERIENCE

8/21-present Treatment Research in Academic Competence Lab (TRAC), Syracuse University, NY. Responsibilities include: attending weekly meetings, managing data input and analysis, reviewing literature on school-based research to improve children's academic skills, and co-authoring current research projects.
Graduate Assistant | Faculty Mentor: Dr. Tanya Eckert

9/11-5/13 Research Assistant, SUNY Oswego State, Oswego, NY. Researched the effectiveness of progress-monitoring reading comprehension assessments Assisted department professors with the storage of their research data.
Research Assistant | Faculty Mentor: Dr. James McDougal

9/08-5/09 Research Assistant, SUNY Binghamton University, Binghamton, NY. Responsibilities included: Assisting a doctoral student with planning, organizing, and analyzing neuropsychological memory research.
Research Assistant | Faculty Mentor: Dr. Lisa M. Savage

PRESENTATIONS AND PUBLICATIONS

Eckert, T. L., Maguire, S. C., Nelson, K. A., **Amidon, S. Y. M.**, Goldstein, A. R., & Antoine, M. (in prep). Student intervention acceptability and dosage.

Eckert, T. L., Circe, J. J., Goldstein, A. R., **Amidon, S. Y. M.**, Nelson, K. A., Maguire, S. C., & Antoine, M. (in prep). Comparison of paragraph and sentence writing prompts.

Eckert, T. L., Maguire, S. A., Nelson, K. A., **Amidon, S. Y. M.**, Antoine, M. S., Alderman, S. V., Young, T. J., Goldstein, A. R., & Williams, J. L. (2024, February 14-17). Improving literacy: Varying cover-copy-compare components. [Poster presentation]. National Association of School Psychologists, New Orleans, Louisiana, United States.

Eckert, T. L., Nelson, K. A., Maguire, S. A., Antoine, M. S., **Amidon, S. Y. M.**, Young, T. J., Alderman, S. V., Goldstein, A. R., & Williams, J. L. (2024, February 14-17). Students' self-assessed adherence to a cover-copy-compare intervention. [Poster presentation]. National Association of School Psychologists, New Orleans, Louisiana, United States.

Eckert, T., Maguire, S., Nelson, K., **Amidon, S.Y.M.,** Goldstein, A., Antoine, M. (2023). You'll learn to love it? Examining the relationship between intervention dose and acceptability among third-grade students.

COMMITTEE INVOLVEMENT

9/22-present Admissions Committee, School Psychology Program, Syracuse University.
9/21-5/22 The Committee for Social Justice, Inclusion, Diversity, and Equity (SIDE), Syracuse University.

PROFESSIONAL AFFILIATIONS

9/21-present Student member of the National Association of School Psychologists (NASP)
9/21-present Student member of the New York Association of School Psychologists (NYASP)

RELEVANT COURSEWORK

SUNY Oswego State: Individual Cognitive Assessment, Foundation of Psychological and Educational Appraisal, Social, Personal, & Ecological Assessment, Counseling Theory & Process, Practicum in Counseling, Advanced Practicum in School Psychology, Psychological Foundations-Development, Educationally Disabling Conditions and Other Learning Problems

Syracuse University: Introductory Seminar in School Psychology, Child and Family Interventions, Developmental Psychopathology, Health Psychology, Social Cognition, Statistics & Research Design I

REFERENCES

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Dr. Barbara Mettelman, Clinical Psychologist (Liberty POST), **Address:** 6723 Towpath Rd, East Syracuse, NY 13057, **Tel:** 315-425-1004, **Email:** bmettelman@liberty-resources.org

Dr. Shannon Sweeney, Assistant Teaching Professor of Psychology (Syracuse University), **Address:** Department of Psychology, 503 Huntington Hall Syracuse, NY 13244-2340, **Tel:** 315.443.2354, **Email:** smsweene@syr.edu