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Administrators' Roles in the Use and Training of Evidence-Based Practices for Students With Autism Spectrum Disorder

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- **Federal mandates require special education teachers to use instructional practices grounded in scientific research. Accordingly, the National Professional Development Center on Autism Spectrum Disorder (NPDC) identified 27 evidence-based practices specific to teaching students with autism spectrum disorder (ASD; Wong et al., 2014). Though these practices have undergone a rigorous identification process, less is known about the level of training and confidence in implementation of these instructional practices by education professionals who work with students with ASD.**
- **Our study assessed education professionals' (including administrators, teachers, and related services personnel) ratings of their level of training, confidence in implementation, and frequency of implementation of the NPDC's 27 EBPs for students with ASD. We found that, overall, educators reported low levels of training, low confidence, and low frequency of implementation of EBPs.**
- **Perhaps most alarming was the high percentage of educational professionals who reported they did not feel confident in their ability to implement identified EBPs. These findings highlight the need to provide quality training opportunities to educators to ensure school systems are meeting the unique needs of students with ASD.**
- **Administrators, in particular, need to consider their own levels of training and confidence of implementing EBPs as they often make decisions or provide input regarding professional development opportunities as well as influence decisions about students, such as placement and services provided.**

Key words: Autism Spectrum Disorder, Evidence-Based Practices, Educator Training, Training in Instructional Practices.

Determining Educators' Use and Training of Evidence-Based Practices for Students With Autism Spectrum Disorder

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental disorder presenting early in a child's development with variable impairments in social communication interactions and restricted and repetitive patterns of behavior (American Psychiatric Association, 2013). The prevalence of children identified with ASD has increased to 1 in 54 children in the United States, making it the fastest growing developmental disability in the United

States (Maenner et al., 2020). It affects children of all racial, ethnic, and socioeconomic backgrounds. The number of students ages 3–21 years identified with ASD in public schools has more than doubled from approximately 296,000 in 2007–2008 to 699,541 in the 2017–2018 school year (National Center for Educational Statistics [NCES], 2018a; NCES, 2018b). Given the increase in students with ASD who receive special education services in public schools, it is important to ensure that effective instructional and programmatic practices are being implemented to improve student outcomes. While unsupported techniques and treatments abound for this growing population, federal law requires educators to use evidence-based practices (EBPs) in educational

settings to support students with disabilities, including those with ASD (Every Student Succeeds Act, 2015; Individuals with Disabilities Improvement Act, 2004).

Evidence-Based Practices for Students With ASD

Following the federal mandate and supported by over 360 million dollars of government and private funding, research on treatments for ASD is abundant (McNeil, 2019; United States Department of Health & Human Services, 2016). ASD advocacy and research organizations have conducted extensive reviews of the empirical literature to identify EBPs shown to increase academic, behavioral, communication, and other skills for individuals with ASD. Organizations such as the National Professional Development Center on Autism Spectrum Disorder (NPDC; Wong et al., 2014) and the National Autism Center (NAC, 2009; NAC, 2015) have conducted thorough reviews of the literature extending back to 1957. In 2014, the NPDC expanded the timeframe of a previous review, added external reviewers, and incorporated criteria from NAC and What Works Clearinghouse (WWC) reviews to identify 27 evidence-based practices (in Wong et al., 2014). In conducting their review, the NPDC included a comprehensive search for manuscripts published in peer-reviewed journals, printed in English, between 1990 and 2011.

To be included in the review, the identified manuscripts had to include participants identified as having autism, ASD, Asperger syndrome, pervasive developmental disorder (PDD), pervasive developmental disorder—not otherwise specified (PDD-NOS), or high-functioning autism. These participants also had to be between the ages of birth and 22 years. Included interventions had to be behavioral, developmental, and/or educational excluding interventions such as medication-only trials or nutritional studies. All interventions reviewed had to be able to be implemented in a “typical educational, home, or community setting” (Wong et al., 2014, p. 16). All included studies in the review had to use experimental group design, quasi-experimental design, or single case design to demonstrate their results. This comprehensive search utilized nine databases (Wong et al., 2014). Articles were reviewed using protocols developed by the

researchers based on established guidelines for methodological quality including those established by the WWC. Based on the criteria, 456 studies were included in the review. Based on the evaluation of the studies, an intervention was considered as an evidence-based practice if one of three criteria were met. First, “at least two high quality experimental or quasi-experimental group design articles [were] conducted by at least two different researchers or research groups” (Wong et al., 2014, p. 21). Second, an intervention could be considered an EBP if “at least five high quality single case design articles [were] conducted by at least three different researchers or research groups [and had] a total of at least 20 participants across studies” (Wong et al., 2014, p. 21). Finally, an intervention could be considered an EBP if “a combination of at least one high quality experimental or quasi-experimental group design article and at least three high quality single case design articles [were] conducted by at least two different research groups” (Wong et al., 2014, p. 21).

Based on the review, 27 EBPs were found to meet rigorous standards of efficacy established by NAC and WWC for students with ASD (Wong et al., 2014) and thus should be considered for use with students with ASD to improve their outcomes (see *Table 1* for a list of the identified EBPs).

Implementation of Evidence-Based Practices

Research has long documented a gap between empirical findings on effective practices and practical application in the classroom setting (Cook & Odom, 2013; McNeill, 2019). While researchers have investigated organizational culture, teacher attitude, role of the teacher (Paynter et al., 2017), and social validity (McNeill, 2019) as barriers to the implementation of EBPs, the need for effective training remains a critical point in the successful implementation of EBPs across educational professionals (e.g., Hendricks, 2011; Hogan et al., 2015; Layden et al., 2018). To ensure educators meet the needs of students with ASD, it is essential to not only to be knowledgeable of EBPs but also to have the training and expertise to implement them with fidelity in the classroom (Marder & deBettencourt, 2015).

In practice, EBPs must be implemented with fidelity to achieve the efficacy observed in research

Table 1: Evidence-based practices identified by the National Professional Development Center on ASD

Evidence-Based Practice (EBP)	Acronym
Antecedent-Based Intervention	ABI
Cognitive Behavioral Intervention	CBI
Differential Reinforcement of Alternative, Incompatible, or Other Behavior	DRA/I/O
Discrete Trial Teaching	DTT
Exercise	ECE
Extinction	EXT
Functional Behavior Assessment	FBA
Functional Communication Training	FCT
Modeling	MD
Naturalistic Intervention	NI
Parent-Implemented Intervention	PII
Peer-Mediated Instruction and Intervention	PMII
Picture Exchange Communication System	PECS
Pivotal Response Training	PRT
Prompting	PP
Reinforcement	R+
Response Interruption/ Redirection	RIR
Scripting	SC
Self-Management	SM
Social Narratives	SN
Social Skills Training	SST
Structured Play Group	SPG
Task Analysis	TA
Technology-Aided Instruction and Intervention	TAII
Time Delay	TD
Video Modeling	VM
Visual Support	VS

Note. EBPs, along with a description of each, can be found in Wong et al. (2014).

settings (National Research Council [NRC], 2001). Further, implementing EBPs with fidelity results in high-level student outcomes (Kretlow & Bartholomew, 2010). It is possible that gaining the knowledge and skills to effectively implement EBPs with fidelity may be a fast-moving target that eludes

teachers, special education administrators, and their employing school districts. The responsibilities and expectations for special educators are immense and expanding, requiring the knowledge and skills to deliver standards-based academic content while working with diverse students who have unique needs with a variety of disability labels (Smith et al., 2010). Specifically, in the educational setting, students with ASD display widely heterogenic learning profiles that set them apart from their peers with other disabilities (Hendricks, 2011; Swanson, 2012). To that end, educators have reported they do not feel adequately prepared or trained to implement EBPs for students with ASD (Hendricks, 2011).

Administrators' Roles in Supporting Teachers

The lack of training related to this population of students should be of particular concern to special education administrators who are tasked with awareness of students' educational trajectories beyond performance in the classroom. Students with ASD display unique challenges including deficits in communication and social skills as well as potential challenges with cognition and behavior (Scheuermann et al., 2003). Thus, these students require teachers who have specialized skills to meet their needs. Unfortunately, special education teachers are in low supply. Special education teachers, in general, demonstrate high levels of attrition across at least 49 states (Billingsley & Bettini, 2019) with an annual attrition rate of 13% (Wong et al., 2017) and approximately 50% of special educators leaving the field within their first five years of teaching (Hester et al., 2020). The annual cost of this attrition is estimated to be approximately 90 million dollars nationwide (Brownell et al., 2004 in Hester et al., 2020). This monetary cost is important, but the loss of experience and expertise is also expensive to school districts and students. Further, special education teachers working with students with ASD have reported the "most stress in comparison to teaching other groups of students with disabilities, such as those with emotional or behavioral problems, attention deficit hyperactivity disorder, or intellectual disability" (Wong et al., 2017, p. 413). Hester et al. (2020) reported burnout has been identified as the chief reasons teachers leave and Wong et al. (2017) found burnout can impact not only

whether a teacher of students with ASD will stay or leave but also can impact teaching quality and student engagement.

The lack of training related to this population of students should be of particular concern to special education administrators who are tasked with awareness of students' educational trajectories beyond performance in the classroom.

Special education administrators play an important role in retaining special education teachers, particularly those who work with students with ASD, by providing support to educators such as consultation and professional development (PD). These administrative supports can contribute to reducing special education teacher attrition. Gilmour and Wehby (2020) reported teachers are "rarely prepared to meet the academic and behavioral needs of students with disabilities" (p. 1045). Lack of knowledge or appropriate PD opportunities have been reported as a reason special education teachers leave (e.g., Hagaman & Casey, 2018; Thornton et al., 2007). Billingsley and Bettini (2019) conducted a review and found that opportunities for PD and administrator support for professional learning and growth were key components for teacher retention. Further, PD that focused on behavioral management and "best teaching practices" (p. 711) were highly valued by special education teachers who remained in their teaching positions. Though additional research is needed regarding the quality of PD provided, opportunities to improve teaching knowledge and skills appear to be important in reducing attrition for special education teachers, and administrators must provide that PD to build and sustain the success of their teachers. Given the unique and heterogenous nature of students with ASD, this need is even more critical.

It is important to note that all PD opportunities are not created equally. Practicing teachers receive most of their training from their school districts, often through one-day, in-service training sessions (Kretlow & Bartholomew, 2010). Special education administrators can have a profound impact on the quality of PD opportunities offered. Unfortunately,

there may be confusion at the district level regarding what qualifies as an EBP, the variety and availability of practices identified by others as EBPs, the diverse needs and financial bases of school districts, and the perspective of the administrators who determine which practices will be used. As most EBPs have been researched singly without consideration of overlapping or competing objectives from other practices, there is no clear determination of a scope and sequence for the training of educators in EBPs. Therefore, the choice of strategies, the efficacy of training, and the resulting fidelity of implementation may vary widely across school districts and may be largely based on the level of administrator knowledge and skills.

Additionally, the effect of training within a school district may be unintentionally self-limiting. While school districts may have provided training to a select few educators, instructional situations often arise that could be addressed with EBPs, but for which training has not been disseminated or is ineffective (e.g., delivered secondhand or without full information). When serving students with ASD, using at least the 27 identified EBPs (Wong et al., 2014), selecting an appropriate EBP, providing adequate training, and ensuring the practice has been implemented with fidelity poses a challenge for school districts (Cook & Odom, 2013; Marder & deBettencourt, 2015). Stansberry-Brusnahan and Collet-Klingenberg (2010) reported that EBPs for students with ASD may not provide enough detail to result in reliable and successful classroom-based implementation. This further highlights the importance of quality training on EBPs.

Burnout for special education teachers is problematic and lack of administrator support is frequently cited as a major concern leading to burnout (Robinson et al., 2019). Special education administrators play a key role in supporting their special education teachers through quality PD targeted to their specific needs. Special education administrators can focus their efforts in determining the content, frequency, type, and quality of PD for special education teachers working with students with ASD. Providing these opportunities serves to support special education teachers while simultaneously improving their knowledge and specific job skills. Unfortunately, there is a paucity of research delineating the training special education administrators receive as well as their ability to

implement EBPs when supporting students with ASD.

Special education administrators can focus their efforts in determining the content, frequency, type, and quality of PD for special education teachers working with students with ASD.

In response to the aforementioned needs, this survey study examined self-reported levels of training, confidence of implementation, and frequency of implementation of the 27 NPDC-identified EBPs by educational professionals (i.e., administrators, teachers, and related services personnel) who work with students with ASD ages 3–21 years old in school settings. Differences in reported responses across roles were also examined. *Table 1* shows the 27 identified practices from the NPDC 2014 report.

The research questions guiding this study were:

1. How do education professionals rate themselves on their levels of training, confidence in implementation, and frequency of implementation of the NPDC's 27 EBPs (2014) for students with ASD?
2. Are there differences between professional role groups (e.g., teachers, administrators) in their self-reported levels of training, confidence in implementation, and frequency of implementation of the NPDC's 27 EBPs (2014) for students with ASD?

Method

Survey Construction

The survey consisted of 89 questions separated into three question clusters (i.e., 5-point Likert scale × 27 NPDC EBPs) requesting that the respondents rate themselves on their *level of training, confidence in implementation, and frequency of implementation* (81 questions) as well as eight demographic questions. Estimated time to complete the survey was approximately 15–20 minutes. The survey was constructed using Qualtrics survey software and was accessible on mobile devices, tablets, and computers. Eight individuals with social science research and/or

content area expertise reviewed the survey prior to dissemination. These individuals provided feedback on both survey construction and content. The survey was then piloted to ensure technical usability on both computers and mobile devices. Once the survey was disseminated, to further encourage participation, respondents were given the option to enter their names in a drawing for one of 10 gift cards valued at \$10 each (Dillman et al., 2014).

Definitions, consisting of two to four sentences, from Wong et al. (2014) were embedded in the survey for each EBP to improve clarity. Participants had access to EBP definitions by hovering over the name of the practice when presented with a question pertaining to the EBP. Survey fatigue and accuracy were addressed by using drag and drop technology that allowed participants to sort the practices to one of five defined Likert scale “landing pads,” rather than attempting to track horizontally along multiple rows to choose an answer. This technology may have avoided participants’ tendency to repeatedly click the same answer choice to advance a long survey.

Training was defined in the survey as:

Any training such as face to face workshops, online webcasts, reading journal articles or formal reports, observing an expert implement the training, college coursework, attending conferences, or other opportunities as long as they directly taught the EBP and its application for use.

Participants were told *training did not include word of mouth or informal information such as blogs, websites, magazine articles, and similar materials*. Given the descriptive nature of the provided Likert answer choices, (e.g., *I can implement the practice with someone providing verbal guidance; I have implemented the practice at least monthly within the past 6 months; See Table 2*) the questions on confidence and frequency of implementation were not considered to need additional clarification.

Participants were given a defined 5-point Likert scale to assess themselves in three aspects of EBP practice: training, confidence in implementation, and frequency of implementation. Each participant was asked to rate themselves in each of these three aspects for each of the 27 EBPs, resulting in a total of 81 response opportunities. *Table 2* provides the Likert scale response choices for each of these three areas of training, confidence, and frequency of implementation.

Table 2: Self-report questions and Likert response choices

Area	1	2	3	4	5
Training	I have received no training on this EBP	I have received 1 hour or less on this EBP	I have received more than 1 hour but less than 3 hours of training on this EBP	I have received more than 3 hours but less than 6 hours training on this EBP	I have received more than 6 hours training on this EBP
Confidence	I cannot implement this practice	I can implement this practice with someone providing verbal and physical modeling for each step	I can implement the practice with someone providing verbal guidance	I can implement the practice with minimal guidance provided only when requested	I can implement this practice independently
Frequency	I have never implemented the practice	I have implemented the practice once within the past six months	I have implemented the practice more than once but not monthly within the past six months	I have implemented the practice at least monthly within the past 6 months	I have implemented the practice at least weekly within the past six months

Survey Dissemination

We utilized a snowball sampling procedure where participants were identified and then asked to share the survey with colleagues who also met the criteria in order to obtain our sample (Rea & Parker, 2014). Participants were recruited through an e-mail invitation with a link to the online survey. The e-mail was sent to special education directors, administrators, and other educators with publicly available e-mail addresses found through states' department of education websites or school district websites throughout the United States. Survey responses were anonymous, and participants could skip any question they did not wish to answer. The survey was open for participants to complete at any time and location of their choosing. This study was reviewed by the human subjects committee at the university where the research was conducted and acknowledged as an exempt study. Informed consent was described before the participant began the survey.

While the exact number of potential participants is unknown due to the snowball sampling procedure, the e-mail for recruitment was sent to approximately 6,000 special education directors and approximately 1,500 teachers and related services personnel (e.g., special education teachers, speech language therapists, occupational therapists) throughout the United States. Additionally, the survey was sent to approximately 10,000 building principals. The invitation e-mail was sent twice with an initial contact and a follow-up reminder sent two weeks later.

Results

At the close of the survey, data were exported from Qualtrics for analysis. Frequency analyses were conducted on participant responses to each EBP and by participant role group responses to each EBP to discern patterns in the three aspects of EBP implementation: training, confidence, and frequency.

As respondents could skip questions, the number of responses varied by question. The aggregated responses for each question were then analyzed to determine the mean and standard deviation per question. Additionally, when looking for overall trends, researchers reviewed the total number of responses across participants, which included multiple responses across all EBPs. Likert scales were used for each of the EBPs in each of the three categories and the range for each Likert scale was 1–5.

Participants

There were 263 responses that met the following criteria:

1. Participants were at least 21 years of age;
2. Participants had experiences working in a public school system in a professional capacity within the United States; and
3. Participants had worked with at least one student with ASD.

The most prevalent characteristics among participants were holding a teaching endorsement in

Table 3: Participant demographics

Demographic variable	<i>n</i>	Percentage
Role		
Special education teacher	42	35.3
Special education administrator	39	32.8
Other administrator	13	10.9
Specialist	16	13.4
Other/Itinerant	9	7.6
Highest degree		
Bachelor's degree or equivalent	11	9.2
Master's degree or equivalent	63	52.9
Specialist degree beyond master's	28	23.5
Doctorate degree or equivalent	17	14.3
Years experience with ASD		
2 years or less	4	4.3
More than 2 years to 4 years	4	7.7
More than 4 years to 7 years	6	12.8
More than 7 years to 11 years	13	14.5
More than 11 years to 15 years	13	13.7
More than 15 years	79	47.0

special education and/or a supervisory role in special education ($n = 81, 31\%$); attainment of a master's degrees or higher ($n = 106, 40\%$); at least 1 to 12 or more credits of college-level autism-specific coursework ($n = 67, 25\%$); and at least 7 to 15 or more years serving students with ASD ($n = 88, 33\%$). See Table 3 for the demographics of the participants.

Participants chose from a list of 11 professional roles or could write in their role under the *Other* heading. Through selection of one of the 11 provided roles, or by selecting other and providing a write-in response, participants reported twelve professional roles: *autism specialist, behavior specialist, special education director, building administrator, special education teacher, speech language pathologist, school psychologist, other related service provider, behavior analyst, other district level administrator, other special education administrator, and MTSS coordinator*. Though the list of professional roles included *general education teacher*, no participants identified themselves as such. Participants represented 37 different states with 40.2% from Virginia.

For the purpose of data comparisons, 12 roles were combined into five role groups: 1) *special education administrator*, $n = 39$ (i.e., special education director, special education coordinator, assistant special education director, and executive director of special education); 2) *other administrator*, $n = 13$ (i.e., building administrator, other non-special education district level administrator); 3) *special education teacher*, $n = 42$; 4) *specialist* (i.e., autism specialist, behavior specialist), $n = 16$; and 5) *other/itinerant*, $n = 9$. Those that indicated that they served part time in one of special education administrative roles identified above, due to the small size of their district, were also included in this grouping. All other remaining roles were categorized within the *other/itinerant* category. There were 144 survey participants who did not indicate their role.

In order to compare results across EBPs as well as participants, data were analyzed using the total individual participant responses across EBPs. For example, when asked about training, participants responded to prompts including all 27 EBPs which could result in 27 responses for that question. In order to compare this across EBPs, the total individual participant response would be 27 for that participant.

Training

Evidence-Based Practice (EBP). Table 4 shows the mean Likert scores of individual participant responses which was 6,720 for the answer to the prompt *please rate your level of training* for each EBP as well as the mean score across all responses. Overall, across all 27 EBPs, the responses for the training question resulted in a bimodal distribution with peaks at *I have received no training on this EBP* ($n = 2,264, 33.7\%$) and *I have received more than 6 hours of training on this EBP* ($n = 1,799, 26.8\%$). Responses indicate that for each of the 27 EBPs, at least one person reported they received training on the practice. There were six respondents who reported having had no training on any of the 27 EBPs, and two respondents reported having had at least 6 hours of training on each of the 27 EBPs; yet the overwhelming majority of respondents reported mixed levels of training across the 27 EBPs.

The mean Likert score for training overall was 2.83 ($SD = 1.63$), indicating that the average training time fell somewhere between more than 1 hour and less than 3 hours. The EBPs with the highest mean Likert scores were functional behavior assessment

Table 4: Mean (SD) Likert scores of evidence-based practices indicating level of training

Evidence-Based Practice (EBP)	n	Mean (SD)
Functional Behavior Assessment (FBA)	257	4.26 (1.20)
Reinforcement (R+)	247	3.75 (1.48)
Visual Supports (VS)	250	3.69 (1.48)
Prompting (PP)	248	3.58 (1.53)
Modeling (MD)	253	3.55 (1.51)
Social Skills Training (SST)	250	3.50 (1.53)
Task Analysis (TA)	252	3.41 (1.49)
Antecedent Based Intervention (ABI)	256	3.28 (1.62)
Picture Exchange Communication System (PECS)	251	3.18 (1.55)
Social Narratives (SN)	248	3.03 (1.53)
Discrete Trial Teaching (DTT)	251	2.97 (1.70)
Extinction (EXT)	249	2.88 (1.67)
Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DRA/I/O)	249	2.88 (1.74)
Self-Management (SM)	246	2.69 (1.56)
Response Interruption/Redirection (RIR)	246	2.61 (1.58)
Cognitive Behavioral Intervention (CBI)	252	2.58 (1.60)
Functional Communication Training (FCT)	247	2.55 (1.60)
Video Modeling (VM)	247	2.50 (1.49)
Scripting (SC)	247	2.49 (1.45)
Technology-Aided Instruction and Intervention (TAII)	247	2.44 (1.47)
Time Delay (TD)	245	2.27 (1.52)
Parent-Implemented Intervention (PII)	246	2.23 (1.37)
Peer-Mediated Instruction and Intervention (PMII)	250	2.23 (1.37)
Structured Play Groups (SPG)	248	2.19 (1.37)
Pivotal Response Training (PRT)	247	2.09 (1.46)
Naturalistic Intervention (NI)	244	2.06 (1.47)
Exercise (ECE)	247	1.84 (1.26)
Overall Training Responses	6,720	2.83 (1.63)

(FBA; $M = 4.26$, $SD = 1.20$), reinforcement (R+; $M = 3.75$, $SD = 1.48$), visual supports (VS; $M = 3.69$, $SD = 1.48$), prompting (PP; $M = 3.58$, $SD = 1.53$), and modeling (MD; $M = 3.55$, $SD = 1.51$). The five lowest mean Likert scores were reported for the EBPs of

exercise (ECE; $M = 1.84$, $SD = 1.26$), naturalistic intervention (NI; $M = 2.06$, $SD = 1.47$), pivotal response training (PRT; $M = 2.09$, $SD = 1.46$), structured play groups (SPG; $M = 2.19$, $SD = 1.37$), and peer-mediated instruction and intervention (PMII; $M = 2.23$, $SD = 1.37$).

Role Group. Level of training reported across the 27 EBPs varied between role groups (See Table 5). Within the five role groups, the *specialist* role group had the highest mean Likert score for training across the EBPs ($M = 3.79$, $SD = 1.41$) and the *other/itinerant* group reported the least amount of training across EBPs with a mean Likert score of 2.34 ($SD = 1.65$). Among the other role groups, the groups of *special education administrator*, *special education teacher*, and *other administrator* had mean Likert scores for training of 3.37 ($SD = 1.58$), 2.91 ($SD = 1.65$), and 2.71 ($SD = 1.74$), respectively.

Implementation Confidence

Evidence-Based Practice (EBP). Table 6 provides detailed results of mean Likert scores for confidence in implementation levels for each EBP as well as overall. Only two participants reported the ability to independently implement all 27 of the EBPs. Within the confidence section of the survey, 64.9% ($n = 3,465$) of total responses across the 27 EBPs indicated that participants could not implement selected EBPs independently or at all, as determined by the number of responses that were recorded as 1–4 on the given Likert scale, divided by the total number of responses of 5,337. When reviewing responses per EBP, the practices for which the highest mean Likert scores were obtained were FBA ($M = 4.36$, $SD = 1.13$), R+ ($M = 4.14$, $SD = 1.31$), prompting (PP; $M = 4.13$, $SD = 1.31$), VS ($M = 4.11$, $SD = 1.34$), and MD ($M = 4.02$, $SD = 1.36$). Further, parent implemented intervention (PII; $M = 2.39$, $SD = 1.46$), PRT ($M = 2.49$, $SD = 1.51$), ECE ($M = 2.51$, $SD = 1.50$), NI ($M = 2.65$, $SD = 1.63$), and PMII ($M = 2.71$, $SD = 1.51$) had the lowest mean Likert scores for confidence of implementation.

Role Group. Differences were noted in confidence of implementation mean Likert scores between roles when responses were examined by role groups and were noted to mirror the results found within the *training* section. The *specialist* group had the highest mean Likert score ($M = 4.08$, $SD = 1.32$), followed by *special education administrator* ($M = 3.55$, $SD = 1.50$) and *special education teacher* ($M = 3.44$, $SD = 1.54$). The two groups with the lowest mean Likert scores

Table 5: Mean (*SD*) Likert scores for training, confidence, and frequency across all evidence-based practices by role

Role	Training		Confidence		Frequency	
	<i>n</i>	Mean (<i>SD</i>)	<i>n</i>	Mean (<i>SD</i>)	<i>n</i>	Mean (<i>SD</i>)
Special education teacher	1,070	2.91 (1.65)	1,059	3.44 (1.54)	1,035	2.93 (1.67)
Special education administrator	1,030	3.37 (1.58)	1,053	3.55 (1.50)	884	2.62 (1.50)
Other administrator	336	2.71 (1.74)	313	2.95 (1.81)	329	2.42 (1.55)
Specialist	432	3.79 (1.41)	414	4.08 (1.32)	402	3.48 (1.55)
Other/itinerant	193	2.34 (1.65)	171	2.83 (1.61)	168	2.32 (1.38)

for confidence of implementation were other/itinerant ($M = 2.83$, $SD = 1.61$) and other administrator ($M = 2.95$, $SD = 1.81$).

Frequency of Implementation

Evidence-Based Practice (EBP). Participants were asked to rate their frequency of implementation of the 27 EBPs. Only 22.7% ($n = 900$) of the total number of responses, which was 3,968, indicated that participants had implemented any of the 27 practices *at least one time weekly over the previous six months*. Most of the responses (77.3%, $n = 3,068$) indicated that participants had implemented the EBPs less than once per week or not at all. Ten participants reported never having implemented any of the 27 EBPs.

The mean Likert score for overall frequency of implementation was 2.65 ($SD = 1.61$), indicating that, on average, participants had implemented the EBPs less than one time monthly, at most, in the six months prior to completing the survey. The highest mean achieved for frequency of implementation was 3.89 ($SD = 1.45$), which was obtained by the EBP of R+. VS ($M = 3.75$, $SD = 1.56$), PP ($M = 3.71$, $SD = 1.50$), MD ($M = 3.46$, $SD = 1.61$) and FBA ($M = 3.37$, $SD = 1.37$) were also among the five EBPs with the highest mean Likert score for frequency of implementation. Although R+ obtained the highest mean Likert score for frequency of implementation, VS had the largest percentage ($n = 79$, 53.7%) of participants responding with a Likert score of five, indicating they had implemented the practice at least weekly. Those EBPs that obtained the lowest mean Likert score were PII ($M = 1.80$, $SD = 1.20$), ECE ($M = 2.00$, $SD = 1.39$), PRT ($M = 2.01$, $SD = 1.36$), SPG ($M = 2.01$, $SD = 1.32$), and PMII ($M = 2.10$, $SD = 1.34$). Table 7 provides detailed results of the mean Likert scores for frequency of implementation levels for each EBP as well as overall.

Role Group. Reviewing responses by role groups revealed that *specialists* had the highest percentage ($n = 167$, 41.5%) of responses indicating *I have implemented the practice at least weekly within the past six months* across answers for all 27 EBPs, followed by special education teachers with ($n = 311$, 30.0%) of responses indicating *at least weekly* implementation. As was noted in the other domains, *specialists* obtained the highest mean Likert score ($M = 3.48$, $SD = 1.55$) within the frequency domain. The *special education teacher* group obtained the second highest mean, at 2.93 ($SD = 1.67$) and was followed by *special education administrator* ($M = 2.26$, $SD = 1.67$) and *other administrator* ($M = 2.42$, $SD = 1.55$). With a mean Likert score of 2.32 ($SD = 1.38$), the *other/itinerant* group reported the lowest average frequency of implementation.

Special Education Administrators

When reviewing data from special education administrators, there are differences in terms of training, confidence, and frequency of implementation for at least some of the EBPs when compared to special education teachers. Special education administrators reported higher means of training on all 27 EBPs. However, in terms of confidence of implementation, special education administrators reported lower means of confidence on discrete trial training (DTT), PII, PMII, picture exchange communication system (PECS), PRT, PP, response interruption/redirection (RIR), time delay (TD), and VS. This group reported the same mean level of confidence on functional communication training (FCT) as the special education teachers. In terms of the frequency of implementation, the highest mean was for reinforcement (R+) for both special education administrators ($M = 3.82$) and special

Table 6: Mean (*SD*) Likert scores of evidence-based practices indicating level of confidence

Evidence-Based Practice (EBP)	<i>n</i>	Mean (<i>SD</i>)
Functional Behavior Assessment (FBA)	212	4.36 (1.13)
Reinforcement (R+)	201	4.14 (1.31)
Prompting (PP)	202	4.13 (1.31)
Visual Supports (VS)	200	4.11 (1.34)
Modeling (MD)	206	4.02 (1.36)
Task Analysis (TA)	202	3.85 (1.45)
Social Skills Training (SST)	203	3.82 (1.41)
Social Narratives (SN)	202	3.69 (1.44)
Antecedent Based Intervention (ABI)	207	3.62 (1.51)
Picture Exchange Communication System (PECS)	204	3.56 (1.49)
Self-Management (SM)	201	3.28 (1.54)
Video Modeling (VM)	197	3.22 (1.48)
Discrete Trial Teaching (DTT)	206	3.18 (1.58)
Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DRA/I/O)	205	3.18 (1.68)
Scripting (SC)	198	3.15 (1.53)
Extinction (EXT)	203	3.14 (1.61)
Response Interruption/Redirection (RIR)	199	3.13 (1.61)
Time Delay (TD)	197	2.99 (1.56)
Technology-Aided Instruction and Intervention (TAII)	195	2.88 (1.47)
Structured Play Groups (SPG)	197	2.83 (1.47)
Cognitive Behavioral Intervention (CBI)	207	2.78 (1.56)
Functional Communication Training (FCT)	201	2.73 (1.49)
Peer-Mediated Instruction and Intervention (PMII)	199	2.71 (1.51)
Naturalistic Intervention (NI)	200	2.65 (1.63)
Exercise (ECE)	202	2.51 (1.50)
Pivotal Response Training (PRT)	199	2.49 (1.51)
Parent-Implemented Intervention (PII)	198	2.39 (1.46)
Overall Confidence Responses	5,337	3.28 (1.59)

education teachers ($M = 4.45$). However, special education administrators reported lower means of frequency of implementation for all EBPs except extinction (EXT), FCT, SPG, and task analysis (TA).

Table 7: Mean (*SD*) Likert scores of evidence-based practices indicating frequency of implementation

Evidence-Based Practice (EBP)	<i>n</i>	Mean (<i>SD</i>)
Reinforcement (R+)	149	3.89 (1.45)
Visual Supports (VS)	147	3.75 (1.56)
Prompting (PP)	150	3.71 (1.50)
Modeling (MD)	155	3.46 (1.61)
Functional Behavior Assessment (FBA)	154	3.37 (1.37)
Social Skills Training (SST)	150	3.08 (1.58)
Task Analysis (TA)	150	3.02 (1.57)
Antecedent Based Intervention (ABI)	152	3.01 (1.61)
Differential Reinforcement of Alternative, Incompatible, or Other Behavior (DRA/I/O)	149	2.89 (1.71)
Social Narratives (SN)	148	2.85 (1.55)
Picture Exchange Communication System (PECS)	153	2.79 (1.54)
Self-Management (SM)	147	2.71 (1.57)
Response Interruption/Redirection (RIR)	149	2.62 (1.65)
Discrete Trial Teaching (DTT)	150	2.61 (1.58)
Extinction (EXT)	150	2.49 (1.54)
Functional Communication Training (FCT)	151	2.44 (1.56)
Scripting (SC)	151	2.34 (1.44)
Technology-Aided Instruction and Intervention (TAII)	146	2.30 (1.46)
Time Delay (TD)	146	2.28 (1.53)
Cognitive Behavioral Intervention (CBI)	151	2.16 (1.43)
Video Modeling (VM)	148	2.15 (1.37)
Naturalistic Intervention (NI)	149	2.15 (1.55)
Peer-Mediated Instruction and Intervention (PMII)	150	2.10 (1.34)
Structured Play Groups (SPG)	147	2.01 (1.32)
Pivotal Response Training (PRT)	148	2.01 (1.36)
Exercise (ECE)	148	2.00 (1.39)
Parent-Implemented Intervention (PII)	150	1.80 (1.20)
Overall Frequency Responses	3968	2.65 (1.61)

Please See *Table 8* for a summary comparison of training, confidence, and frequency of implementation for special education administrators and special education teachers by EBP.

Table 8: Comparison of special education administrators and special education teachers for mean (*SD*) Likert scores of training, confidence, and frequency reported across 27 Evidence-Based Practices (EPBs)

EBP	Special education administrators			Special education teachers		
	Training	Confidence	Frequency	Training	Confidence	Frequency
ABI	3.72 (1.52)	4.18 (1.19)	2.94 (1.39)	3.46 (1.61)	3.68 (1.47)	3.21 (1.66)
CBI	3.26 (1.60)	2.97 (1.50)	2.09 (1.44)	2.56 (1.60)	2.95 (1.63)	2.45 (1.64)
DRA/I/O	3.26 (1.83)	3.46 (1.64)	2.52 (1.54)	3.03 (1.77)	3.35 (1.55)	3.39 (1.64)
DTT	3.55 (1.50)	3.31 (1.44)	2.55 (1.39)	2.92 (1.87)	3.38 (1.66)	2.79 (1.66)
ECE	2.50 (1.52)	2.90 (1.54)	2.09 (1.40)	1.51 (1.05)	2.49 (1.45)	2.16 (1.44)
EXT	3.74 (1.54)	3.59 (1.45)	2.52 (1.48)	2.93 (1.83)	3.18 (1.57)	2.44 (1.48)
FBA	4.67 (0.81)	4.69 (0.95)	3.52 (1.23)	4.27 (1.10)	4.29 (1.09)	3.36 (1.37)
FCT	2.97 (1.59)	2.97 (1.46)	2.56 (1.56)	2.67 (1.75)	2.97 (1.46)	2.50 (1.64)
MD	3.92 (1.28)	4.28 (1.15)	3.32 (1.39)	3.83 (1.46)	4.15 (1.17)	4.03 (1.57)
NI	2.47 (1.50)	2.90 (1.50)	1.79 (1.11)	2.00 (1.54)	2.49 (1.67)	2.21 (1.63)
PII	2.24 (1.48)	2.36 (1.48)	1.79 (1.17)	1.97 (1.40)	2.72 (1.49)	2.05 (1.31)
PMII	2.61 (1.37)	2.82 (1.57)	2.30 (1.45)	2.40 (1.37)	3.08 (1.49)	2.42 (1.50)
PECS	3.74 (1.43)	3.62 (1.41)	2.85 (1.48)	3.38 (1.50)	4.00 (1.30)	3.00 (1.64)
PRT	2.29 (1.59)	2.62 (1.52)	1.97 (1.36)	2.31 (1.62)	2.64 (1.61)	2.16 (1.53)
PP	4.26 (1.18)	4.38 (1.14)	3.48 (1.42)	3.62 (1.37)	4.59 (0.75)	4.34 (1.19)
R+	4.42 (1.13)	4.54 (0.97)	3.82 (1.31)	3.90 (1.39)	4.38 (0.99)	4.45 (1.11)
RIR	3.47 (1.74)	3.41 (1.55)	2.30 (1.40)	2.80 (1.52)	3.60 (1.60)	3.37 (1.75)
SC	3.05 (1.39)	3.41 (1.48)	2.33 (1.49)	2.31 (1.44)	3.28 (1.52)	2.42 (1.41)
SM	3.21 (1.49)	3.82 (1.41)	2.94 (1.54)	2.85 (1.49)	3.18 (1.53)	3.03 (1.58)
SN	3.53 (1.41)	4.00 (1.19)	2.72 (1.49)	2.95 (1.57)	3.72 (1.50)	3.11 (1.61)
SST	4.16 (1.26)	4.08 (1.13)	3.16 (1.42)	3.70 (1.47)	3.79 (1.40)	3.38 (1.62)
SPG	2.84 (1.44)	3.13 (1.45)	2.16 (1.46)	1.92 (1.35)	2.82 (1.47)	2.00 (1.34)
TA	4.05 (1.25)	4.21 (1.38)	3.31 (1.47)	3.70 (1.36)	3.84 (1.31)	3.18 (1.67)
TAll	3.08 (1.58)	3.23 (1.44)	2.16 (1.22)	2.46 (1.55)	3.11 (1.54)	2.39 (1.55)
TD	2.79 (1.70)	3.13 (1.49)	2.03 (1.31)	2.49 (1.60)	3.18 (1.59)	2.63 (1.75)
VM	2.97 (1.40)	3.64 (1.35)	2.16 (1.39)	2.56 (1.59)	3.32 (1.47)	2.26 (1.48)
VS	4.13 (1.21)	4.31 (1.15)	3.38 (1.56)	3.93 (1.39)	4.48 (0.93)	4.35 (1.31)

Note. ABI = Antecedent-Based Intervention; CBI = Cognitive Behavioral Intervention; DRA/I/O = Differential Reinforcement of Alternative, Incompatible, or Other Behavior; DTT = Discrete Trial Teaching; ECE = Exercise; EXT = Extinction; FBA = Functional Behavior Assessment; FCT = Functional Communication Training; MD = Modeling; NI = Naturalistic Intervention; PECS = Picture Exchange Communication System; PII = Parent-Implemented Intervention; PMII = Peer-Mediated Instruction and Intervention; PP = Prompting; PRT = Pivotal Response Training; R+ = Reinforcement; RIR = Response Interruption/Redirection; SC = Scripting; SM = Self-Management; SN = Social Narratives; SPG = Structured Play Group; SST = Social Skills Training; TA = Task Analysis; TAll = Technology-Aided Instruction and Intervention; TD = Time Delay; V = Visual Support; VM = Video Modeling.

Discussion

This study examined participants' self-reported training, confidence, and implementation frequency of 27 identified EBPs for students with ASD. The respondent pool was characterized by individuals who are endorsed to teach special education and/or hold a supervisory role in special education ($n = 81$, 31%); a master's degree or higher ($n = 106$, 40%); at least 1 to 12 or more credits of college-level autism-specific coursework ($n = 67$, 25%); and at least 7 to 15 or more years serving students with ASD ($n = 88$, 33%), resulting in a trained and qualified respondent group of individuals who are well advanced in their careers. The survey yielded little variation among role groups in that most participants reported having relatively low levels of training across EBPs as well as moderate to low confidence in implementing the EBPs, regardless of reported role. Perhaps most importantly, the majority of participants reported low frequency of implementation across EBPs.

The EBPs reported with the highest levels of training across participants were FBA, R+, VS, PP, and MD. FBA is a required component of the IDEA (2004), and the other four are interventions that are likely more common across, not only disability categories, but all students. The highest numbers of responses of no reported training in EBPs were by professionals who may not be specifically and formally trained in special education instruction and EBPs, such as other non-special education administrators and other/itinerant personnel. Still, the mean of reported training across EBPs for special education teachers ($M = 2.91$) indicated they are receiving no more than three hours of training across the EBPs overall. This is worthy of consideration given these are the professionals who are most likely to provide instruction to students with ASD.

When looking at training, special education administrators had higher levels of training ($M = 3.79$) than special education teachers ($M = 2.91$). The lack of training reported by special education teachers, through this study, is aligned with findings from Hendricks (2011) and supports the need for special education administrators to review and increase their efforts to develop and implement training for special education teachers working with students with ASD. This group is already reported to have higher levels of stress than special education teachers working with students with other

disabilities (Wong et al., 2017) and lack of knowledge is one factor related to attrition that special education administrators can impact (Billingsley & Bettini, 2019). The groups reported similar levels of confidence, but special education teachers reported significantly higher frequency of implementation. In the context of their roles, this may make sense. Administrators may have been in education longer resulting in greater opportunity for training, but they are not typically responsible for day-to-day instruction, which would result in lower frequency of implementation. Despite not being responsible for the day-to-day instruction, special education administrators must support teachers in their implementation of EBPs in the classroom. Developing and offering quality, EBP-focused PD is valued by special education teachers (Billingsley & Bettini, 2019), yet special education administrators must have the knowledge and skills themselves to adequately train others.

Despite not being responsible for the day-to-day instruction, special education administrators must support teachers in their implementation of EBPs in the classroom.

Despite the bimodal distribution of training responses across EBPs, approximately three fourths of the responses indicated less than six hours of training across EBPs with a third indicating no training. This is concerning because it is difficult to expect professionals to implement EBPs if they have had little, to no, training. Though historically this has been a challenge, special education administrators must be able to identify EBPs for students with ASD, provide adequate training, and ensure practical application with fidelity (Cook & Odom, 2013; Marder & deBettencourt, 2015). Special education teachers must be knowledgeable of EBPs and have the skills to implement them with fidelity in the classroom (Marder & deBettencourt, 2015) to produce optimal student outcomes. Special education administrators have the responsibility of ensuring their teachers who work with students with ASD have the requisite knowledge and skills and can do this through the development and implementation of quality PD opportunities.

Regarding confidence in implementation, 64.9% of responses indicated participants were not confident their ability to independently implement the EBPs identified. Correspondingly, with the identified training, participants were most confident in implementing FBA, R+, VS, PP, and MD which is likely due to the fact they also received the most training in these EBPs. Yet, confidence in implementation overall was low, which is troubling regarding supporting and serving students with ASD. Though incorporating EBPs during instruction is important, if professionals are not confident in their ability to implement them, they are less likely to do so. Additionally, even if they are implementing EBPs, if they are not confident in their ability to implement the EBP independently, meaning without the guidance or demonstration from others, the question must be raised as to whether they are implementing the EBP with fidelity.

Though incorporating EBPs during instruction is important, if professionals are not confident in their ability to implement them, they are less likely to do so.

Participants did not report high frequency of implementation across EBPs. That is, approximately one-fifth of responses indicated any of the individual EBPs were implemented at least once a week. Further, and perhaps more alarming, over one-third of responses from participants indicated many of the individual EBPs had never been implemented. In analyzing the frequency of implementation across identified EBPs, reports revealed R+, VS, PP, MD, and DRA to be the most prevalent. FBA was not identified as a frequently used EBP, yet it was rated highly for confidence. This is understandable though, as FBAs are commonly used with students who display significantly challenging behaviors, and after the FBA is conducted, there is typically no need to continue to conduct them on a weekly basis. Rather, the team would develop a behavior intervention plan, if needed, and monitor appropriately.

Most of the EBPs in which participants reported training, confidence, and implementing with some frequency were those that are more common and may not necessarily be considered as ASD-specific, such as reinforcement and modeling. That is, these EBPs have

been shown to result in positive learner outcomes when teaching students with other disabilities as well (e.g., intellectual disability). In contrast, other EBPs, such as PRT, NI, and SPG are more ASD-specific interventions. It does not absolve teachers of the responsibility of implementing EBPs, but they may not have served students who required such interventions or for which such interventions would be appropriate because of students' ages or other factors. Participants may also be implementing other EBPs that are not specific to ASD, but those were not a consideration of this study. Yet, the low levels of reported frequency of implementation across EBPs are of concern. If previous research (e.g., Wong et al., 2014) has identified effective EBPs for a population, educators should be implementing these EBPs to support the success of their students.

Limitations

The results of this study should be considered with the following limitations in mind. First, the survey was long, including 89 questions, and response fatigue was noted as the number of responses declined for the questions that followed the first (*training*) question and some participants dropped out without completing the entirety of the survey. Use of conditional functionality for the questions (e.g., if a participant responds that they have not been trained on a practice, they are not asked how confident they are in implementing it) would have resulted in many more separate questions but might have reduced fatigue. With 27 practices to consider, respondents may not have carefully checked the definitions to confirm that they were responding accurately to a practice. Second, the sample size was 263 total respondents nationwide, which is a relatively small sample size that may somewhat limit the generalization of the findings. Third, it is possible that those who participated in the survey may have had a higher general interest in ASD and therefore, could potentially have more knowledge about this disability area. It is also possible results were impacted by factors not considered, such as the number of students with ASD with whom educators work. Additionally, this study was based on self-report, which may not reflect actual training opportunities or fidelity of implementation.

It should be noted the NPDC released an updated list of EBPs in 2020 (Steinbrenner et al., 2020) that now identifies 28 EBPs for this population. While it is

important to know about the 2020 report, this report was not publicly available during the period the survey was available for participants. Also, while some changes have been made, enough similarity exists that the results of the survey are still valid.

Implications for Future Research

This study presents self-reported information provided by educators on training, confidence of implementation, and frequency of implementation of 27 identified EBPs for students with ASD. As the results are based on self-reports, future research should study these three factors (i.e., training, confidence, and frequency) to determine the accuracy of self-reporting. Also, future research may consider student outcomes in relation to the frequency of implementation. Specific to administrators, future research should focus on how special education administrators allocate training efforts as well as what those efforts look like in terms of types of training (e.g., workshops, coaching, professional learning communities) and their impact on implementation. This may help administrators in determining how to best allocate both time and funding to ensure student growth.

Practical Implications

There are important implications from this study for education administrators. Despite the identification of EBPs in ASD, most educators, including teachers and administrators, report little training, little confidence, and low implementation frequency of EBPs overall. Students with ASD display unique characteristics that can impact areas such as communication, social skills, and potentially behavior (Scheuermann et al., 2013) and EBPs that have been found effective for this population are essential for positive outcomes. Scheuermann et al. (2013) stated “these are not students who will learn on their own or from watching others. They must have the best teachers” (p. 198). Special education administrators should consider what training is provided to those working with students with ASD. By providing quality PD opportunities to special education teachers, these administrators can demonstrate their support and improve the knowledge and skills of their teachers, thereby having potential impact on reducing attrition (Billingsley & Bettini, 2019; Hagaman & Casey, 2018; Thornton et al., 2007; Wong

et al., 2017). Specifically, how much training is being provided and which EBPs are targeted are areas special education administrators can influence. Special education administrators should consider training opportunities offered for each of the identified EBPs to ensure their teachers not only have knowledge of EBPs for students with ASD but can also implement them with confidence and fidelity. Special education administrators can impact the development and implementation of PD opportunities to promote quality training to promote learning transfer to the classroom. If educators are reporting low levels of confidence and frequency of implementation, it is likely there is lower fidelity of implementation as well.

Special education administrators should also consider their own levels of training. Though special education administrators reported higher levels of training across all EBPs, they reported lower mean levels of confidence for some EBPs and overall lower frequency of implementation. The lower frequency of implementation is to be expected, as many special education administrators are not responsible for direct instruction of special education students. The lower reported frequency of implementation may also contribute to the lower mean levels of confidence of implementation reported as well. Yet, while not typically responsible for day-to-day instruction, special education administrators have an impact on decisions involving students, including educational placement and special education and related services. Increasing awareness and training of EBPs specific to students with ASD may help special education administrators make better-informed decisions related to this unique population of learners. This may also communicate increased support for teachers working with students with ASD, which, in turn, could impact attrition rates as well.

Increasing awareness and training of EBPs specific to students with ASD may help special education administrators make better-informed decisions related to this unique population of learners.

Special education administrators may consider their own strengths and limitations around EBPs for students with ASD when planning and implementing PD opportunities for their teachers. Recruiting special

education teachers who engage in more frequent implementation of EBPs to be involved in implementing training and PD opportunities may be beneficial, as the higher frequency of implementation may contribute to higher confidence in implementation as well. Also, it is logical that those who implement a practice more frequently may be better suited to teach others to use that practice in their own classroom setting.

Special education administrators should consider the needs of their non-special education administrative counterparts. Regarding training, confidence, and frequency, other administrators reported the lowest levels across each category. Though non-special education administrators presumably have had less formal training in ASD-specific EBPs, these professionals are often responsible for teacher evaluations and supporting instructional practice. Approximately half of those classified as “other administrators” in the study provided responses indicating no training across EBPs.

Specialists (e.g., autism specialists, behavior specialists) reported higher levels of training and confidence of implementation; this group also reported the highest frequency of implementation. Given the role specialists often have outside of providing classroom instruction, it is surprising how frequently they reported implementing EBPs. Administrators may want to consider the use of their specialists. Specifically, is direct service provision the best use of people within the role of a specialist? Also, how can administrators utilize specialists to spread knowledge and skills across other roles?

Finally, districts need to consider the legal ramifications of having educators who report lack of implementation of EBPs. While lack of training and failure to implement EBPs could result in legal action, professionals who receive training and are confident in their ability to implement EBPs with regularity not only serve students more effectively but protect the district from potential legal action as well.

Conclusion

This study considered the self-reported levels of training, confidence, and frequency of implementation of 27 identified EBPs for students with ASD. Overall, most responses from participants indicated low levels of training, confidence, and frequency of implementation. Unsurprisingly, the

EBPs for which greater training was provided were the ones respondents reported feeling more confident in implementing and implemented more frequently. However, given the low frequency of implementation reported, administrators, in particular special education administrators, should consider reviewing what training is being provided to whom and how. Providing quality professional development opportunities can influence teacher knowledge and skills as well as communicate increased support, which may impact a special education teacher’s choice to stay in their current position. This can reduce turnover and cost to the district as well as improve outcomes for students with ASD. Ultimately, students with ASD have a right to effective practices and despite the identification of these EBPs, while there are undoubtedly instances of effective implementation, reported training, confidence, and frequency of implementation remain low overall.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Washington, DC: American Psychiatric Association.
- Billingsley, B., & Bettini, E. (2019). Special education teacher attrition and retention: A review of the literature. *Review of Educational Research, 89*(5), 697–744. <http://dx.doi.org/10.3102/0034654319862495>
- Cook, B.G., & Odom, S.L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children, 79*(2), 135–144. <http://dx.doi.org/10.1177/0014402913079002021>
- Dillman, D.A., Smyth, J.D., & Christian, L.M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Hoboken, NJ: Wiley.
- Every Student Succeeds Act of 2015*, Pub. L. No. 114-95 § 114 Stat. 1177 (2015–2016).
- Gilmour, A.F., & Wehby, J.H. (2020). The association between teaching students with disabilities and teacher turnover. *Journal of Educational Psychology, 112*(5), 1042–1060. <http://dx.doi.org/10.1037/edu0000394>
- Hagaman, J.L., & Casey, K.J. (2018). Teacher attrition in special education: Perspectives from the field. *Teacher Education and Special Education, 41*(4), 277–291. <https://doi.org/10.1177/00144029187725797>
- Hendricks, D.R. (2011). Special education teachers serving students with autism: A descriptive study of the characteristics and self-reported knowledge and practices employed. *Journal of Vocational Rehabilitation, 35*(1), 37–50. <http://dx.doi.org/10.3233/JVR-2011-0552>
- Hester, O.R., Bridges, S.A., & Rollins, L.H. (2020). Overworked and underappreciated: Special education

- teachers describe stress and attrition. *Teacher Development*, 24(3), 348–365.
<https://doi.org/10.1080/13664530.2020.1767189>
- Hogan, A., Knez, N., & Kahng, S. (2015). Evaluating the use of behavior skills training to improve staffs' implementation of behavior intervention plans. *Journal of Behavioral Education*, 24, 242–254.
<https://doi.org/10.1007/s10864-014-9213-9>
- Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. § § 1400 *et seq.* (2004).
- Kretlow, A.G., & Bartholomew, C.C. (2010). Using coaching to improve the fidelity of evidence-based practices: A review of studies. *Teacher Education and Special Education*, 33(4), 279–299.
<https://doi.org/10.1177/0888406410371643>
- Layden, S., Hendricks, D., Inge, K., Sima, A., Erickson, D., Avellone, L., & Wehman, P. (2018). Providing online professional development for paraprofessionals serving those with ASD: Evaluating a statewide initiative. *Journal of Vocational Rehabilitation*, 48, 285–294. <https://doi.org/10.3233/JVR-180932>
- Maenner, M.J., Shaw, K.A., Baio, J., Washington, A., Patrick, M., DiRienzo, M., . . . Dietz, P.M. (2020). Prevalence of autism spectrum disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 sites, United States, 2016. *Morbidity and Mortality Weekly Report, Surveillance Summaries*, 67(6). Washington, DC: Centers for Disease Control and Prevention. <https://www.cdc.gov/mmwr/volumes/69/ss/ss6904a1.htm>
- Marder, T., & deBettencourt, L.U. (2015). Teaching students with ASD using evidence-based practices: Why is training critical now? *Teacher Education and Special Education*, 38(1), 5–12.
<http://dx.doi.org/10.1177/0888406414565838>
- McNeill, J. (2019). Social validity and teachers' use of evidence-based practices for autism. *Journal of Autism and Developmental Disorders*, 49, 4585–4594.
<https://doi.org/10.1007/s10803-019-04190-y>
- National Autism Center (NAC). (2009). *Results of the National Standards Project, Phase 1*. Retrieved from <http://www.nationalautismcenter.org/reports/>
- National Autism Center (NAC). (2015). *National Standards Project, Phase 2*. Retrieved from <http://www.nationalautismcenter.org/national-standards-project/phase-2/>
- National Center for Educational Statistics. (2018a). *Part B child count and educational environments: Number of students ages 3 through 5 served under IDEA, Part B, by disability and state*. Retrieved from <https://www2.ed.gov/programs/osepidea/618-data/static-tables/index.html>
- National Center for Educational Statistics. (2018b). *Part B child count and educational environments: Number of students ages 6 through 21 served under IDEA, Part B, by disability and state*. Retrieved from <https://www2.ed.gov/programs/osepidea/618-data/static-tables/index.html>
- National Research Council (NRC). (2001). *Educating children with autism*. Committee on Educational Interventions for Children with Autism. C. Lord & J.P. McGee (Eds.), Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
- Paynter, J.M., Ferguson, S., Fordyce, K., Joosten, A., Paku, S., Stephens, M., . . . Keen, D. (2017). Utilisation of evidence-based practices by ASD early intervention service providers. *Autism*, 21(2), 167–180.
<https://doi.org/10.1177/1362361316633032>
- Rea, L.M., & Parker, R.A. (2014). *Designing and conducting survey research: A comprehensive guide* (4th ed.). Hoboken, NJ: Wiley.
- Robinson, O.P., Bridges, S.A., Rollins, L.H., & Schumacker, R.E. (2019). A study of the relation between special education burnout and job satisfaction. *Journal of Research in Special Education Needs*, 19(4), 295–303.
<http://dx.doi.org/10.1111/1471-3802.12448>
- Scheuermann, B., Webber, J., Boutot, E.A., & Goodwin, M. (2003). Problems with personnel preparation in autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 18(3), 197–206.
<http://dx.doi.org/10.1177/10883576030180030801>
- Smith, D.D., Robb, S.M., West, J., & Tyler, N.C. (2010). The changing education landscape: How special education leadership preparation can make a difference for teachers and their students with disabilities. *Teacher Education and Special Education*, 33(1), 25–43.
<https://doi.org/10.1177/0888406409358425>
- Stansberry-Brusnahan, L.L. & Collet-Klingenberg, L.L. (2010). Evidence-based practices for young children with autism spectrum disorders: Guidelines and recommendations from the National Resource Council and National Professional Development Center on Autism Spectrum Disorders. *International Journal of Early Childhood Special Education*, 2, 45–56.
<http://dx.doi.org/10.20489/intjecse.107957>
- Steinbrenner, J.R., Hume, K., Odom, S.L., Morin, K.L., Nowell, S.W., Tomaszewski, B., . . . Savage, M.N. (2020). *Evidence-based practices for children, youth, and young adults with autism*. Retrieved from <https://ncaep.fpg.unc.edu/sites/ncaep.fpg.unc.edu/files/imce/documents/EBP%20Report%202020.pdf>
- Swanson, T.C. (2012). *Preparing teachers for students with autism spectrum disorders*. Southeast Educational Network. Retrieved from <http://www.seenmagazine.us/Articles/Article-Detail/ArticleId/2572/smid/403/ArticleCategory/56/Preparing-teachers-for-students-with-Autism-Spectrum-Disorders>
- Thornton, B., Peltier, G., & Medina, R. (2007). Reducing the special education teacher shortage. *The Clearing House*,

80(5), 233–238. <http://dx.doi.org/10.3200/TCHS.80.5.233-238>

United States Department of Health & Human Services (USDHHS). (2016). *IACC autism research database*. Retrieved from <https://iacc.hhs.gov/funding/data/federal-vs-private/?fy=2016>

Wong, C., Odom, S.L., Hume, K., Cox, A.W., Fettig, A., Kucharczyk, S., . . . Schultz, T.R. (2014). *Evidence-based practices for children, youth, and young adults with autism spectrum disorder*. <http://cidd.unc.edu/Registry/Research/Docs/31.pdf>

Wong, V.W., Ruble, L.A., Yu, Y., & McGrew, J.H. (2017). Too stressed to teach? Teaching quality, student engagement, and IEP outcomes. *Exceptional Children*, 83(4), 412–427. <https://doi.org/10.1177%2F0014402917690729>

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