A Literature Review of School-Wide Positive Behavioral Interventions and Supports for Students with Extensive Support Needs

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A Literature Review of School-Wide Positive Behavioral Interventions and Supports for Students with Extensive Support Needs

Lyndsey Aiono Conradi, Virginia L. Walker, Patricia McDaid, Holly N. Johnson, and M. Kathleen Strickland-Cohen

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TIES Center
University of Minnesota
Institute on Community Integration
2025 East River Parkway, Room 1-330
Minneapolis, MN 55414
Phone 612-626-1530
http://tiescenter.org
Email: tiescenter@umn.edu

Executive Summary

School-wide Positive Behavioral Interventions and Supports (PBIS) is a multi-tiered framework that offers a continuum of supports to address the behavioral needs of all students within a school. Research indicates that PBIS effectively promotes positive student outcomes and improves school climate and culture. However, little is known about the involvement of students with extensive support needs (ESN) and effectiveness of PBIS for these students. Students with ESN include students with significant cognitive disabilities. In response to two calls for continued research focused on PBIS and students with ESN, we conducted this literature review to summarize the current literature. In this report, we present the characteristics of the literature and implications for practice and future research initiatives.

Findings

We found that 10 studies have been conducted since the first call to action. A majority of them examined stakeholder perspectives on the importance and availability of PBIS for students with ESN, with perceptions varying across stakeholders and PBIS elements. Only two studies focused on PBIS effectiveness, but these studies provided preliminary evidence that Tier 1 supports can be effective for students with ESN.

Limitations

The primary limitation of the current review was the limited number of studies that have been conducted with a focus on students with ESN and PBIS. Although two studies focused specifically on the effectiveness of Tier 1 supports, none of the studies examined the effectiveness of Tier 2 or Tier 3 support situated within a PBIS framework.

Future Research

Given that so few studies have been published on this topic, it will be important for researchers to continue this critical work. Specifically, additional research is needed to examine further the effectiveness of Tier 1 supports on student outcomes across domains (e.g., behavioral, academic, social) and across a range of school environments, including inclusive, general education settings. Importantly, research is also needed to explore the extent to which students with ESN access and benefit from the full continuum of supports across PBIS tiers and the unique contribution of each tier.

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Introduction

Research has described positive and effective strategies for supporting the behavioral needs of students with extensive support needs (ESN) in inclusive school settings (Lory et al., 2020; Simpson et al., 2020; Walker et al., 2018a; Watkins et al., 2019). However, challenging behavior continues to be one of the most commonly referenced barriers to inclusive education for these students (McCabe et al., 2020; Walker et al., 2018b). The term students with ESN is inclusive of students who take the alternate assessment based on the alternative achievement standards and includes students with significant cognitive disabilities. Students with ESN are at an increased risk for engaging in challenging behavior due in part to the presence of complex communication needs (Snell et al., 2010), which are often inadequately addressed in school contexts. Persistent challenging behavior is also a function of ineffective learning environments that fail to adequately teach and reinforce the academic and social skills needed for student success in inclusive settings (Hawken & O'Neill, 2006). Given the many benefits of inclusive education (e.g., improved communication and social skills, academic achievement, greater access to the general education curriculum; Agran et al., 2020), it is important to ensure that students with ESN have access to a complete continuum of behavioral supports within their schools to promote full access and participation within inclusive environments.

The majority of students with ESN are educated in separate settings ranging from self-contained classrooms in public school buildings to public and private segregated schools (Wehmeyer et al., 2021). In these settings, they are at higher risk for the use of restraint and seclusion (Gage et al., 2020), have limited access to same-age peer models of appropriate behavior, and are likely to have less instructional time each day than similar students who are included in general education classes (Gee, 2020). Thus, current placement trends create a cycle in which students with ESN are placed in separate settings without access to the range of behavioral supports and interventions that could provide opportunities to learn and practice school-wide behavioral norms and expectations (Hawken & O'Neill, 2006).

Positive Behavior Support

Positive Behavior Support (PBS) is an individualized, evidence-based, and socially valid approach to addressing challenging behavior experienced by individuals with and without disabilities. PBS emerged from the field of applied behavior analysis in the late 1980s in response to the increased use of ineffective and aversive interventions for individuals with ESN and challenging behavior (Carr et al., 1999). Early work in the area of PBS focused on designing inclusive environments to help ensure individuals with ESN are treated with respect and dignity (Horner et al., 1990) and take on socially valued roles in the community (Carr et al., 2002). Since that time, PBS, now known as Positive Behavioral Interventions and Supports (PBIS), has expanded to include an inclusive school-wide model of behavior support for all

students, including those with ESN. PBIS is mentioned explicitly in the Individuals with Disabilities Education Act (IDEA). It was added in the 1997 amendments and maintained in the 2004 amendments (IDEA, 2004).

The Association of Positive Behavior Support (Kincaid et al., 2016) defines PBS as:

> an approach to behavior support that includes an ongoing process of research-based assessment, intervention, and data-based decision making focused on building social and other functional competencies, creating supportive contexts, and preventing the occurrence of problem behaviors. PBS relies on strategies that are respectful of a person's dignity and overall well-being and that are drawn primarily from behavioral, educational, and social sciences, although other evidence-based procedures may be incorporated. PBS may be applied within a multi-tiered framework at the level of the individual and at the level of larger systems (e.g., families, classrooms, schools, social service programs, and facilities). (p. 71)

Following the addition of PBS to IDEA in 1997, the Office of Special Education Programs (OSEP) funded the National Technical Assistance Center on PBIS. This Center began to disseminate information on PBIS, including a multi-tiered system of PBIS.

Positive Behavioral Interventions and Supports

The PBIS framework offers a three-tiered continuum of behavioral support to address the behavioral needs of all students in a school. PBIS blends practices that are supported by decades of behavioral research with a prevention framework that is supported by extensive research in public health and prevention sciences (Horner et al., 2017). The primary goal of PBIS is to create a positive, equitable, and inclusive school culture to improve social, emotional, behavioral, and academic outcomes for all students (www.pbis.org).

Tier 1 provides universal behavioral support to all students. Typically, a school or district team, ideally composed of school personnel, family members, and students, first develops three to five concise and positively stated behavioral expectations (e.g., Be Safe, Be Kind, Be Responsible). These expectations are posted across all school settings. Using these statements as a guide, the team collaborates with the school community (i.e., staff, students, family members) to define specific expected behaviors in all areas of the school building (e.g., classroom, hallway, cafeteria) and for major routines (e.g., field trip). These defined expectations are then summarized in an expectations-by-settings PBIS matrix.

The next steps in building Tier 1 supports include creating lesson plans to teach behavioral expectations, a school-wide acknowledgment system, and a data system that will efficiently monitor student successes and ongoing needs. Teachers then work with their classroom community

to create classroom expectations linked to the school-wide expectations that clarify classroom procedures and routines and describe expected behavior during the variety of instructional activities used in the classroom. Teaching and acknowledging students for engaging in common expectations across all school settings is a vital component of a school-wide approach in that this helps to create a consistent and predictable environment for all students and staff, which contributes to the ultimate goal of creating a safe and positive school environment.

Tier 2 provides the framework for implementing targeted interventions for small groups of students who may have additional support needs that are not being addressed successfully with Tier 1 alone. Approximately 10–15% of students in a school may need Tier 2 behavioral support. Consistent use of Tier 2 supports with fidelity can move students toward behavioral success (Drevon et al., 2018; McIntosh et al., 2009) and thus eliminate the need for time-intensive, individualized interventions offered at Tier 3. Tier 2 supports are targeted, standardized, generally short-term, and readily available for use when a need arises. They can be used with individual students or groups of students. These supports can range from small group skills instruction to issue-based groups run by the school counselor or social worker to standardized, individual skill-building and self-monitoring interventions, like Check-in Check-out (CICO; Hawken et al., 2020).

Tier 3 provides the framework for creating function-based, individualized intervention plans for those few students who need more intensive behavioral support. Tier 3 provides individualized behavior support to the 1–5% of students whose needs are not fully met by their participation in Tiers 1 and 2. Tier 3 individualized interventions are created by a multidisciplinary team that includes at least one member with expertise in designing and implementing Tier 3 supports. Function-based assessment allows for the selection of effective interventions focused on preventing challenging behavior and teaching and reinforcing new replacement behaviors and adaptive skills. The use of data-based decision-making enables the team to evaluate the effectiveness of the individualized intervention and make adjustments as needed to ensure student success. For students with even more complex needs within Tier 3, teams may coordinate services and supports through a wraparound or person-centered planning approach.

Over the past 25 years, over 25,000 schools across the United States have embraced PBIS (www.pbis.org). Research has documented the positive effects of PBIS on student behavioral and academic outcomes (Baule & Superior, 2020; James et al., 2019), as well as improved outcomes for staff (e.g., increased teacher efficacy; Ross et al., 2012) and overall school climate (e.g., reduced educator turnover, improved organizational efficiency; Bradshaw et al., 2008). PBIS has also been effective in decreasing challenging behavior and creating a more positive climate in under-resourced urban schools (Eiraldi et al., 2019) and juvenile detention facilities (Johnson et al., 2013; Mathur & Nelson, 2013). However, despite the successful use of PBIS

across various settings and populations, it remains unclear whether students with ESN have full access to its benefits (Swenson & Ryder, 2016).

Call to Action: PBIS and Students with ESN

In 2006, *Research and Practice for Persons with Severe Disabilities* (*RPSD*) released a special issue dedicated to examining the inclusion of students with ESN in PBIS. Contributors discussed numerous concerns and identified barriers that may contribute to the exclusion of students with ESN from appropriately accessing the PBIS framework. First, the placement of students with ESN in separate, special education classrooms where special educators assume sole responsibility for providing behavior services may prevent full access to PBIS (Brown & Michaels, 2006; Crimmins & Farrell, 2006; Freeman et al., 2006; Snell, 2006). Because of this physical separation from general education settings, students with ESN may lose access to less intensive support offered through Tiers 1 and 2 (Hawken & O'Neill, 2006). Second, school-wide expectations may not be adapted to ensure cognitive and physical accessibility for students with ESN. Therefore, schools may not sufficiently include students in the training, monitoring, and feedback of the PBIS continuum (Hawken & O'Neill, 2006). Third, students with ESN often participate in alternate reward systems because existing school-wide reward systems may be too abstract or delayed (Hawken & O'Neill, 2006; Snell, 2006). Lastly, special educators may not participate in initial PBIS training, causing a bifurcation of special and general education (Carr, 2006). In this special issue, experts set forth a call to action to explore further the inclusion of students with ESN in the PBIS framework.

Continued research illustrates that students with ESN are still not appropriately accessing these tiered supports for many of the same reasons previously described in 2006. Kurth and Enyart (2016) updated the field a decade later and extended the call to action by discussing three critical questions:

• Is PBIS appropriate for students with ESN?

• Is PBIS available and accessible to students with ESN?

• Does PBIS enhance or engender inclusive education?

Due to the limited literature, Kurth and Enyart (2016) were unable to answer these questions and instead identified potential barriers that require additional attention and exploration, thus extending an additional call to action.

Purpose

The purpose of this literature review was to investigate the current status of research and present information on the inclusion of students with ESN in PBIS. This review responds to the Kurth and Enyart (2016) call to action and is framed around the questions previously posed by these scholars.

Methods

We conducted a literature review to identify studies that involved students with ESN and PBIS. The review included the following three phases: (1) study identification, (2) eligibility screening, and (3) descriptive coding. Figure 1 provides an overview of the study identification and eligibility screening outcomes.

Figure 1. Results from the Study Identification and Eligibility Screening Phases
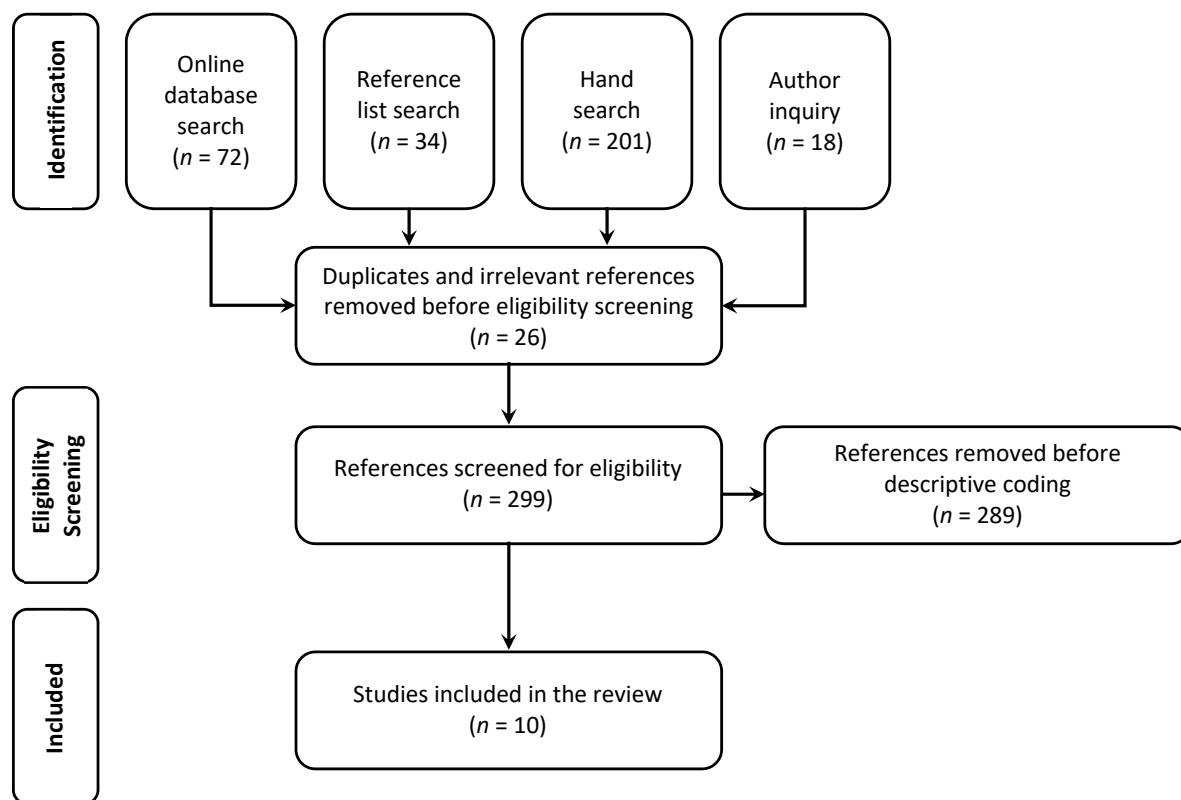
Phase 1: Study Identification

First, we conducted an electronic database search in ERIC, PsycINFO, and ProQuest Education Database to find studies published between 2006 and 2021. We placed limits on the publication date to capture research conducted after the *RPSD* special issue on students with ESN and PBIS was published. We used search terms focused on students with ESN (e.g., "intellectual dis*," "severe dis*," "significant cognitive dis*") and PBIS (e.g., "positive behavior* intervention," "SWPBS," "multi-tier*"). A complete list of search terms is available from the first author. The electronic database search yielded 72 results.

Second, we conducted hand searches of 11 journals that regularly publish articles related to students with ESN and PBIS (list of journals available from the first author). This search yielded 201 results. Finally, we reviewed the reference lists and contacted the first authors of studies that met the inclusion criteria in Phase 2. We asked authors to identify additional studies not captured by the database and hand searches; we also asked them to recommend studies that were in press. This final search resulted in 52 references. After we eliminated duplicates and irrelevant references (e.g., book chapters, conference proceedings), a total of 299 references remained for the eligibility screening.

Phase 2: Eligibility Screening

We applied the following four inclusion criteria to each of the 299 references identified in Phase 1:

- Reference included findings from a research study (e.g., single-case design, group design, interview, survey, content analysis).

- Reference focused on PBIS.

- Reference focused on students with ESN.

- Content was applicable to K-12 school settings.

Students with ESN were considered those students (a) whose IQ score fell below 55 and whose adaptive scores were three or more standard deviations below the mean; (b) who participated or were eligible to participate in alternate assessment; or (c) who were described using common terminology found in the literature (e.g., severe disability, extensive support needs, significant support needs, severe intellectual disability, profound intellectual disability, multiple disabilities, significant cognitive disability, low incidence disabilities; Walker et al., 2021). We excluded references that did not include results from a research study (e.g., conceptual paper, practitioner guidelines) or focused on individualized behavioral supports not situated within the PBIS framework, other student populations only (e.g., specific learning disability, emotional

behavioral disorders), or settings outside of the K-12 schools (e.g., preschool, home, community). We excluded a total of 289 references, leaving 10 studies meeting the inclusion criteria. To calculate inter-rater agreement for this phase of the review, secondary coders coded 30% of references. We used the percent agreement approach whereby the number of agreements is divided by the total number of possible agreements and multiplied by 100. Inter-rater agreement among research team members was 93%.

Phase 3: Descriptive Coding

In the final phase, we coded each study using a researcher-developed coding instrument (available from the first author) by extracting descriptive information for each coding item. Coding items included: (a) the study's purpose statement; (b) research questions; (c) research design; (d) geographic region; (e) population density (i.e., urban, suburban, rural); (f) school and district demographics; (g) classroom demographics; (h) participant characteristics (e.g., disability, grade level, role); (i) results (i.e., overall and those specific to students with ESN); and (j) implications for practice, research, and policy. We also gathered design-specific information based on the study's research design; for intervention studies, we coded the intervention components (i.e., independent variable), the role of the individual(s) responsible for intervention implementation, study phases, outcome measures (i.e., dependent variable), and social validity, and for survey studies, we coded for survey instrument content. Some coding items (e.g., role of interventionist, implications for practice, research, and policy) offered important contextual information, whereas other coding items offered information that we report as findings (e.g., research design, results).

Finally, we gathered evidence from each study regarding whether and how the study addressed the appropriateness, availability, and effectiveness of PBIS for students with ESN across Tier 1, Tier 2, or Tier 3, the relationship between PBIS and inclusion, and the inclusion of students with ESN in data collection and assessment. We used the following guidelines in this process:

- *Appropriateness of PBIS* for students with ESN: Studies discussed stakeholder perceptions of the extent to which PBIS is appropriate in addressing the behavioral support needs of students with ESN.

- *Availability of PBIS* for students with ESN across tiers: Studies focused on whether and how universal (Tier 1), secondary (Tier 2), and tertiary (Tier 3) supports were available and accessible and stakeholder perceptions of such availability.

- *Inclusion and PBIS* for students with ESN: Studies examined PBIS applied in inclusive settings, PBIS outcomes focused on inclusion, and stakeholder perceptions concerning the relationship between inclusion and PBIS.

- *Data collection and assessment:* Studies investigated students' inclusion in the collection of behavioral data, screening tools, or other behavior assessments.

- *PBIS effectiveness*: Studies evaluated intervention outcomes for included students with ESN across tiers.

Each research team member independently coded two articles (20%) as the primary coder and two additional articles (20%) as the secondary coder. To evaluate inter-rater agreement, we met as a team to review our codes and reach consensus on the final descriptive information to include. Group consensus was reached during the first and only consensus meeting.

Findings

We identified 10 studies that addressed the involvement of students with ESN in PBIS. These ten studies included:

- Kurth and Zagona (2018)

- Kurth et al. (2017)

- Landers et al. (2012)

- Loman et al. (2018)

- Morningstar et al. (2015)

- Schelling and Harris (2016)

- Shuster et al. (2017)

- Simonsen et al. (2010)

- Walker et al. (2018b)

- Zagona et al. (2021)

Of these ten studies, six were surveys of stakeholders that addressed stakeholder perceptions of PBIS (Kurth & Zagona, 2018; Landers et al., 2012; Schelling & Harris, 2016; Shuster et al., 2017; Walker et al., 2018b; Zagona et al., 2021). Participants and settings ranged from a national sample of 24 editorial board members of the *Journal of Positive Behavior Interventions* (Zagona et al., 2021) to a region with more than 559 districts and 305 PBIS coaches, 94 general educators, 44 special educators, 34 school counselors, and six school behaviorists (Kurth &

Zagona, 2018). Three studies addressed student outcomes through either applied interventions (Loman et al., 2018; Simonsen et al., 2010) or an analysis of observation data (Morningstar et al., 2015). These participants ranged from three students in three public elementary schools (Loman et al., 2018) to an average of 48 students (ranging from 29–59) across a three-year period in a nonpublic alternate school (Simonsen et al., 2010). Finally, one study reported the results of a content analysis of PBIS evaluation tools (Kurth et al., 2017). For more information on the study purpose, research design, number and type of participants, setting characteristics, and main findings, see Appendix A.

We have organized our findings across five categories as they relate to students with ESN. Figure 2 shows that, of the 10 studies we reviewed, six addressed appropriateness of PBIS, six addressed availability of PBIS, two addressed inclusive settings and PBIS, five addressed data collection and assessment, and two addressed the effectiveness of PBIS across tiers. Both of the studies on effectiveness described Tier 1. For more detail on the categorization of specific studies, see Appendix B. In the sections that follow, we describe the studies that addressed each of these five categories.

Figure 2. Number of Reviewed Studies Coded in Thematic Categories
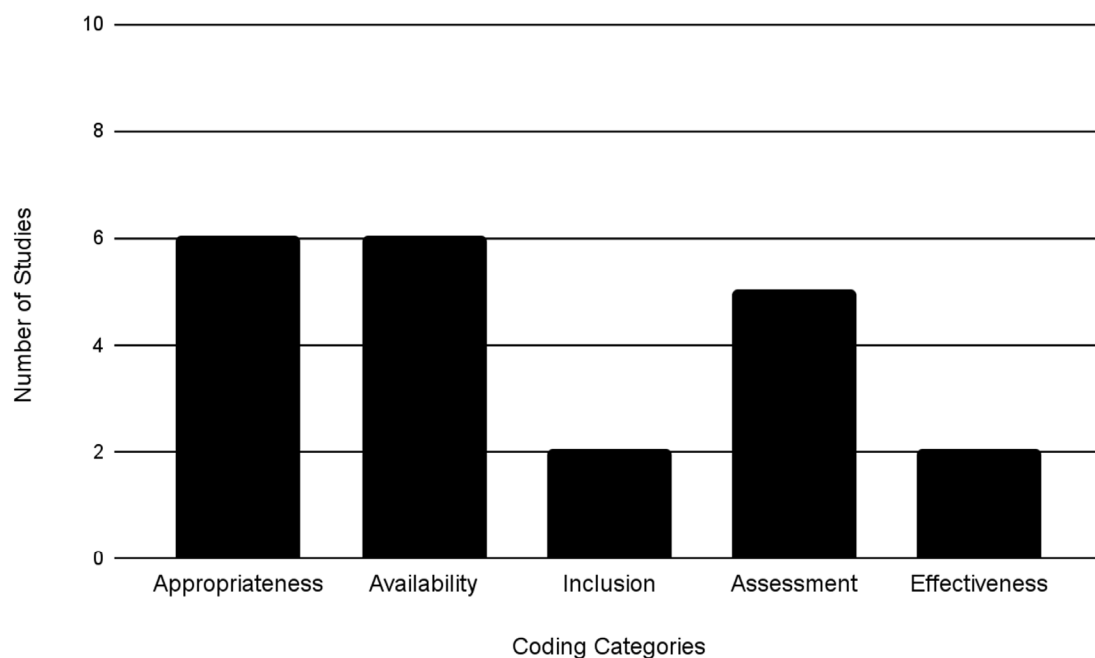
Appropriateness of PBIS

As previously noted, a total of six studies addressed the *appropriateness of PBIS* for students with ESN. From these studies, we extracted information from the perspectives of various

stakeholders. In five studies, researchers assessed appropriateness through exploratory surveys and respondent perceptions (Kurth & Zagona, 2018; Landers et al., 2012; Shuster et al., 2017; Walker et al., 2018b; Zagona et al., 2021). Researchers in another study explored appropriateness by conducting social validity assessments after participants implemented an intervention focused on adapted PBIS lesson plans to teach Tier 1 school-wide behavioral expectations (Loman et al., 2018).

Participation in PBIS

Two of these studies explored respondent perceptions concerning whether students with ESN *should and could participate in PBIS*. For instance, Landers et al. (2012) reported that 32 (62.7%) respondents (i.e., PBIS state coordinators) indicated that students with ESN could fully participate in PBIS, and another 16 (31.4%) indicated that students with ESN could partially participate. In a different survey study, Zagona et al. (2021) explored the perspectives of PBIS experts and found that respondents tended to agree that including students with ESN across all three tiers of PBIS is appropriate (1 = *strongly disagree*, 10 = *strongly agree*; $M = 9.63$). Further, these experts generally agreed that students with ESN should receive instruction on the school-wide behavioral expectations ($M = 9.79$) and participate in school-wide reward systems ($M = 9.79$).

Importance and Benefits of Participation in PBIS

Four studies addressed the *benefits and importance of PBIS* for students with ESN. For example, Shuster and colleagues (2017) found that 79.8–89.7% of special educators reported that students mostly or fully benefited from participating in PBIS. However, the perceived benefit was significantly lower for special educators of students with ESN. Loman et al. (2018) conducted an intervention study in which special educators implemented adapted Tier 1 PBIS lesson plans to teach students with ESN the school-wide behavioral expectations. These researchers interviewed teachers at the conclusion of the study and found that teachers felt student participation in Tier 1 PBIS produced positive outcomes and would be willing to include other students in Tier 1.

Both Kurth and Zagona (2018) and Walker et al. (2018b) examined the *perceived importance of PBIS* for students with ESN. Specifically, Kurth and Zagona examined differences in perceived importance across general educators, special educators, administrators, and related services providers as it relates to including students with ESN in PBIS activities (e.g., assemblies) and school-wide processes (e.g., reward procedures). Respondents from schools where students with ESN were placed in inclusive, general education classrooms rated student involvement in PBIS as more important than those from schools where students were placed in separate settings. Similarly, Walker et al. (2018b) found that respondents (i.e., administrators, general educators, special educators, school psychologists, paraprofessionals, behavior specialists, school counselors) from more inclusive schools (where 60% or more of students with ESN spent a majority

of their day in the general education classroom) viewed the following PBIS aspects as more important than less inclusive schools:

- demonstrating a commitment to teaching students with ESN in inclusive settings

- teaching students with ESN the school-wide behavioral expectations

- including students with ESN with their same-age peers without disabilities when teaching school-wide behavioral expectations

- posting expectations that are accessible to students with ESN

- reviewing data pertaining to students with ESN during PBIS meetings

- including students with ESN in the assessment of PBIS fidelity

Walker et al. (2018b) also found a large percentage of respondents placed high importance on teaching the school-wide behavioral expectations (73.7%) and delivering public acknowledgment (76.5%) to students with ESN, whereas considering students with ESN for Tier 2 was viewed as the least important PBIS practice (53.6%). Overall, including students with ESN in data collection efforts (e.g., discipline referral data, PBIS fidelity assessment) was viewed as the least important aspect of student involvement in PBIS. Walker et al. also noted that respondents from schools implementing all three tiers of PBIS and elementary schools placed greater importance on general and special educators having access to materials to teach school-wide expectations to students with ESN compared to schools implementing only one or two tiers or middle and high schools.

Availability of PBIS

We also extracted information when studies addressed the *availability and accessibility of PBIS* for individuals with ESN. A total of six of the 10 studies included a component addressing this topic (Kurth & Zagona, 2018; Morningstar et al., 2015; Schelling & Harris, 2016; Shuster et al., 2017; Simonsen et al., 2010; Walker et al., 2018b). In four studies, researchers assessed availability and accessibility through exploratory surveys and respondent perceptions (Kurth & Zagona, 2018; Schelling & Harris, 2016; Shuster et al., 2017; Walker et al., 2018b). Researchers in another study observed the availability of PBIS through 65 observations conducted in inclusive classrooms (Morningstar et al., 2015). Finally, the sixth study assessed the availability of PBIS through an applied intervention conducted in an alternative setting (Simonsen et al., 2010).

Universal, Tier 1 Supports

All six studies discussed the availability of universal, Tier 1 supports that included school-wide rewards or school-wide behavioral expectations.

School-Wide Reward Systems. A common finding across these studies was that the most available and accessible component of PBIS for students with ESN tended to be rewards delivered through a school's public acknowledgment system (e.g., reward assemblies, reward ticket programs). For example, Shuster et al. (2017) reported that students with ESN were most likely to be involved in school-wide rewards. Based on a four-point Likert-type scale of participation (1 = *not at all*, 4 = *fully*), responses from special educators indicated that students with ESN participated in the following:

- school-wide reinforcement system (*M* = 3.50)

- school-wide rewards (e.g., school store, tickets, raffles; *M* = 3.52)

- PBIS celebrations (e.g., award assemblies; *M* = 3.37)

Although these were the highest scored components, these teachers reported their students' involvement was significantly lower than that of students with high-incidence disabilities.

Kurth and Zagona (2018) reported that between 84.8–99.0% of all respondent groups indicated that students with ESN participated in reward assemblies. Similarly, 88.9–98.0% of respondents believed that students were involved in the school-wide public acknowledgment system. However, this percentage decreased (80.0–88.0%) when asked if they had given a reward ticket to students with ESN. Walker et al. (2018b) found that 89.4% of survey respondents reported "*often*" or "*always*" when asked if students with ESN received public acknowledgment like other students.

School-Wide Expectations. Researchers also examined the accessibility of school-wide behavioral expectations for students with ESN and found mixed results across respondents. For example, both Kurth and Zagona (2018) and Walker et al. (2018b) reported that more than half of the respondents surveyed taught behavior expectations to students with ESN (roughly 59% and 62%, respectively). However, only half (50.3%) of respondents noted that schools posted expectations accessible to all students (Walker et al., 2018b). Shuster et al. (2017) reported that 82.7% of surveyed teachers perceived their students to be "mostly" or "fully" included in school-wide lessons to teach expectations. Further, almost all of these teachers (91.8%) reported that their students "mostly" or "fully" knew the expectations. However, as previously mentioned, when researchers conducted additional analysis, they found that the scores for these items were

much lower for teachers who worked with students with ESN compared to those who taught students with high incidence disabilities.

Simonsen et al. (2010) implemented PBIS in an alternative school serving students with disabilities. The student population included those with ESN and challenging behavior who were ages 3 to 22. During baseline before Tier 1 was implemented, expectations were individualized based on students' individual behavior plans. School-wide behavioral expectations were not explicitly posted or taught in classrooms. With the introduction of PBIS, educators posted and explicitly taught school-wide expectations across classrooms. In a survey of administrators at alternative schools serving individuals with moderate to severe disabilities, Schelling and Harris (2016) explored the implementation of PBIS in alternate educational settings. The researchers reported the implementation of PBIS was fairly low. For example, when exploring the school-wide systems, slightly less than two-thirds (64%) of respondents indicated that school-wide behavioral expectations were defined. Only half (50%) reported that expected student behaviors were taught directly. Expectations were taught in classrooms (71%) more often than in non-classroom settings (57%).

In comparison, Morningstar et al. (2015) observed inclusive classrooms in six PBIS schools. One focus was to determine whether class-wide behavioral expectations were posted and accessible to all students. They reported that almost 75% of classrooms within the six schools had expectations posted and accessible to all students in the classroom.

Secondary, Tier 2 Supports

Only one study examined the general involvement of students with ESN in Tier 2. Walker et al. (2018b) found that roughly two-thirds (69.3%) of respondents indicated that students with ESN in their schools were "*always*" or "*often*" considered for Tier 2 support.

Barriers and Enablers

Two studies specifically examined barriers and enablers to the involvement of students with ESN in PBIS (Shuster et al., 2017; Walker et al., 2018b). In the Walker et al. (2018b) study, respondents noted a number of barriers to including students with ESN in PBIS. These barriers included: (a) negative perceptions and low expectations among school staff, (b) limited resources and administrative support, (c) limited training among school staff, and (d) limited inclusive experiences. However, the most commonly reported barrier was student ability to understand the school-wide expectations and reward systems (39%). Similarly, Shuster et al. (2017) found that over half of the respondents from PBIS schools (61.4%) agreed that their students would find it difficult to understand the expectations. Respondents also reported the following as barriers:

- PBIS lessons are not adapted (49.1%).

- Students have their own reinforcement systems (44.9%).

- Incorporating data from students with disabilities is not useful (39.9%).

- Public acknowledgment systems are not meaningful (37.6%).

- Students already receive individualized intervention to address challenging behavior (33.3%).

- General educators do not include students in PBIS (33.1%).

- Rewards offered through public acknowledgment systems are not meaningful (35.5%).

- Student schedules conflict with PBIS activities (23.1%).

It is important to note that these data were gathered from teachers working with students from a range of disability categories. Therefore, responses do not represent views from only those educators who taught students with ESN.

Walker et al. (2018b) asked respondents to identify strategies enabling schools to meaningfully include students with ESN in PBIS. Reported strategies included:

- using school personnel such as paraprofessionals and behavioral specialists

- promoting collaboration among a range of school personnel

- involving students with ESN in data collection

- delivering training to school personnel who support students with ESN

The most commonly reported strategies to involve students with ESN in PBIS included providing students with rewards through existing or adapted public acknowledgment systems (27%), teaching school-wide behavioral expectations with or without adaptations (e.g., visual supports; 25%), and including students in PBIS events within inclusive settings (21%).

PBIS and Inclusion

Two studies included information about the *relationship between PBIS and inclusion* for students with ESN (Loman et al., 2018; Morningstar et al., 2015). We extracted information when studies were conducted in inclusive settings or measured the effects of PBIS on inclusion. One study involved classroom observations in inclusive PBIS schools (Morningstar et al., 2015), and the second study involved an applied Tier 1 intervention across three inclusive school settings (i.e., cafeteria, hallway, departure area; Loman et al., 2018).

To determine how inclusive settings supported the participation and learning of all students, Morningstar et al. (2015) conducted observations of six PBIS schools. Their findings suggested that students with ESN would be more successful in classrooms where adults used empirically supported behavior management strategies to increase student engagement. Positive behavior supports that were observed in the inclusive classrooms included:

• Classroom expectations were visible and accessible to all students.

• Classroom expectations were reviewed during transition.

• Individual student support needs were aligned with class-wide behavior expectations.

• Class-wide behavior management systems were implemented (e.g., tokens, tickets, behavior charts).

In the Loman et al. (2018) study, special educators used Universal Design for Learning (UDL; CAST, 2018) principles and evidence-based practices to adapt PBIS lesson plans. The adapted lessons explicitly taught school-wide behavioral expectations to students with ESN in inclusive, school-wide settings. This study demonstrated the positive effects of using Tier 1 supports to decrease challenging behaviors and enhance student participation in inclusive settings by increasing independence and appropriate behavior.

Data Collection and Assessment

We extracted information about *data collection and school-wide assessments within PBIS* when studies specifically addressed the participation of students with ESN. A total of five of the 10 studies addressed this topic (Kurth & Zagona, 2018; Kurth et al., 2017; Schelling & Harris, 2016; Shuster et al., 2017; Walker et al., 2018b). One study gathered information by conducting a content analysis of PBIS evaluation tools (Kurth et al., 2017). In four studies, researchers used exploratory surveys (Kurth & Zagona, 2018; Schelling & Harris, 2016; Shuster et al., 2017; Walker et al., 2018b).

In their content analysis of three common PBIS evaluation tools (i.e., School-wide Evaluation Tool [SET], Team Implementation Checklist [TIC], Benchmark of Quality [BoQ]), Kurth et al. (2017) found that, overall, the tools used general language such as "all students" rather than referring to specific groups. No language was used to encourage school teams to include individuals with ESN, leading the authors to speculate that "loopholes arise which may enable schools to persist in omitting students with significant cognitive disabilities in SWPBS efforts" (Kurth et al., 2017, p. 389).

In their survey of the involvement of students with disabilities in PBIS, Shuster et al. (2017) found that the lowest-rated involvement reported by special educators was their students' participation in universal screening tools and identification of behavior interventions based on behavior data (e.g., attendance, office discipline referrals). Overall, only 41.2% of respondents from PBIS schools reported using universal screening tools to monitor the behavior of all students and determine more intensive behavior support. Of these respondents, 43.18% reported that their students participated "*fully*" and were screened in the same way as other students (1 = *not at all,* 4 = *fully; M = 3.32*), while 50% reported that their students were identified for additional behavior support based on behavior data (*M = 3.27)*. There were significant differences in reported involvement between teachers of students with ESN and high incidence disabilities, with teachers of students with ESN reporting significantly less involvement in screenings (*M* = 2.82) and behavior data (*M* = 3.03).

Walker et al. (2018b) examined the extent to which data collection practices were in place in respondents' schools and the perceived importance across these practices. The percentage of respondents who reported that practices were "*often*" or "*always*" in place were as follows:

- Office discipline referral data included students with ESN (69.7%).

- PBIS fidelity assessments included students with ESN (63.8%).

- Data on students with ESN were reviewed during PBIS team meetings (54.5%).

- PBIS teams used a data system that was effective in problem solving for students with ESN (53.4%).

Although perceived importance was lower for data collection practices than other PBIS aspects examined in this study, 40% or more of respondents viewed these practices as important to implement.

Kurth and Zagona (2018) identified discrepancies between responses from general educators and other participants. These discrepancies were especially evident when general educators responded to questions concerning behavior data collection and analysis. The percentage of respondents who indicated the following data collection procedures were in place for students with ESN was as follows:

- Office discipline referrals were given to students with ESN (68.8% general educators; 84.9% administrators; 71.1% special educators; 70% related service providers).

- A documented system for dealing with and reporting behavior violations for students with ESN was in place (52.6% general educators; 88.4% administrators; 71.1% special educators; 80% related service providers).

- A documented plan for behavior violations was managed by office administration (54.7% general educators; 82.4% administrators; 62.2% special educators; 64% related service providers).

- A documented plan for behavior violations was managed by classroom teachers (53.7% general educators; 81.2% administrators; 68.9% special educators; 64% related service providers).

When participants were asked about their involvement in examining discipline data for students with ESN, 49% of general educators responded "yes" which was lower than other respondent groups (84.7% administrators; 80% special educators; 76% related service providers).

Schelling and Harris (2016) asked participants to respond to five questions addressing data collection and assessments concerning students with ESN. The following reflects the percentage of respondents who indicated that systems were in place at the time of the study:

- Data on problem behavior patterns were collected and summarized with an ongoing system (55%).

- Patterns of student problem behavior were reported to teams for active decision-making on a regular basis (63%).

- The status of student behavior and management practices were evaluated at least quarterly from data collected (25%).

- Assessments were conducted regularly to identify students with chronic problem behaviors (33%).

- Behavior was monitored and feedback was provided regularly to the behavior support team (47%).

Effectiveness of PBIS across Tiers

Finally, we extracted information about the *effectiveness of PBIS* for students with ESN when studies examined outcomes for students as a result of their participation in PBIS. Only two of the 10 studies addressed this topic. Both studies utilized a single-case research design to examine the effectiveness of Tier 1 supports (Loman et al., 2018; Simonsen et al., 2010). Loman et al. (2018) utilized an experimental multiple-probe-across-participants design to explore whether adapted Tier 1 PBIS lesson plans resulted in reductions in challenging behavior among students with ESN in inclusive, school-wide settings. Participants included three elementary-aged students with autism spectrum disorder and intellectual disability who engaged in persistent challenging behavior in the school cafeteria, hallway, and departure/bus loading area. Special

educators used Tier 1 lesson plans that were adapted based on the principles of UDL and that included evidence-based practices (e.g., systematic instruction, visual supports) for students with ESN to teach the school-wide behavioral expectations. A functional relation between the adapted lesson plans and reductions in challenging behavior was established, as challenging behavior decreased across all three students when the adapted lesson plans were used.

In the Simonsen et al. (2010) study, researchers used a non-experimental case study (AB design). They explored the effectiveness of Tier 1 supports on school climate and student challenging behavior in an alternative school setting for students with a range of disability labels where Tier 2 and Tier 3 supports were already in place. The intervention involved providing PBIS training to all staff and developing and implementing Tier 1 supports (e.g., establishing and explicitly teaching school-wide behavioral expectations). Once the Tier 1 supports were in place, existing Tier 2 and Tier 3 supports were aligned to Tier 1 systems (e.g., token economy system used in classrooms aligned to Tier 1 expectations). Although school climate (measured as the frequency with which staff provided opportunities to respond, positive feedback, and negative or corrective feedback) did not change between baseline and intervention, the researchers noted that the content of interactions between staff and students changed (e.g., providing specific praise directly related to the school-wide behavioral expectations). In terms of student challenging behavior, measures of serious behavioral incidents were variable across baseline and intervention, though these incidents eventually decreased and maintained at a low level during the third year of PBIS implementation. It should be noted that, because the school was treated as the unit of analysis, student data were aggregated; therefore, data specific to students with ESN were unavailable.

Discussion

The purpose of this literature review was to update and respond to the 2006 and 2016 calls to action (Bambara & Lohrmann, 2006; Kurth & Enyart, 2016) by exploring the literature on PBIS and students with ESN. We identified a total of 10 studies published after the 2006 *RPSD* special issue that explored PBIS and the participation of students with ESN. Although the quantity of literature is limited, each study contributes to answering the questions previously mentioned. Together, findings from these studies may be used to more fully include all students, particularly those with ESN, in PBIS and inform future research initiatives.

One positive finding was that, among the six studies that discussed the appropriateness of PBIS for students with ESN, overall perceptions were that students with ESN should and could participate in PBIS, especially at the Tier 1 level (i.e., learning school-wide expectations, receiving public acknowledgment). However, despite this belief that students could and should participate, there was still variability in terms of access and availability of PBIS for students with ESN. For example, respondents reported that students with ESN most often participated in school-wide

rewards and public recognition (e.g., reward assemblies); however, they reported less access to school-wide expectations (Kurth & Zagona, 2018; Walker et al., 2018b). In addition, Shuster et al. (2017) reported that teachers of students with ESN were less likely to report that students were taught the school-wide expectations. Although school-wide rewards are essential when used to reinforce expected behaviors, students with ESN must first be given access to instruction on the school-wide expectations and the pro-social skills associated with them.

In addition, Kurth and Zagona (2018) noted a difference between general educator and special educator responses, suggesting that general educators may not be as involved in teaching school-wide behavioral expectations or managing behaviors of students with ESN. Many general educators have expressed a lack of confidence in their ability to effectively teach students with ESN in any content area (Zagona et al., 2017), so this finding is not surprising. This finding also aligns with the perceived belief that students with ESN who engage in challenging behaviors should receive Tier 3 support provided solely by special education staff without access to more preventive supports at Tiers 1 and 2 in inclusive, school-wide settings (Brown & Michaels, 2006; Hawken & O'Neill, 2006). This misconception negates their participation in the PBIS framework and instead creates a model where placement decisions are driven by behavior support needs (McCabe et al., 2020; Walker et al., 2018b). Placement practices that continue to segregate students with ESN and challenging behavior from inclusive, general education settings, peers, and programs have the potential to serve as a significant ongoing barrier to ensuring that each and every student benefits from the full continuum of support offered by PBIS. In addition, these placement decisions limit general educators' experience with students with ESN. Limited experience may have a negative impact on their attitudes about and confidence in adapting PBIS lessons and materials to be accessible for each and every student (Lohrmann & Bambara, 2006).

The reviewed studies featured both inclusive and non-inclusive settings and highlighted the importance of implementing PBIS throughout the continuum of educational placements. For example, Loman and colleagues (2018) noted improvement in student behavior when teaching Tier 1 behavioral expectations in inclusive, school-wide settings. Likewise, Simonsen and colleagues (2010) reported that, once PBIS was implemented, educators posted and taught expectations, delivered differentiated daily social skills instruction, and acknowledged students for engaging in expected behavior in an alternate school setting. However, as noted earlier, students with ESN who attend more restrictive environments may not access the full continuum of supports offered through the PBIS framework (Hawken & O'Neill, 2006; Kurth & Enyart, 2016). For example, researchers of two studies found that respondents from less inclusive schools where students with ESN attended separate classrooms did not think their inclusion in certain PBIS aspects was as important as the respondents in more inclusive schools (Kurth & Zagona, 2018; Walker et al., 2018b). Students with ESN most often attend separate, special education classrooms (Kleinert et al., 2015), and this comparison may further the notion that educational

placement can impact the availability and accessibility of PBIS for students with ESN (Hawken & O'Neill, 2006; Snell, 2006).

Assessment and behavior data collection is another crucial component of PBIS where, historically, students with ESN have been left out (Hawken & O'Neill, 2006). This exemption has been attributed to the lack of specific language in the common PBIS assessment tools (Hawken & O'Neill, 2006; Kurth et al., 2017). Therefore, data from common assessment tools may be more reflective of the needs of the majority of students and may not be inclusive of the needs of students with ESN (Carr, 2006). Researchers reported less involvement of students with ESN in universal assessments and behavior data that identifies students for additional behavior support (Shuster et al., 2017; Walker et al., 2018b). If students with ESN are not included in data collection, their specific needs may be unknown to the school teams, and therefore may further the lack of participation in PBIS (Hawken & O'Neill, 2006).

Lastly, an additional positive finding of this review was that two intervention studies were conducted to examine the effectiveness of Tier 1 within the PBIS framework for students with ESN. Both studies reported promising outcomes when students were taught the school-wide expectations in inclusive settings (Loman et al., 2018) and alternate schools (Simonsen et al., 2010). This finding is important because of the historical exclusion of students with ESN from universal, Tier 1 supports (Hawken & O'Neill, 2006). These studies fill a previous gap in the literature and demonstrate how practitioners can adapt and modify universal materials (i.e., school-wide expectations and lesson plans) based on communication, cognitive, and physical support needs in order to make them accessible and meaningful for students with ESN (Walker & Loman, 2022). Findings also suggest that students with ESN can understand school-wide expectations, thereby decreasing their challenging behaviors and increasing their engagement in these settings. These results are significant to counter the belief that students with ESN are unable to understand and learn school-wide expectations (Shuster et al., 2017; Walker et al., 2018). Only one study (Simonsen et al., 2010) reported aligning the full continuum of PBIS to support students with disabilities.

Implications for Practice and Policy

Our findings suggest that students with ESN are not always included in all aspects of PBIS. Given the inclusive and cumulative nature of the PBIS framework, it will be important for schools and practitioners to consider how students with ESN can meaningfully access various aspects of PBIS. As such, we encourage PBIS teams to first assess whether and how students with ESN have been included in all tiers of PBIS so that teams can identify strategies to promote meaningful participation. Walker and Loman (2022) suggested that existing supports could be adapted to meet the cognitive and physical needs of students with ESN (e.g., simplified language, visuals

paired with text). These adaptations should also address the communication needs of students (e.g., students' primary communication modes).

Further, teams can utilize the principles of UDL and established evidence-based practices for students with ESN to design and implement supports (see Loman et al., 2018). For example, systematic instructional procedures, video modeling, or social narratives might be used to teach the school-wide behavioral expectations. Lesson plans can include multiple means for action and expression to ensure that students with complex communication needs are able to demonstrate their understanding of behavioral expectations. Involvement of special educators, other school personnel who support students with ESN (e.g., speech-language pathologists, behavior analysts, paraprofessionals), and family members on or as consultants to the PBIS team may be advantageous. These individuals can offer their expertise as the team considers accessibility of and adaptations to Tier 1 and 2 supports across the full spectrum of educational placements (e.g., see Clemens et al., 2021).

Our findings also suggest that students with ESN may not be involved in PBIS data collection activities. Because data-based decision-making is a critical element of PBIS (www.pbis.org), it will be important for schools to identify how to meaningfully include students with ESN in their data collection efforts and consider these data when problem-solving (e.g., to make screening decisions, to determine PBIS fidelity; Kurth & Zagona, 2018; Walker et al., 2018b).

Perceptions regarding the effectiveness and importance of including students with ESN in PBIS varied across stakeholder groups. These findings are concerning, as PBIS is intended to be a fully inclusive framework where all students have access to the full continuum of support. To ensure that all school personnel have the foundational knowledge and disposition necessary for successful PBIS implementation, it will be critical to include special educators and others who support students with ESN in professional development and training activities focused on PBIS. Likewise, professional development and training can be enhanced with embedded content focused on inclusivity, the least dangerous assumption (Taub et al., 2019), and strategies to support students with differing needs. PBIS has the potential to influence a school's culture, which in turn, may improve inclusive practices and perceptions among school personnel (Sailor et al., 2006). Finally, although the literature provides minimal information on the relationship between inclusion and PBIS, students with ESN are likely to have greater access to these supports in inclusive settings (Snell, 2006; Walker et al., 2018b). Therefore, we encourage schools to engage in conversations focused on promoting more inclusive experiences for students with ESN whereby students learn the behavioral expectations and receive public acknowledgement alongside their peers without disability labels (Kurth & Enyart, 2016). For a summary of action steps for PBIS teams, see Appendix C.

Limitations and Future Research Directions

Despite two calls for action (i.e., Bambara & Lohrmann, 2006; Kurth & Enyart, 2016), research continues to be severely limited on the inclusion of students with ESN within PBIS. As set forth in both of these calls, extensive research is needed to further explore the inclusion of students with ESN within all tiers of PBIS. Findings from this literature review have identified examples of the inclusion of students with ESN in PBIS along with preliminary evidence supporting the effectiveness of Tier 1 supports. Most studies (60%) included in this review used survey research designs. Although there are many benefits to conducting survey research, additional applied research is needed in order to further investigate the effects of PBIS on students with ESN. Additionally, continued research is needed if practitioners are going to ensure that students with ESN are successfully and meaningfully included in all tiers of PBIS across different settings in which students receive instruction and interact with peers.

Although research has documented PBIS to be effective with diverse student populations (Bradshaw et al., 2012; Grasley-Boy et al., 2019), only two studies (Loman et al, 2018; Simonsen et al., 2010) in this review focused on the effectiveness of universal, Tier 1 supports in producing positive outcomes for students with ESN. Given that limited research has been conducted in this area, it is suggested that future research continues to examine the effects of Tier 1 supports within a PBIS framework on student outcomes, including behavioral, academic, social, and emotional indicators. Additionally, even though PBIS is designed to promote the effective inclusion of students with disabilities (Carr et al., 2002), only one study (Loman et al., 2018) of the 10 included in this review provided strong evidence of effectiveness for improved accessibility of universal supports within a PBIS framework in inclusive school-wide settings. The other study that examined effectiveness treated the entire school as the unit of analysis (Simonsen et al., 2010). Therefore, future research should focus on expanding the literature base by examining the application of universal supports within a PBIS framework in inclusive settings. Similarly, additional research is needed to further investigate the correlation between students with ESN educational placement and their involvement in PBIS.

Furthermore, with the understanding that some students will likely need additional support beyond Tier 1, PBIS offers a continuum of supports (i.e., Tiers 2 and 3) to help students access instruction pertaining to universal prevention efforts (Horner et al., 2010). However, of the 10 studies that were included in this review, no studies focused on the implementation or effectiveness of targeted (Tier 2) or instructive (Tier 3) interventions situated within a PBIS framework. Given the potential benefit all students may experience as a result of their participation in these additional layered supports, including students with ESN, further research is needed to examine students' access and participation in the full continuum of supports provided within a PBIS framework. In particular, research is needed to explore the types of supports needed to ensure meaningful access to tiered supports, the unique contributions of each tier, and the effects of

PBIS implementation to support students with disabilities in inclusive settings. When exploring these outcomes, it is imperative that researchers be explicit in documenting and reporting how tiered supports are connected to other foundational aspects of PBIS. In our review of the literature, we suspect there may have been research studies that focused on additional layers of support but may have failed to mention their connection to the PBIS framework.

Conclusion

The PBIS framework offers a continuum of supports to address the behavioral needs of all students in a school. Although many benefits have been identified, information on the extent to which students with ESN access and benefit from PBIS is limited. Findings from this literature review indicate that additional research is needed in this area as only 10 studies have been conducted since the initial *RPSD* 2006 call to action. Despite this limitation, we encourage schools, practitioners, and PBIS teams to explore ways in which to create school-wide systems that are fully accessible to all students, including students with ESN. By involving students with ESN in PBIS, schools can improve student access to the full continuum of behavioral supports and promote inclusive school communities where all students' needs are met in a positive and safe learning environment.

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Appendix A

Table 1. Study Details

Study	Purpose	Research Design	Participants	Setting Character-istics	Key Findings
Kurth & Zagona (2018)	Explore PBIS coaches' perceptions of the involvement of students with ESN in PBIS.	Survey	305 school-based PBIS coaches: general educators (*n* = 94), admin-istrators (*n* = 90), special educators (*n* = 44), school counselors (*n* = 34), school behav-iorists (*n* = 6)	559 school districts in the Midwest	Respondents reported that students with ESN were involved in incentive-based components of PBIS. However, it was not clear how students with ESN were taught the school-wide behavior expectations that coincide with those incentives.

General educators were most likely to indicate "unsure" of student participation and special edu-cators remained primarily responsible for facilitat-ing student involvement in the PBIS framework.

Respondents who indicated students with ESN were taught in self-contained settings rated student involvement as less important compared to respondents who indicated students with ESN were taught in general education settings. |
| Kurth, Zagona, Hagiwara, & Enyart (2017) | Analyze commonly used PBIS evalua-tion tools to identify their direct and implicit inclusion of students with ESN. | Content analysis | NA | NA | PBIS evaluation tools did not contain cues to prompt evaluators to examine PBIS supports provided to students with ESN or students in self-contained classrooms. |
| Landers, Courtade, & Ryndak (2012) | Determine how the needs of students with ESN are addressed in state-level profes-sional development. | Survey | 51 state PBIS coor-dinators | Multiple regions; national sample | A majority of respondents believed that students with ESN could participate in PBIS.

Beliefs were not reflected in their reported profes-sional development activities. |

Study	Purpose	Research Design	Participants	Setting Character-istics	Key Findings
Loman, Strickland-Cohen, & Walker (2018)	Evaluate the effects of adapted PBIS Tier 1 lesson plan implementation on student challenging behavior.	Experimental single-case design	3 students with ESN	Inclusive, school-wide settings (i.e., cafeteria, hallway after recess, bus loading/departure area) in three PBIS elementary schools in the Pacific Northwest	A functional relation was established between student challenging behavior and the adapted PBIS lesson plan intervention. Each student experienced a reduction in challenging behavior during intervention. All three teachers reported a positive change in student behavior and agreed that the materials were easy to use.
Morningstar, Shogren, Lee, & Born (2015)	Identify inclusive classroom practices to support the participation and learning in inclusive classrooms for all students, including those with ESN.	Analysis of observation data	Students with disabilities had a range of primary disability labels including: autism ($n = 11$), orthopedic impairment ($n = 2$), visual impairment ($n = 1$), intellectual disability ($n = 1$), co-occurring autism and hearing impairment ($n = 1$), and other health impairment ($n = 1$)	Classrooms in six inclusive PBIS schools	Results described attributes essential to student participation and learning in inclusive classrooms. One attribute described was PBIS.

Study	Purpose	Research Design	Participants	Setting Character-istics	Key Findings
Schelling & Harris (2016)	Highlight features of implementation of PBIS in alternate educational settings serving students with ESN.	Survey	26 personnel from center-based schools: school administrators (62%), district administrators (31%), teachers (7%)	Center-based schools in Michigan that educated students with moderate cognitive impairments, autism spectrum disorders, severe cognitive impairments, and severe multiple impairments	Majority of those surveyed were implementing PBIS, but implementation fidelity remained low in the following areas: evaluating student behavior and management practices, developing or modifying training activities based on data, and regularly conducting assessments to identify students with chronic problem behaviors. Results suggested limited use of evidence-based practices and that basic behavior management components were not in place. Findings showed that practices were being implemented that were not aligned to student needs, and staff lacked knowledge/training to provide intensive individualized instruction and interventions.
Shuster, Gustafson, Jenkins, Lloyd, Carter, & Bernstein (2017)	Examine the involvement of special educators in PBIS, as well as their perceptions of the involvement of students with disabilities.	Survey	849 special educators	491 schools in 113 districts in Tennessee	Findings showed that the majority of special educators reported their students either benefit from or would be likely to benefit from inclusion in PBIS. Special educators reported moderately high levels of PBIS implementation at the classroom level and a majority of special educators reported the students on their caseload mostly or fully participated in school-wide expectations, celebrations, rewards, reinforcement systems, consequence programs, and lessons to teach behavioral expectations. However, ratings were consistently lower for teachers of students with ESN (as compared to teachers of students with high-incidence disabilities).

Study	Purpose	Research Design	Participants	Setting Character-istics	Key Findings
Simonsen, Britton, & Young (2010)	Document the impact of introducing a school-wide approach and Tier 1 interventions into a setting that was already using Tier 2 and Tier 3 interventions.	Non-experimental case study	Between 29-59 students across a three-year period	One state-certified nonpublic school in Northern California	After two years of implementation, 83% of students were considered responsive to PBIS, which was demonstrated by a decrease in physical aggression. The frequency of interactions between staff and students remained stable across the study; however, the content of interactions changed as the staff was observed using language consistent with the school-wide expectations.
Walker, Loman, Hara, Park, & Strickland-Cohen (2018)	Explore the involvement of students with ESN in PBIS.	Survey	179 school personnel from PBIS schools: school administrators (36%), special educators (18%), general educators (17%), members in other roles (10%), school counselors (7%), and behavior specialists (6%)	Multiple regions; national sample	Respondents overall reported high levels of implementation and importance across PBIS systems procedures, practices, and data collection procedures applicable to students with ESN. Grade level, tiers of PBIS implementation, and the extent of inclusion contributed to differences in ratings across some PBIS elements.
Zagona, Walker, Lansey, & Kurth (2021)	Examine expert perspectives on the extent to which students with ESN should be included in PBIS initiatives.	Survey	24 editorial board members of the *Journal of Positive Behavior Interventions* with expertise in PBIS	Multiple regions; national sample	Overall, experts agreed students with ESN should be included in all tiers of PBIS. Respondents agreed that students with ESN should be included in instruction related to behavioral expectations and that practices to teach school-wide rules and expectations should address the range of support needs of students with ESN. Experts indicated a high level of agreement related to the extent to which students with ESN should have the opportunity to participate in school-wide reward systems regardless of whether they have an established individualized reward system.

Table 2. Major Coding Categories

Study	Appropriateness	Availability	Inclusion	Assessment	Effectiveness		
					Tier 1	Tier 2	Tier 3
Kurth & Zagona (2018)	X	X		X			
Kurth, Zagona, Hagiwara, & Enyart (2017)				X			
Landers, Courtade, & Ryndak (2012)	X						
Loman, Strickland-Cohen, & Walker (2018)	X		X		X		
Morningstar, Shogren, Lee, & Born (2015)		X	X				
Schelling & Harris (2016)		X		X			
Shuster, Gustafson, Jenkins, Lloyd, Carter, & Bernstein (2017)	X	X		X			
Simonsen, Britton, & Young (2010)		X			X		
Walker, Loman, Hara, Park, & Strickland-Cohen (2018)	X	X		X			
Zagona, Walker, Lansey, & Kurth (2021)	X						
Total	**6**	**6**	**2**	**5**	**2**	**0**	**0**

Appendix C

Table 3. Action Steps for PBIS Teams

Appropriateness of PBIS
• Assess whether and how students with ESN are currently included in PBIS. • Identify strategies to promote meaningful participation for students with ESN.
Availability of PBIS
• Adapt supports to meet the cognitive and physical needs of students with ESN (e.g., simplified language, visuals paired with text). • Address the communication needs of students with ESN using their primary communication modes. • Post accessible expectations in a visible place for students with ESN. • Align individual reward systems to school-wide reward systems to ensure they are meaningful to students with ESN. • Use evidence-based practices such as video modeling, social narratives, and systematic instruction to teach the school-wide expectations to students with ESN.
PBIS and Inclusion
• Involve personnel who are familiar with the needs of students with ESN as consultants or members of the PBIS team (e.g., special educators, speech pathologists, behavior analysts, paraprofessionals). • Increase opportunities for school personnel to collaborate and identify strategies to teach students with ESN in inclusive settings. • Enhance training on inclusion and students with ESN. • Teach behavior expectations to students with ESN alongside their peers without disabilities.
Data Collection and Assessment
• Identify ways to meaningfully include students with ESN in school-wide data collection. • Collect data on students with ESN in fidelity assessments. • Review and make decisions based on behavioral data of students with ESN during PBIS meetings.
Effectiveness of PBIS
• Include personnel working with students with ESN in PBIS professional development and training. • Deliver training on strategies to support students with ESN across all three tiers.