

KNOWLEDGE AND USE OF EVIDENCE-BASED PRACTICES IN SPECIAL EDUCATION

A Dissertation

by

MARY ROSE SALLESE

Submitted to the Graduate and Professional School of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Chair of Committee,	Kimberly J. Vannest
Co-Chair of Committee,	Jay B. Ganz
Committee Members,	Adam E. Barry
	Melissa S. Fogarty
	Christopher G. Thompson
Head of Department,	Fuhui Tong

August 2021

Major Subject: Educational Psychology

Copyright 2021 Mary Rose Sallese

ABSTRACT

Educators increase the likelihood of positive student outcomes when they consistently prioritize the use EBP during instruction. Maximizing the impact of instructional time through evidence-based practices (EBPs) is especially important for students with disabilities who are often academically behind their typically developing peers. Therefore, the state of EBPs in school settings serving students with disabilities becomes a point of interest for administrators, policymakers, and researchers. This dissertation explores the knowledge and use of EBPs through a systematic literature review followed by a secondary analysis of the included studies' methodological characteristics as well as the in-progress development of a survey.

A comprehensive systematic literature review found 32 studies examining the knowledge and use of EBPs by special education personnel working in early childhood through twelfth-grade settings. Studies focused most often on autism EBPs, and the sample predominately represented special education teachers. Outcome data showed within and across study variability, demonstrating low, moderate, and high knowledge and use scores with noticeable differences based on measurement characteristics. An examination of study and practice-level data reveals generally higher knowledge than use levels.

The second study involves a secondary analysis of the measures and procedural characteristics of the 32 included studies. Coders extracted information from the study manuscript and requested supplementary material from corresponding authors. Author teams primarily relied on survey methodology and self-report data across the six identified research approaches for assessing knowledge and use. The secondary analysis results revealed

methodological implications related to the ambiguity of practice definitions, the potential for socially desirable responding, and limited reporting practices.

The third manuscript describes the initial development of a survey designed to measure the knowledge and use of classroom management EBPs with features embedded to decrease the likelihood of socially desirable responding. Survey development involved four consecutive phases: selection of practices, definition creation, survey construction, and stakeholder feedback related to SDR. Professionals with classroom management and methodological expertise and the survey target population evaluated the survey and provided feedback. The next steps for the survey include a pilot study to assess the instrument's technical adequacy before formal use.

DEDICATION

This dissertation is dedicated to my former students in Missouri. You serve as a constant reminder of the importance of the work.

ACKNOWLEDGEMENTS

It takes a village of support to get someone across the finish line of a Ph.D. program. My professional growth and accomplishments over the last four years are the direct result of incredible mentors, colleagues, family, and friends. First and foremost, I would like to thank my dissertation committee chair, Dr. Kimberly Vannest, for her time, dedication, and unwavering support. Second, I would like to thank Dr. Melissa Fogarty for her endless support and modeling effective college-level teaching, mentoring, teacher preparation. Third, I appreciate Dr. Ganz's willingness to step into the co-chair role and offer guidance. A special thanks for their constant encouragement, patience, and support should also be extended to my family (i.e., Mom, Dad, Tommy, Greta, Tony, Chelsea, Lily), friends (i.e., Kristin V., Diana, Wendy, Cheryl, Macy, Emily, Kelly, Kristin M., Fight Club), academic partner Aaron Campbell, and my doctoral student writing group (DisCo). Finally, I would like to thank Dr. Lisa Goran and Dr. Peter Kelly for encouraging me to apply to Ph.D. programs and pursue this career path.

CONTRIBUTORS AND FUNDING SOURCES

Contributors

This dissertation was supervised by a committee consisting of Drs. Kimberly Vannest [advisor, chair], Jay Ganz [co-advisor, co-chair], Melissa Fogarty, and Christopher Thompson from the Department of Educational Psychology and Dr. Adam Barry from the Department of Health and Kinesiology. Marianne Rice, a doctoral student in the Department of Educational Psychology, served as the secondary article screener and coder for the first and second study of this dissertation. All other work for this dissertation was completed by the student independently.

Funding Sources

The Department of Educational Psychology financially supported the first three years of my doctoral program through graduate assistantships with the Division of Special Education. In my final year, I was financially supported by the College of Education and Human Development Strategic Research Award from Texas A&M University.

TABLE OF CONTENTS

	Page
ABSTRACT.....	ii
DEDICATION.....	iv
ACKNOWLEDGEMENTS.....	v
CONTRIBUTORS AND FUNDING SOURCES.....	vi
TABLE OF CONTENTS.....	vii
LIST OF FIGURES.....	ix
LIST OF TABLES.....	x
1. INTRODUCTION.....	1
1.1. References.....	6
2. KNOWLEDGE AND USE OF EVIDENCE-BASED PRACTICES IN SPECIAL EDUCATION: A SYSTEMATIC LITERATURE REVIEW.....	10
2.1. Method.....	15
2.2. Results.....	22
2.3. Discussion.....	27
2.4. References.....	35
3. A SYSTEMATIC LITERATURE REVIEW OF THE METHODS AND MEASURES USED TO ASSESS THE KNOWLEDGE AND USE OF EVIDENCE-BASED PRACTICES IN SPECIAL EDUCATION.....	64
3.1. Method.....	68
3.2. Results.....	72
3.3. Discussion.....	76
3.4. References.....	84
4. ASSESSING KNOWLEDGE AND USE OF CLASSROOM MANAGEMENT EVIDENCE-BASED PRACTICES: INSTRUMENT DEVELOPMENT WITH SOCIALLY DESIRABLE RESPONDING IN MIND.....	102
4.1. Method.....	110
4.2. Results.....	118
4.3. Discussion.....	120
4.4. References.....	126

5. CONCLUSIONS.....	142
5.1. References.....	146
APPENDIX A DETAILED SEARCH TERMS BROKEN DOWN BY DATABASE.....	149
APPENDIX B TOP 25 PRACTICE CATEGORIES WITH CORRESPONDING STUDY DESCRIPTIONS.....	150
APPENDIX C SOCIALLY DESIRABLE RESPONDING FEEDBACK RATING FORM.....	157
APPENDIX D CLASSROOM MANAGEMENT PRACTICE SURVEY.....	158

LIST OF FIGURES

	Page
Figure 1. Article search flow diagram.....	52
Figure 2. Codebook: A systematic literature review of the methods used to assess the knowledge and use of EBPs in special education.....	99
Figure 3. Knowledge and use methods coding results summary.....	101
Figure 4. Instrument development process.....	140

LIST OF TABLES

	Page
Table 1. Coding categories: Knowledge and use of evidence-based practices in special education.....	53
Table 2. Participant demographics.....	54
Table 3. Knowledge and use of evidence-based practices reported by study.....	55
Table 4. Top ten practice categories investigated most often by included studies.....	60
Table 5. Knowledge scores broken down by category.....	61
Table 6. Use scores broken down by practice category.....	62
Table 7. Survey methods characteristics.....	96
Table 8. Method characteristics: Artifact analysis, interview, knowledge assessment, and observation.....	98
Table 9. Survey practices.....	141

1. INTRODUCTION

The majority of researchers in special education and allied fields subscribe to the cooperative and cumulative endeavor of systematically observing the world in a way that leads to the collection of knowledge (Gersten et al., 2000). The scholarly community supports the deliberate and methodical process of scientific consensus rather than sensational, almost too good to be true, breakthroughs (Stanovich, 2013). One study does not demonstrate or reveal complete truth (Higgins, 2018; Gersten et al., 2000). Rather, over time, the gradual synthesis of evidence from various research methodologies and designs reliably supports one theory over another. It is highly unlikely that even one well-designed, rigorous, and robust study could provide definitive and generalizable conclusions for the field given the great degree of variation within the settings and populations of modern special education placements (Higgins, 2018; Kavale, 2001). Therefore, the shared responsibility for answers falls on the larger community. Researchers initiate studies with the intention to publicly share the information learned so that the whole can collectively produce more knowledge than individually possible.

Despite the affinity for the scientific method within many circles, some question the reliance on the process. In the mid to late 20th century, postmodernists claimed scientific paradigms and theories were social constructs influenced by the politics and economy of the day (Sokal, 1996). Postmodernism described truth as relative, local, and personal, and therefore attempts at a universal objective truth through inquiry were unnecessary (Dawkins, 1998). Supporters touted instances of proclaimed evidence that were later proven to be false as justification for the belief in relative truth (Sokal, 1996; Sasso, 2001). The movement pronounced the existence of *many ways of knowing* and refused to prioritize the knowledge

resulting from logical inquiry. With the central tenet of postmodernism focusing on individual or personal truth, its alignment “with words like justice and liberation,” and its dedication to valuing all voices, it is not surprising that the movement resonated with some in the special education community (Sasso, 2001, p. 66). It may have been difficult for them to reconcile the emphasis on objective and universal scientific evidence with the need for individualized instruction and unique student circumstances. Others, however, cautioned against adopting postmodern thought describing scientific objectivity as the only way to consistently improve student outcomes (Kauffman & Sasso, 2006; Sasso, 2001).

Individuals working in the special education field share a common mission to build the education system's capacity to provide meaningful and high-quality instruction for students with disabilities. The field needed to reach a consensus on how research results, personal teaching experience, and unique student needs fit into the comprehensive whole of determining *what works* to improve student outcomes. Guyatt et al. (1992) endorsed the concept of evidence-based medicine when faced with a similar situation in the medical field, which promoted the consideration of research, clinical experience, and individual needs for patient care decisions. With nearly three decades to refine the approach, Guyatt (2018) poses the following three principles of evidence-based medicine: (a) decisions require a synthesis of the best evidence, (b) evidence exists within a hierarchy, and (c) evidence alone is not enough. A systematic literature review provides an unbiased and cumulative description of the best available information related to a course of action. Both clinical experience and empirical research produce valid evidence, but an evaluation of the limitations of each creates a natural hierarchy in the determination of effective practices for the masses. The knowledge gained from clinical experience is open to higher levels of bias. There is a tendency to make inappropriate casual inferences based on small

sample sizes and be influenced by the vividness of the situation (Guyatt, 2018). On the other hand, knowledge gained from empirical studies may lack generalizability if conducted in tightly controlled settings that are not representative of typical practice (i.e., limited resources, authentic interventionists). The final principle of evidence-based medicine says that even with the efforts to bring certainty to the clinical decision through scientific means, the practitioner will need to consider patient values and preferences to make the optimal decision (Guyatt, 2018; Sackett et al., 1996). Professionals in special education saw the parallels and potential benefits of evidence-based medicine. Subsequently, the field adopted the pursuit of evidence-based practices (EBPs) as the pathway to improved outcomes.

EBPs are instructional techniques supported by multiple high-quality experimental studies showing meaningful and positive effects (Cook & Cook, 2013; Gersten et al., 2005; Horner et al., 2005; Odom et al., 2005). Supporting “high-quality” studies must meet the mutually agreed upon standards of rigor regarding research design, methodological quality, the quantity of research, and magnitude of effect (Cook & Cook, 2013; Cook et al., 2014; WWW, 2020). All forms of educational research contribute to building a coherent picture of improving outcomes for individuals with disabilities. Still, experimental designs allow for causal inferences, which is a necessary condition to identify practices that show the most promise for generalization and widespread use (Cook & Cook, 2016; Slavin, 2020). EBPs are not guaranteed to work for every student. Although, prior success in experimental settings implies that it is highly likely, that when used with fidelity, the practice will lead to improved outcomes (Cook & Cook; 2013; Slavin, 2020). However, this does not mean that the professional opinion of the teacher is not needed. Like medicine, the practitioner uses their personal experience and knowledge of the student to select a proven practice appropriate for the student and current setting (Cook & Cook,

2013). Furthermore, the practitioner must use their professional expertise to routinely monitor the success of the practice. EBPs exist within a comprehensive and holistic teaching approach where the practitioner incorporates the best available scientific evidence, practical experience, and individual student needs.

Students benefit when teachers prioritize trustworthy and effective practices. Although, it is especially important to maximize the instructional time of students with disabilities with high-impact teaching strategies because they are often academically and behaviorally behind their same-aged peers (Epstein et al., 1989; Reid et al., 2004; Trout et al., 2003). The benefit of EBPs and the potential harm of unproven or ineffective practices are revealed when you consider the opportunity cost. Travers (2017) explains, “[the] main problem is that a tried intervention is only revealed to be a failure after the investment is made; instructional time is permanently lost, and educational benefit is not conferred” (p. 197). The accumulation of even small amounts of time may add to a significant educational loss for the student. By routinely incorporating EBPs into instruction with fidelity, the practitioner maximizes the probability that educational benefit will occur (Travers, 2017). Students are only given a certain amount of time for special education services each week; therefore, those services should be designed for maximum impact.

Identifying a practice as evidence-based is only the first step. Even the most effective practice will not benefit students unless teachers in real classrooms adopt the practice and use it regularly (Cook & Odom, 2013). Historically, very little of the knowledge gained from educational research finds its way into clinical practice (Greenwood & Abbot, 2001). Federal and state-level education initiatives aim to lessen the research-to-practice gap by financially supporting the systematic identification, proliferation, and continued use of EBPs (Carnine, 1997; Greenwood & Abbott, 2001; Slavin, 2020). Recently, the special education field has

started to gradually move towards a focus on the implementation process. Rather than letting it happen naturally, the community would like to move towards making it (i.e., large-scale use of EBPs) happen (Institute for Education Sciences [IES], 2019). With the identification structure in place, the focus has shifted towards supporting practitioner adoption of EBPs.

As the field continues towards a prioritization of implementation efforts, it becomes necessary to examine the current state of EBPs in school-based settings. Studies assessing the knowledge and use of EBPs range broadly from transition services, to autism, to special education practices across settings (Burns & Ysseldyke, 2009; Knight et al., 2019; Plotner et al., 2016). Though, a review of the literature revealed a lack of aggregated data on the overall knowledge and use of EBPs across populations and settings in special education. A comprehensive research synthesis would allow the field to engage in a deeper examination of the issues in knowing and using EBPs, gauge the success of implementation efforts, identify gaps in our knowledge for future study, and develop further measures.

This dissertation explores the knowledge and use of EBPs by special education personnel through three interrelated manuscripts to address the need in the literature and support current efforts in the field. The first manuscript includes a systematic literature review reporting on the overall knowledge and use of EBPs by special education personnel in early childhood through high school settings. Following this, the second manuscript outlines a secondary analysis of the articles included in the first systematic literature with a specific focus on coding for measurement and procedural characteristics. The results from the first two projects inform the development and construction of an instrument to measure the familiarity and use of EBPs with particular attention to a type of response bias known as socially desirable responding.

References

- Burns, M. K., & Ysseldyke, J. E. (2009). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education, 43*(1), 3-11.
<http://dx.doi.org/10.1177/0022466908315563>
- Carnine, D. (1997). Bridging the research-to-practice gap. *Exceptional Children, 63*(4), 513-521.
<http://dx.doi.org/10.1177/001440299706300406>
- Cook, B., Buysse, V., Klingner, J., Landrum, T., McWilliam, R., Tankersley, M., & Test, D. (2014). Council for Exceptional Children standards for evidence-based practices in special education. *Teaching Exceptional Children, 46*(6), 206-212.
- Cook, B. G., & Cook, S. C. (2013). Unraveling evidence-based practices in special education. *Journal of Special Education, 47*(2), 71-82. <https://doi.org/bhqsfb>
- Cook, B. G., & Cook, L. (2016). Research designs and special education research: Different designs address different questions. *Learning Disabilities Research & Practice, 31*(4), 190-198. <https://doi.org/10.1111/ldrp.12110>
- Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children, 79*(3), 135-144. <https://doi.org/f4j96f>
- Dawkins, R. (1998). Postmodernism disrobed. *Nature, 394*, 141-143. <https://doi.org/cq422r>
- Epstein, M., Kinder, D., & Bursuck, B. (1989). The academic status of adolescents with behavioral disorders. *Behavioral Disorders, 14*(3), 157-165. <https://doi.org/fsdg>
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71*(2), 149-164. <https://doi.org/fqzj>
- Gersten, R., Schiller, E. P., & Vaughn, S. R. (Eds.). (2000). *Contemporary special education*

- research: Syntheses of the knowledge base on critical instructional issues.* Routledge.
- Greenwood, C. R., & Abbott, M. (2001). The research to practice gap in special education. *Teacher Education and Special Education, 24*(4), 276-289. <https://doi.org/cp3ttb>
- Guyatt, G. (2018). An introduction to evidence-based medicine [Video file]. In *The Biomedical & Life Sciences Collection, Henry Stewart Talks*. <https://hstalks-com.srv-proxy1.library.tamu.edu/bs/3768/>.
- Guyatt, G., Cairns, J., Churchill, D., Cook, D., Haynes, B., Hirsh, J., Irvine, J., Levine, M., Levine, M., Nishikawa, J. Sackett, D., Brill-Edwards, P., Gerstein, H., Gibson, J., Jaeschke, R., Kerigan, A., Neville, A., Panju, A., Detsky, A. ... & Tugwell, P. (1992). Evidence-based medicine: a new approach to teaching the practice of medicine. *JAMA, 268*(17), 2420-2425. <https://doi.org/d67x5v>
- Institute of Education Sciences. (2019). *Director's biennial report to congress: Fiscal years 2017 and 2018*. Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/pdf/IESBR2017_2018.pdf
- Kauffman J. M., & Sasso G. M. (2006). Toward ending cultural and cognitive relativism in special education. *Exceptionality, 14*(2), 65-90. <https://doi.org/fqkbbc>
- Kavale, K. A. (2001). Decision making in special education: The function of meta-analysis. *Exceptionality, 9*(4), 245-268. http://dx.doi.org/10.1207/S15327035EX0904_6
- Knight, V. F., Huber, H. B., Kuntz, E. M., Carter, E. W., & Juarez, A. P. (2019). Instructional practices, priorities, and preparedness for educating students with autism and intellectual disability. *Focus on Autism and Other Developmental Disabilities, 34*(1), 3-14. <http://dx.doi.org/10.1177/1088357618755694>
- Higgins, S. (2018). *Improving learning: Meta-analysis of intervention research in education*.

Cambridge University Press.

- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*(2), 165-179. <https://doi.org/gfpqfk>
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children, 71*(2), 137-148. <https://doi.org/gf8rqw>
- Plotner, A. J., Mazzotti, V. L., Rose, C. A., & Carlson-Britting, K. B. (2016). Factors associated with enhanced knowledge and use of secondary transition evidence-based practices. *Teacher Education and Special Education, 39*(1), 28-46. <https://doi.org/f2gb>
- Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of Special Education, 38*(3), 130-143. <https://doi.org/10.1177%2F00224669040380030101>
- Sackett, D. L., Rosenberg, W. M., Gray, J. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: What it is and what it isn't. *British Medical Journal, 312*, 71-72. <http://dx.doi.org/10.1136/bmj.312.7023.71>
- Sasso, G. M. (2001). The retreat from inquiry and knowledge in special education. *The Journal of Special Education, 34*(4), 178-193. <http://dx.doi.org/10.1177/002246690103400401>
- Slavin, R. E. (2020). How evidence-based reform will transform research and practice in education. *Educational Psychologist, 55*(1), 21-31. <https://doi.org/gf4hzh>
- Sokal, A. (1996). Transgressing the boundaries: An afterword. *Philosophy and Literature, 20*(2), 338-346. <http://doi.org/10.1353/phl.1996.0078>
- Stanovich, K. E. (2013). *How to think straight about psychology*. Pearson.

Travers, J. C. (2017). Evaluating claims to avoid pseudoscientific and unproven practices in special education. *Intervention in School and Clinic*, 52(4), 195-203.

<http://dx.doi.org/10.1177/1053451216659466>

Trout, A., Nordness, P. D., Pierce, C. D., & Epstein, M. H. (2003). Research on the academic status of children with emotional and behavioral disorders: A review of the literature from 1961 to 2000. *Journal of Emotional and Behavioral Disorders*, 11(4), 198-210.

<https://doi.org/10.1177%2F10634266030110040201>

What Works Clearinghouse. (2020). *What Works Clearinghouse: Procedures handbook*

(Version 4.1). Institute of Education Sciences, U.S. Department of Education.

<https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Procedures-Handbook-v4-1-508.pdf>

2. KNOWLEDGE AND USE OF EVIDENCE-BASED PRACTICES IN SPECIAL EDUCATION: A SYSTEMATIC LITERATURE REVIEW

The education community has introduced various terms to label, identify, and communicate “what works” with regard to improving student outcomes (Cook & Cook, 2013; Cook et al., 2012). Best practices, recommended practices, and research-based practices are just a few of the many terms the field has used over time to describe teaching methods that produce positive results. Potentially due to vague definitions and an overall lack of consensus in language, both educators and researchers frequently used these terms interchangeably to describe effective teaching (Cook & Cook, 2013; Sciuchetti et al., 2016). The variety of terms used in the past indicates the desire to identify the most effective teaching practices that will meaningfully improve the outcomes of students with disabilities. Some teaching practices are simply more effective than others, and students benefit when practitioners use these practices regularly (Travers, 2017). Unfortunately, the system struggles to provide a clear and organized line of communication between researchers and practitioners concerning the results of the empirical investigations. Special education embraced the evidence-based medicine movement from the medical community seeking an organized message and an increased reliance on scientific evidence (Odom et al., 2005; Sackett et al., 1996).

Introducing the term in 1990 as scientific medicine and later refining it to evidence-based medicine in 1991, Guyatt and his colleagues presented an alternative way to approach clinical decision making (Sur & Dahm, 2011; Voelker, 2015). Rather than relying primarily on expert recommendations, the new curriculum required residents to consider research, clinical experience, and individual patient needs (Dillard, 2017; Guyatt, 2018; Sackett et al., 1996). The

notion of incorporating evidence into practice resonated with numerous fields, including education (Cook et al., 2012; Odom et al., 2005). Educators often rely on colleague opinions and personal experience, rather than science, to inform their instructional choices (Cook & Cook, 2013; Knight et al., 2019). Eager to move toward a prioritization of internally valid and rigorous scientific evidence, education scholars conceptualized and planned for how evidence-based medicine would play out in the classroom by first giving an operational definition for the term evidence-based practice (EBP) and then communicating that to the field (Odom et al., 2005).

An EBP is an effective instructional technique supported by numerous high-quality experimental studies that resulted in positive outcomes (Gersten et al., 2005; Horner et al., 2005; Odom et al., 2005). An evidence-based review establishes for whom and under what conditions the practice is determined to be effective (Cook et al., 2020). Like evidence-based medicine, the emphasis is placed on the knowledge gained from scientific research rather than expert opinion or personal experience (Cook, 2015). Certain practices consistently produce better results than others in controlled empirical investigations. By prioritizing these practices, the practitioner maximizes the probability that educational benefit will occur within the limited amount of time offered for special education services (Cook, Tankersley, Cook, & Landrum, 2008; Torres et al., 2012; Travers, 2017). An example to illustrate the conceptual framework of EBP involves a surgeon choosing one procedure over another based on the mortality rate instead of personal preference or the suggestion of a colleague. In the same way, practitioners choose the practice with the highest likelihood to achieve an effect rather than personal preference or ease of a procedure. The practitioner uses their knowledge of interventions, personal experience, and knowledge of the student to select an appropriate EBP for the given situation (Cook & Cook, 2013).

The government recognized the importance of using practices proven to be effective through high-quality research and responded with several federal endorsements. Congress authorized both general education (No Child Left Behind [NCLB], 2001; Every Student Succeeds Act [ESSA], 2015) and special education (Individuals with Disabilities Education Act [IDEA], 2004) laws mandating the use of empirically validated practices where appropriate and available. NCLB directed school districts to adopt instructional materials, interventions, and practices grounded in scientifically-based research, using the phrase more than 100 times when referring to instructional decision making (NCLB, 2001; Cook, Tankersley, Cook, & Landrum, 2008). Educators responded with a strong and positive endorsement of the NCLB (2001) mandate to use EBPs (Vannest et al., 2009), although the term itself was poorly understood, leaving professionals confused and frustrated with implementation (Cook & Cook, 2013; Cook et al., 2020; Cook, Tankersley, Cook, & Landrum, 2008). Congress reaffirmed the commitment to evidence-based interventions in the most recent reauthorization of NCLB, the ESSA, in 2015. Subsequent reauthorizations of the IDEA required Individualized Education Program multidisciplinary teams to base specially designed instruction on peer-reviewed research (Russo-Campisi, 2017). Small differences in terminology exist, but federal guidance clearly advocates for the prioritization of scientific evidence in the classroom to promote student achievement (Slavin, 2020).

There is a discrepancy between what we know works and what happens in the classroom. Known as the research-to-practice gap, the issue is neither new nor undocumented (Carnine, 1997, Cook & Schirmer, 2003; Cook, Tankersley, Cook, & Landrum, 2008; Cook et al., 2013; Cook & Odom, 2013; Fixsen et al., 2013; Klingner et al., 2013), but remains unresolved. Several reasons may explain portions of the gap. A simple and significant barrier relates to the lack of

access to the research findings (Koch et al., 2006; Schiller & Malouf, 2000). Up-to-date information regarding the best available evidence exists within expensive journals and databases that few school districts can afford. However, even when given physical access to the documents, practitioners are often unable to meaningfully interpret the complex array of results and technical language (Jones, 2009). School districts provide a limited number of professional development opportunities focused on up-to-date research pertinent to the unique student population of special education teachers (SETs; Greenway et al., 2013; Mazzotti & Plotner, 2016). Practitioners also question the overall practical relevance, usability, feasibility, and trustworthiness of the evidence presented (Greenwood & Abbot, 2001; Koch et al., 2006; Landrum et al., 2002; Landrum & Collins, 2018). When asked, they express skepticism that the practice will remain effective outside of the research model classroom and doubt that the study included students and settings like theirs (Hudson et al., 2016; Jones, 2009). Furthermore, there is a general concern about a researcher's ability to manipulate the data to show positive results (Sasso, 2001). A variety of physical, financial, and epistemological barriers fuel the disconnect between research and practice.

The gap continues to endure in special education, even with efforts made to promote the use of EBPs in legislation and recent literature (Cook & Schirmer, 2006; Cook, Tankersley, Cook, & Landrum, 2008). This discrepancy is especially problematic for students with disabilities based on the population's complex instructional needs and history of poor educational outcomes (Epstein et al., 1989; Reid et al., 2004; Trout et al., 2003). Scaling-up initiatives and the field of implementation science have devoted time and resources to lessen the research-to-practice gap (Cook et al., 2013; Cook & Odom, 2013; Fixsen et al., 2013; Klingner et al., 2013). Though, sources in the literature describe very little progress over the years towards

lessening the discrepancy between research and practice, even with the general success of the EBP identification process (Cook & Cook, 2013; Cook & Cook, 2016; Cook & Odom, 2013; Sciuchetti et al., 2016).

Systematic reviews serve as a reliable and convenient resource meant to communicate the current state of evidence and the implications for the findings. A limited number of systematic literature reviews outside of the education field address barriers to EBP use (e.g., social workers, Gray et al., 2013; medicine, Swennen et al., 2013; Zwolsman et al., 2012). Related to education, Hepburn and Beamish (2019) conducted a systematic literature review on the state of the implementation (i.e., beliefs, use, and implementation barriers and supports) of classroom management EBPs in general education or mainstream settings across Australia and the United States. Authors reported variability in use, citing the underuse of many classroom management EBPs. They conjectured that teachers inflated use on self-report measures given the discrepancy between self-reports and observation study data. Hepburn and Beamish (2019) excluded studies focusing on special education and alternative settings and narrowly concentrated on the state of EBPs in the area of classroom management. Numerous primary studies address the knowledge and use of a wide variety of EBPs in applied settings (e.g., Brock et al., 2020; Brown et al., 2010; Burns et al., 2009; Paynter et al., 2018; Upton & Upton, 2006), however, few research syntheses summarize these studies in either the medical or educational literature base.

The current research team is not aware of a systematic literature review or meta-analysis reporting on the overall knowledge and use of any category of EBP (i.e., population-specific, autism; strategy type, transition; content areas, math) by special education personnel in the school-based settings. A synthesis of the current literature may document base rates in special education and identify gaps in the knowledge base for future study. Furthermore, a study of this

type may serve as a potential indicator of the success of current programs focused on increasing the use of EBPs, illustrate the need for increased emphasis on implementing, and serve as the foundations for future initiatives. With this in mind, the current study seeks to address the existing need for a comprehensive review of the literature examining special education personnel's knowledge and use of EBPs across student populations, practice type, and content areas. Two research questions guide this study:

- a) What level of knowledge do special education personnel in EC-12 school-based settings have regarding EBPs based on a comprehensive systematic literature review?
- b) How often are EBPs used by special education personnel in EC-12 school-based settings based on a comprehensive systematic literature review?

Method

The first author developed and followed protocols in coordination with the recommended practices of PRISMA (Page, McKenzie, et al., 2021; Page, Moher, et al., 2021) and field-specific standards (Talbot et al., 2018). Current systematic literature review standards recommend a team approach to adhere to methodological guidelines and standards (Johnson & Hennessy, 2019; MacEachern et al., 2017; Wang, 2019). This project enlisted the help of a university librarian specializing in systematic literature reviews to develop the search plan and run the electronic database search. The first author, a doctoral candidate in educational psychology, served as the primary article screener during the search process and coder. Experience relevant to this review included prior experience as a SET, research interests related to teacher preparation and training, and past participation in several systematic literature reviews and meta-analyses. A doctoral student studying educational psychology with special education expertise and prior experience as a classroom teacher assisted as the second independent reviewer for both the

search and coding process. In addition, the first author incorporated feedback from a team of content area experts during the data synthesis process.

Literature Search

The systematic search was conducted in September 2020 and included the following electronic databases: Educational Administration Abstracts, Educational Resources Information Center (ERIC), Education Source, Academic Search Ultimate, and PsycINFO. These databases include grey literature in addition to traditional peer-reviewed manuscripts. Grey literature encompasses a variety of sources but generally refers to articles not published in a peer-reviewed journal and includes materials such as government reports, dissertations, theses, and conference abstracts (Booth et al., 2016). Boolean search methods encompassed keywords of *special education* and *evidence-based practice*. Keyword searches varied based on database-specific thesaurus terms to allow for a thorough and custom search process. An example of the database-specific search terms used for ERIC is as follows: *(DE "Evidence Based Practice" OR TI evidence based practice* OR AB evidence based practice* or TI(ebp) or AB(ebp)) AND (DE "Special Education" OR TI "special education" OR AB "special education")*. There were no time restrictions on the database search. Initial database searches identified 1,776 articles that resulted in 988 unique items after the removal of duplicates. See Figure 1 for a graphic display of the number of articles screened, included, and excluded at each step of the process. Full search terminology for each database is available in Appendix A.

Title and Abstract Review

Titles and abstracts were imported into Rayyan, a web-based systematic review platform (Ouzzani et al., 2016). The first author evaluated the 988 articles against the predetermined inclusion and exclusion criteria. After reviewing titles and abstracts, 60 articles met the inclusion

criteria. Current systematic literature review standards recommend making inclusion decisions in duplicate by two independent reviewers during each stage of the process (Methods Group of the Campbell Collaboration [MGCC], 2017; Talbott et al., 2018). The secondary independent reviewer screened all articles for inclusion at the title and abstract level, which resulted in 95% agreement with the first author's decisions. Raters resolved disagreements through discussion and a review of the abstract and inclusion criteria. Screeners retained the article for the full-text review process if they could not make a definitive eligibility determination based on the information provided in the title and abstract.

Articles were included if they met the following criteria: a) written in English; b) an article in a peer-reviewed journal, dissertation, thesis, government report, or conference proceeding; c) used a quantitative or qualitative research design that did not include the manipulation of variables in the environment (e.g., survey, observation, semi-structured interview); d) directly reported on the knowledge or use of EBPs; e) included SETs, paraprofessionals, transition specialists, early childhood special education professionals, pre-service SETs, special education administrators, or other special education service providers as participants; and f) participants self-reported employment in preschool through 12th-grade school-based settings including public, private, charter, or alternative schools. *Knowledge* is defined as the practitioner's familiarity (i.e., understanding, awareness, preparedness) with the procedural steps to perform the EBP in application or the awareness of the practice's status as an established EBP from the research literature and current standards. *Use* is defined as the degree to which the practitioner engages in the practice in their current work setting. No geographic limitations were applied. Experimental studies were excluded because the introduction of an

intervention may inflate knowledge and use levels, which result in scores that are not representative of typical practice.

Full-Text Review

Full texts of the 60 remaining articles from the title and abstract review were uploaded into Rayyan for a thorough evaluation against inclusion criteria. The following inclusion criteria were added to the full-text review process: a) study must provide disaggregated outcome data for special education personnel if the investigation incorporated populations in addition to those that met criteria for the present review (e.g., general education teachers) and b) manuscript authors must explicitly identify practices as an EBP, not other terms such as best, recommended, effective, or research-based practices. After the full-text examination, 22 studies remained. A second independent reviewer completed a full-text review of all articles producing a 95% agreement rate. Reviewers followed a similar protocol to the title and abstract review process, and all resolved disagreements by a careful review of the study text and discussion of the inclusion criteria. Articles were excluded for wrong study design (8 articles), not measuring and reporting the knowledge or use of EBPs (22 articles), and not including disaggregated outcome data for special education personnel (8 articles).

The research team did not independently verify if the practices labeled as evidence-based by the author teams of the included manuscripts were supported by evidence-based reviews adhering to current standards (Cook et al., 2014; WWC, 2020). Rather, this study assumed quality in the practice choice and evidence label based on the peer review process (i.e., journal and editor reviewers; dissertation committee review) and recognize changes in EBP standards across time. All included articles were published after the foundational *Exceptional Children*

special issue related to identifying EBPs in special education (Gersten et al., 2005; Horner et al., 2005; Odom et al., 2005).

Additional Searches

The research team conducted supplementary searches per current methodological recommendations (Booth et al., 2016; Harris et al., 2014; Talbott et al., 2018). A hand search (i.e., table of contents search) in eight prominent and relevant journals from 2010 to December 2020 generated three additional studies from the 2,788 total items inspected (Brock et al., 2020; Morin et al., 2020; Plotner et al., 2016). Journals were selected based on relevance to the research question and publication of articles already included in the systematic review. Journals included: *Behavioral Disorders*, *Exceptional Children*, *Focus on Autism and Other Developmental Disabilities*, *Preventing School Failure, Remedial and Special Education*, *Teacher Education and Special Education*, *The Journal of Special Education*, *School Psychology Review*. Next, the primary author conducted reference and forward searches of all retained studies which resulted in the identification of seven articles (Bradley-Black, 2013; Denniston, 2017; Dynia et al., 2020; Ferreri et al., 2016; Keefe, 2017; Mutua, 2019; Probst & Kyei-Blankson, 2017) A reference or ancestral search involved the first author manually examining each of the retained articles' reference lists (3,105 items reviewed) from full-text review. Following this, the same articles were imputed into Google Scholar for a forward search using the cited by feature (1,019 items reviewed). A total of ten studies were found through the supplementary searches representing 31% of studies included.

The second independent reviewer also reviewed at least 20% of each supplementary search chosen by a random number generator to assess the inter-rater agreement for the reliability of the inclusion decisions. The reviewer screened two journals (*Remedial and Special*

Education, Behavior Disorders), representing 23% of the individual items reviewed for the hand search, which resulted in 100% agreement for inclusion decisions. A second review of the forward and ancestral searches of seven articles (22%) resulted in 96% and 99% agreement, respectively. Similar to electronic database search, reviewers resolved all disagreements through discussion and a review of the inclusion criteria and the article's full text.

Study Coding

A total of 32 studies met inclusion criteria for this literature review after all searches were complete. Talbott et al. (2018) recommend obtaining information (i.e., coding) from the included studies in a format that facilitates easy data analysis. The first author created a coding tool in Google Forms, which populates the collected form data into a practical spreadsheet for analysis. The coding form included four categorical sections: source information, participant and setting characteristics, method characteristics, and outcomes. Table 1 outlines items coded under each categorical section. The secondary reviewer coded 30% of the included articles. Data extraction codes were taught in a 30-minute training. Interrater agreement was calculated as simple agreement over agreement plus disagreement and was reported as 94%. Disagreements were spread across categories with no more than two coding discrepancies per broad category. A reexamination of the study text by both reviewers resolved all disagreements regarding coding.

Study-Level Outcomes

Many studies provided detailed tables outlining participant outcomes for numerous EBPs. The first author manually entered all the individual practice-level results in a Microsoft Excel spreadsheet to calculate an overall mean for the dependent variables (i.e., knowledge, use) in each study if the authors did not provide it in the original manuscript. For example, Borders et al. (2015) surveyed participants about their knowledge and use of 25 practices. Outcomes for all 25

practices listed in Microsoft Excel and then averaged to produce a study-level mean for knowledge and another for use. The team completed this process for 26 studies identified in Table 3 with an Asterix (*) in the results column.

Practice-Level Outcomes

Many of the EBPs overlapped across the included studies. Though, the terminology and descriptions varied slightly. The current project developed an iterative categorization process based on a qualitative content analysis approach to transform a large amount of practice description text into organized categories (Dixon-Woods et al., 2005; Erlingsson & Brysiewicz, 2017; Hsieh & Shannon, 2005; White & Marsh, 2006). The process involved a three-step process analyzing the data set for exact word matches, then clear equivalences, and finally categorizing based on commonalities. To begin, the first author entered all practices from each study in a Microsoft Excel spreadsheet using the exact language text taken from the article in the coding process (n = 517 units). Sorting the spreadsheet in alphabetical order allowed identification of identical word matches (e.g., visual strategies; visual strategies). Duplicates were combined, resulting in a new total of 232 units. Following this, equivalent practices but not exact-word matches (e.g., discrete trial training & discrete trial teaching) were collapsed, leaving a total of 173 units. Similar to the formulating codes step in qualitative content analysis (Erlingsson & Brysiewicz, 2017), classifying equivalent practices involved minimal interpretation of the text.

The final step in the aggregation process involved combining entries into similar categories relying on the practice definitions included in the original study and the literature (e.g., Steinbrenner et al. 2020) to illustrate the commonalities among entries and terminology changes over time. A research team with expertise in special education, led by the first author, reviewed a draft list of the broad categories with the corresponding entries from the included

studies as a measure of face validity. Minor edits were made based on the feedback (e.g., combining prompting and time delay). A final list of 25 practice categories encompassed 85% of the original total entries of 517 entries. See Appendix B for the full list of categories and corresponding practices from each study. Due to the scope of the work and the distribution of the results, results reporting will focus on the outcomes from the 10 highest-frequency practice categories most often incorporated in the included studies, which represents 27 studies and 53% of the total entries. See Table 4 for a list of the top ten practice categories and the number of studies and units represented.

Results

Overall, 32 studies met inclusion criteria and ranged in year from 2009-2020. Just over half (56%) were published in peer-reviewed journals, with the rest of the studies classified as a dissertation. Five articles disclosed financial support from a federal agency (Burns & Ysseldyke, 2009; Guckert et al., 2016; Morin et al., 2020; Stormont et al., 2011) or internal university funds (Borders et al., 2015). See Table 3 for the results summary. Terms in italics represent article-specific language and descriptors for the outcome data (i.e., not the present authors' interpretation of the outcome data).

Participant Demographics and Setting

A total of 24,393 participants were represented across the 32 articles, with Morin et al. (2020) responsible for a large portion (79%) of the current sample. Geographic locations encompassed all regions of the United States, as well as Australia and the Czech Republic. The majority (86%) of participants self-identified as White. All studies included SETs with select studies also incorporating special education administrators (Bak, 2013; Carter et al., 2011; 2012), behavior specialists (Beam & Mueller, 2017; Vincent, 2019), related service personnel (Beam &

Mueller, 2017; Morin et al., 2020), paraprofessionals (Ferreri et al., 2016; Morin et al., 2020), and participants classified as “other” (Carter et al., 2011; 2012; Ferreri et al., 2016; Beam & Mueller, 2017). Percentages of participants represented in this review were comparable across elementary, middle, and high school, and a noticeable lower number of participants in early childhood settings. Exactly half of the studies provided the highest degree earned for survey respondents. The majority (64%) of the participants earned a master’s degree or higher, and the rest of the participants held a bachelor’s degree or another type of degree or certificate (e.g., associate degree). All studies included participants in public schools, with seven studies also targeting alternative schools and three studies involving private schools. Few articles informed on years’ experience in similar enough ways to allow for a narrative comparison, but experience varied widely to include participants at all stages in their career. See Table 2 for further information on participant demographics.

Methodology Characteristics

Not all studies provided data for both research questions. Studies reporting on knowledge totaled 15, and 26 addressed use. Most (91%) studies employed a survey to assess the knowledge and use of EBPs, with two of those (Emanuel, 2017; Jones, 2009) also including follow-up observations. Survey response rates ranged from 11.4% to 84% ($M = 34\%$). Morin et al. (2020) reported practice-specific professional development module pretest scores as an indicator of knowledge. Two studies took a qualitative approach. Callaway (2014) conducted semi-structured interviews, and Guckert et al. (2016) measured use through artifact analysis and semi-structured interviews. A majority of studies investigated practices identified as evidence-based for a specific student population, including autism (50%), emotional and behavioral disorders (13%), high incidence disabilities (6%), and intellectual disabilities (6%). In comparison, other author

teams focused on EBPs in the areas of classroom management or behavior (6%), math instruction (3%), transition services (3%), or general instructional strategies (19%). See Table 3 for survey scale details and references for the evidence-based reviews author teams cited as the source in the literature categorizing the included practices as evidence-based.

Study-Level Outcomes

Knowledge of EBPs

Eight studies specifically focused on the knowledge of EBPs identified for students with autism. Probst et al. (2017) and Borders et al. (2015) stated that, on average, about two thirds of the SETs surveyed were familiar with the EBPs, while McNeill (2019) found a slightly higher percentage (84.5%). Denniston (2017) assessed knowledge by asking participants to identify if the practice qualified as an EBP and discovered that the SETs correctly labeled about two thirds of the time. Over 19,000 practice-specific module pretest scores (Morin et al., 2020) from SETs, paraprofessionals, and related service personnel averaged out to a score of about two thirds of the problems correct. SETs reported knowledge levels at 3.01 (*knowledgeable*; Chatlos, 2016) and 2.1 (*limited knowledge*; Keefe, 2017) on a four-point scale, and 2.27 (*somewhat-very*; Aukes, 2018) based on a three-point scale.

The remaining seven articles addressed knowledge of EBPs with various content and student population foci. Survey data indicated that 80% of SETs and behavior analysts from Vincent (2019) felt prepared to implement EBPs for EBD, while Gable et al. (2012) also found about the same percentage of SETs were at least adequately prepared. SETs in Stormont et al. (2011) reported knowledge levels of EBPs for EBD at 4.4 (*agree-strongly agree*) on a five-point Likert scale. Two studies investigated the knowledge of classroom management and behavioral strategies and discovered *average to above average* (Beam & Mueller, 2017) and *medium to*

high (Ficarra & Quinn, 2014) scores. SETs described *somewhat to great* knowledge for EBPs identified for high incidence disabilities (Jones, 2009) and *somewhat to knowledgeable* (Bradley-Black, 2013) scores for general instructional practices.

Use of EBPs

Researchers investigated the use of EBPs for improving outcomes of individuals with autism in 14 studies. Five studies presented SETs with a list of EBPs and asked if they used each practice, which resulted in a range of 38%-85% of respondents indicating use across the practices (Callaway, 2014; Denniston, 2017; Ferreri et al., 2016; Grimm, 2015; Mutua, 2019), whereas McNeill (2019) reported a little less than half of the participants using the EBPs often or frequently. Both Borders et al. (2015) and Probst et al. (2017) found that the percentage of SETs familiar with the practices that had used them in the last month averaged out to be 42% and 46.9%, respectively. Dynia and colleagues (2020) prompted SETs to describe their approach to teaching nine outcomes for students with autism and coded responses for the inclusion of a list of 29 EBPs. This resulted in 97.6% using at least one EBP in any outcome area. Though, teachers endorsed 13 of the EBPs in less than 25% of responses and 10 EBPs not at all, leading to an average of 14.3% use across practices. Similarly, Brock et al. (2020) invited SETs to explain their approach for two high-priority goals of a current student with autism and examined the answers for the use of 28 EBPs. On average, SETs described using the list of EBPs in 3.06% of the goals. Three studies used a Likert scale and found SETs on average *sometimes* (Aukes, 2018), *usually* (Hoover, 2013), and *at least monthly* (Knight et al., 2019) employ EBPs.

Several studies took a more general approach and explored the use of EBPs across all student populations and content areas. Tomasi (2020) asked five SETs to describe the EBPs they used in their classroom, and two indicated they did not use EBPs, one described strategies that

are not considered evidence-based, and two provided EBPs as responses. Taking a qualitative approach to assessing EBPs use, Guckert et al. (2016) interviewed SETs and collected teaching artifacts (e.g., lesson plans, sample teaching strategies). While all SETs believed they were using EBPs, teacher statements and artifacts suggested some implemented and others only sometimes implemented. Burns & Ysseldkye (2009) investigated the frequency of EBPs in special education to determine overall prevalence finding SETs on average use between *at least one a week* to *almost every day* ($M = 4.1/5$) for the three practices identified as effective. Carter and colleagues conducted two replication studies of Burns & Ysseldyke (2009) with scores of 3.83/5 in Australia (Carter et al., 2011) and 4.62/5 in the Czech Republic (Carter et al., 2012).

The final six studies assessed the use of EBPs in three areas. Vincent (2019) surveyed SETs and behavior interventionists and found an average of 72.4% use across the list of EBPs for students with EBD, while 82.8% of SETs in Gable et al. (2012) *at least sometimes used* and special education personnel implemented between *sometimes* and *often* in Bak (2013). Both Emanuel (2017) and Jones (2009) explored SET use of EBPs for students with high incidence disabilities with a survey and follow-up observation. Emanuel (2017) discovered *consistent use* to *daily use* in the survey with all three participants displaying EBPs in the observation, and Jones (2009) somewhat to great levels of use with frequencies lower in observation. In the only study addressing secondary transition practices, Plotner et al. (2016) revealed middle school and high school educators *sometimes* to *often* implement EBPs across seven transition areas.

Practice-Level

Most of the included studies (94%; 30 studies) examined the knowledge and/or use of a specific list of EBPs ranging in length from three to 46 unique practices, with 28 of those studies providing an individual score for each practice in the manuscript. The 10 practice categories

most often incorporated in the included studies were as follows in alphabetical order: antecedent-based interventions (ABI); functional behavior assessment (FBA); modeling (MD); naturalistic intervention (NI); peer-based instruction & intervention (PBII); reinforcement-based strategies (RBS); self-management (SM); social narratives (SN); and technology-aided instruction and intervention (TAII); visual supports (VS). Studies assessed the knowledge and use of practices under the PBII category most often, with 69% of studies including at least one practice under this category. Knowledge and use scores vary widely within each practice category representing low, moderate, and high levels across the included studies. See Table 5 and Table 6 for a detailed report of knowledge and use outcomes broken down by practice category. Results demonstrate generally higher scores for knowledge than use considering the measurement scale.

Discussion

This systematic literature review examined the knowledge and use of EBPs by special education personnel working in school-based settings serving students in early childhood through high school. After a comprehensive search of the literature, 32 studies met inclusion criteria and were reviewed for content. A majority (75%) of the studies only included SETs, whereas the remaining studies also incorporated paraprofessionals, behavior specialists, special education administrators, and related service personnel. Author teams mostly relied on survey research (91%) and self-report data (97%) to gauge current levels. Data show within and across study variability at both the study and practice level, demonstrating low, moderate, and high knowledge and use scores and noticeable differences in outcomes based on measurement method. This systematic review contributes to a currently limited literature base synthesizing knowledge and use of EBPs. Hepburn and Beamish (2019) examined the implementation of classroom management EBPs in general education settings across the United States and

Australia. The current literature review expands the work of Hepburn and Beamish (2019) by focusing on special education personnel across settings and opening the inclusion criteria to include all categories of EBPs and geographic regions. The results of this review reveal several findings worth noting related to the levels of knowledge vs. use, measurement method, and the current representation EBPs for autism in the included studies.

Knowledge and use levels varied when comparing results at the study and practice level. Differences in reporting characteristics, method of measurement, and practices chosen across the included studies limited direct quantitative comparisons. Overall, participants demonstrated moderate to high knowledge levels across studies considering scale differences. In contrast, use levels presented greater variability in the outcomes with the inclusion of low, moderate, and high scores. The pattern continues when examining the practice-level data with knowledge scores in the mostly moderate to high range and use scores for specific practices fluctuating from very low (e.g., Brock et al., 2020; Dynia et al., 2020) to high levels (e.g., Denniston, 2017; Gable et al., 2012; Mutua, 2019). Eight studies measured both knowledge and use levels, and in all but one (Gable et al., 2012), participants consistently reported notably lower use than knowledge. The present results suggest that special education personnel have knowledge of more EBPs than they routinely choose to implement in practice.

Supplementary analyses in the included studies pose potential reasons for why this discrepancy between knowledge and use exists. Probst et al. (2017) and Borders et al. (2015) examined the relationship between familiarity, use, and perceived effectiveness. They discovered that while many SETs reported familiarity with a particular practice, they did not believe it was an effective strategy which certainly could lead to lower use levels. Comparably, McNeill (2019) surveyed SETs and found greater knowledge and perceived social validity levels predict more

frequent use of the EBPs. It stands to reason that practitioners must view the practice as acceptable, feasible, and aligned to their current context to warrant use. A simple explanation may be that the practitioners choose only the EBPs appropriate for their setting and the individual student needs. Nearly 85% of SETs surveyed by Knight and colleagues (2019) reported that individual student needs influenced their decision about the choice of instructional practices to a great extent, which corresponds with results from Emanuel (2017). The current studies suggest factors such as perceived effectiveness, social validity, and individual student needs may contribute to the differences across knowledge and use levels. However, the existing data set also points to the possibility of variability in use scores partially due to measurement.

All studies examining use incorporated a self-report measure to assess implementation levels. Most of these studies either presented a specific list of practices with accompanying questions about rates or asked generally about participant use. Three studies (Brock et al., 2020; Dynia et al., 2020; Tomasi, 2020) diverged from the rest of the self-report measures by requesting an open-ended narrative of current practices and coding for the existence of EBPs within the responses. An examination of practice-level data reveals substantially lower practice-specific use scores for studies that coded for the presence of EBPs in open-ended responses compared to studies that incorporated lists of EBPs. Comparably, Hepburn and Beamish (2019) synthesized the literature related to the use of classroom management EBPs in general education settings and found generally lower use rates in studies choosing school-based observations rather than studies incorporating self-report measures. Dynia et al. (2020) and Brock et al. (2020) postulate the existence of a list of specific practices may influence participant responses and therefore called for a more impartial and direct approach to supplement the self-report method with open-ended responses. Participant self-report tendencies such as extreme responding (i.e.,

only selecting options at the edges of the scale) or acquiescent responding (i.e., consistently choosing positive responses) may influence the validity of Likert-style responses to a list of practices (Meisenberg & Williams, 2008). Further, it might also be important to take into consideration the influence of socially desirable responding (i.e., tendency to answer in a way that presents oneself in a positive way; Paulhus, 1984; Van de Mortel, 2008) when given a list of professional practices from a researcher. Overall, the findings of the present review bring up an important discussion related to the potential influence of the procedural and measurement characteristics on participant responses about their knowledge and use of EBPs.

Half of the included studies concentrated on EBPs identified for students with autism, which far outnumbered other student populations and content areas. Recent reports (U.S. Department of Education, 2020) indicate that only 11.4% of children ages 3-5 and 10.5% of the students aged 6 through 21 received special education services under the primary category of autism. The disproportionate representation of studies examining the knowledge and use of EBPs of special education personnel teaching students with autism speaks to the importance placed on the identification and the current state of EBPs in autism research and practice. The field's motivation to emphasize and assess the prevalence of EBPs may stem from a long history of fad and unsubstantiated treatments marketed for individuals with autism (Metz et al., 2005; Morin et al., 2020; Zane et al., 2008). Federally funded and broad evidence-based reviews (Hume et al., 2021; Odom et al., 2010; Wong et al., 2015) examine the intervention literature and provide a comprehensive list of autism-specific EBPs with clear and easy to understand resources for researchers and practitioners (e.g., Sam et al., 2020; Steinbrenner et al., 2020). The frequency of published articles and dissertations focused on EBPs for autism may also stem from the organization and clarity that is provided by these all-inclusive reviews. While evidence-based

reviews exist across other student populations and content areas (Simonsen et al., 2008; Spooner et al., 2019; Test et al., 2009), one could argue that none match the size, scope, and authority of these regularly updated reviews in the field of autism.

Limitations

There are some limitations to consider with this systematic literature review. First, the present review does not include an evaluation of study quality, which allows the reader to consider the outcomes with a contextual understanding of the study's adherence to current research standards. However, the special education research community has yet to explicitly recommend a set of quality indicators for survey or descriptive observation studies. On a similar note, the research team did not verify that the practices identified in the included studies met the current standards to be labeled an EBP at the time of the study. It is possible that one or more of the practices included in this review no longer qualify as an EBP under the updated guidelines (Cook et al., 2014; WWC, 2020). Verification of status was beyond the scope of this review due to the changes in EBP standards across time and an inability to determine the literature base and standards at the time of data collection.

Additionally, eligibility criteria for this systematic literature review omitted studies measuring the knowledge or use of research-based practices, best practices, and other terms commonly used to denote effective teaching. Prior research may have examined the prevalence of research-based practices or best practices, which have since been determined to be evidence-based that were excluded. Though, the purpose of the current review is situated in the broader goal of exploring the effects of the EBP initiative in the special education field and the impact of identifying a practice as evidence-based on practitioner knowledge and use levels. Finally, the reader should interpret the synthesis with an understanding of the vastly different sample sizes

across the included studies when comparing outcomes (e.g., $n = 3$, Emanuel, 2017; $n = 19,213$, Morin et al., 2020). However, this review did not quantitatively summarize outcomes across studies, and the most notable sample size outlier (Morin et al., 2020) did not provide disaggregated participant data to be included in the overall percentages for participant grade level, highest degree, race, and geographic region.

Implications for Research, Policy, and Practice

Findings from this systematic literature review provide implications for research. The first of which identifies the need for additional research investigating the prevalence of EBPs identified for other disability categories and content areas beyond EBPs for individuals with autism. Further, the field may benefit from future studies, including more diverse participants across all special education personnel categories. The number of paraprofessionals exceeds currently employed SETs in the United States (U.S. Department of Education, 2020), and paraprofessionals often deliver a large portion of instruction for students with high support needs (Brock et al., 2015; Giangreco et al., 2010). That being said, the field may want to consider increasing attention on assessing paraprofessional knowledge and use of EBPs. Finally, future research should investigate the measurement characteristics (e.g., self-report vs. direct observation or assessment; list of practices vs. open-ended response) of the approaches used to assess the knowledge and use of EBPs in school-based settings. It might be beneficial to explore how the research approach impacts the results, given the variability in scores across the included studies. In other words, does the response change if a researcher asks the same question in a different way? If so, the findings would hold important implications about the validity of the scores and the design of this research moving forward.

Education policy has played an essential role in the proliferation of the EBP initiative through legislation (ESSA, 2004; IDEA, 2004; NCLB, 2001), guidance (e.g., U.S. Department of Education, 2016), and grant funding (e.g., Institute of Education Sciences [IES]). The results of the current review offer policy implications related to EBP identification, accessibility, and implementation support. First, federal grant programming should consider putting out a call for grant proposals to conduct a review of the intervention literature comparable to the autism evidence-based reviews to identify a comprehensive list of EBPs for other student populations. Next, moderate knowledge levels indicate the continued need for federal funding to support the creation of accessible EBP learning opportunities and resources for special education personnel. Morin et al. (2020) reported over 19,000 AFIRM module pretest scores for special education personnel, signifying the quantifiable impact of free, credible, and user-friendly training materials that were funded by the Office of Special Education Programs and IES (Sam et al., 2020). Lastly, the discrepancy between knowledge and use may suggest the need for an increased emphasis on implementation in education policy. Seemingly moving in that direction, the director of IES explains, “IES is increasingly interested in moving from identifying what works to improving what happens” (IES, 2019, p. 3).

Results from this review offer implications for school district leaders and teacher trainers. It appears that special education personnel are familiar with more EBPs than they regularly use in practice, which in addition to the reasons mentioned above, may partially demonstrate the need for implementation support. Research suggests one-time passive workshops do very little to change behavior (e.g., Dufrene et al., 2014). If possible, district leaders might consider allocating a portion of their professional development funds for implementation efforts (e.g., coaching cycles, peer feedback programs, self-monitoring) in addition to the typical didactic trainings.

Further, districts should ensure the internal and external professional development opportunities they fund focus on EBPs. At present, not all effective practices have an evidence-based review or enough experimental studies meeting standards (Cook et al., 2014; WWC, 2020) for an evidence-based review. Lists of EBPs will evolve. Teacher educators should embed program objectives related to locating current lists of EBPs (i.e., publicly available, outside of a textbook), distinguishing trustworthy sources, and knowing where to reach out for support and resources. Borrowing from a common proverb, this approach compares to teaching the pre-service teacher to fish rather than giving them a few fish and expecting it to sustain them for a lifetime.

Conclusion

EBPs only hold meaning to the extent to which they are known and used in practice (Cook, Tankersley, Harjusola-Webb, 2008). The findings of this literature review focused on special education personnel in school-based settings suggest moderate knowledge and variability in use with a range of low to high levels across studies and practices. Results show cause for both celebration and concern. The current state of EBPs in school-based settings may not be as dismal as sometimes described in the literature, as several studies reported encouraging outcomes. Though, when put into context, even moderate levels hold significant implications at the student level when viewed in terms of the opportunity cost—*the educational benefit that could have been obtained* (Travers, 2017). The accumulation of even small amounts of time lost to ineffective practices may add up to a substantial educational loss for the student. Travers (2017) explains, “every student with a disability has a finite amount of time to receive special education services, and professionals are ethically obligated to maximize the impact of these limited services.” Researchers, policymakers, faculty in teacher preparation programs, and administrators share the responsibility to ensure practitioners can meet that ethical obligation.

References

*Indicates articles included in the literature review.

*Aukes, J. A. B. (2018). *Relationships between special education teaching experience and the implementation of evidence-based practices for students with autism* (Publication No. 10937791) [Doctoral dissertation, Grand Canyon University]. ProQuest Dissertations and Theses Global.

*Bak, N. L. (2013). *Best practices in programs for children with emotional behavioral disorders* (Publication No. 3588433) [Doctoral dissertation, State University of New York at Albany]. ProQuest Dissertations and Theses Global.

*Beam, H. D., & Mueller, T. G. (2017). What do educators know, do, and think about behavior? An analysis of special and general educators' knowledge of evidence-based behavioral interventions. *Preventing School Failure: Alternative Education for Children and Youth, 61*(1), 1-13. <http://dx.doi.org/10.1080/1045988X.2016.1164118>

Booth, A., Papaioannou, D., & Sutton, A. (2016). *Systematic approaches to a successful literature review*. Sage.

*Borders, C. M., Bock, S. J., & Szymanski, C. (2015). Teacher ratings of evidence-based practices from the field of autism. *Journal of Deaf Studies and Deaf Education, 20*(1), 91-100. <http://dx.doi.org/10.1093/deafed/enu033>

*Bradley-Black, K. (2013). *Teachers and evidence-based practices* [Unpublished doctoral Dissertation]. George Mason University.

Brock, M. E., & Carter, E. W. (2015). Effects of a professional development package to prepare special education paraprofessionals to implement evidence-based practice. *The Journal of Special Education, 49*(1), 39-51. <https://doi.org/10.1177%2F0022466913501882>

- *Brock, M. E., Dynia, J. M., Dueker, S. A., & Barczak, M. A. (2020). Teacher-reported priorities and practices for students with autism: characterizing the research-to-practice gap. *Focus on Autism and Other Developmental Disabilities, 35*(2), 67-78. <https://doi.org/gg7wr4>
- Browder, D. M., Wood, L., Thompson, J., & Ribuffo, C. (2014). Evidence-based practices for students with severe disabilities (Document No. IC-3). Retrieved from http://cedar.education.ufl.edu/wp-content/uploads/2014/09/IC-3_FINAL_03-03-15.pdf
- Brown, C. E., Kim, S. C., Stichler, J. F., & Fields, W. (2010). Predictors of knowledge, attitudes, use and future use of evidence-based practice among baccalaureate nursing students at two universities. *Nurse Education Today, 30*(6), 521-527. <https://doi.org/dg2jb3>
- *Burns, M. K., & Ysseldyke, J. E. (2009). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education, 43*(1), 3-11. <http://dx.doi.org/10.1177/0022466908315563>
- *Callaway, S. E. (2014). *A study of novice special education teachers' preparation to teach students with autism spectrum disorders* (Publication No. 3691138) [Doctoral dissertation, University of North Texas]. ProQuest Dissertations and Theses Global.
- Campbell Collaboration. (2019). Campbell systematic reviews: Policies and guidelines. *Campbell Policies and Guidelines Series No. 1*.
- Carnine, D. (1997). Bridging the research-to-practice gap. *Exceptional Children, 63*(4), 513-521. <http://dx.doi.org/10.1177/001440299706300406>
- *Carter, M., Stephenson, J., & Strnadová, I. (2011). Reported prevalence by Australian special educators of evidence-based instructional practices. *Australasian Journal of Special Education, 35*(1), 47-60. <http://dx.doi.org/10.1375/ajse.35.1.47>
- *Carter, M., Strnadová, I., & Stephenson, J. (2012). Reported prevalence of evidence-based

- instructional practices by special educators in the Czech Republic. *European Journal of Special Needs Education*, 27(3), 319-335. <https://doi.org/fsdk>
- *Chatlos, C. N. (2016). *Special education teachers and autism spectrum disorders: the role of knowledge and self-efficacy on burnout* (Publication No.10133318) [Doctoral dissertation, Fairleigh Dickinson University]. ProQuest Dissertations and Theses Global.
- Cook, B. G. (2015). How should evidence-based practices be determined? In B. Bateman, J. W. Lloyd, & M. Tankersley (Eds.), *Enduring issues in special education: Personal perspectives* (pp. 266-282). Routledge.
- Cook, B., Buysse, V., Klingner, J., Landrum, T., McWilliam, R., Tankersley, M., & Test, D. (2014). Council for Exceptional Children standards for evidence-based practices in special education. *Teaching Exceptional Children*, 46(6), 206-212.
- Cook, B. G., & Cook, S. C. (2013). Unraveling evidence-based practices in special education. *Journal of Special Education*, 47(2), 71-82. <https://doi.org/bhqsfb>
- Cook, B. G., & Cook, L. (2016). Leveraging evidence-based practice through partnerships based on practice-based evidence. *Learning Disabilities: A Contemporary Journal*, 14(2), 143-157.
- Cook, B. G., Cook, L., & Landrum, T. J. (2013). Moving research into practice: Can we make dissemination stick? *Exceptional Children*, 79(2), 163-180. <https://doi.org/f4j94r>
- Cook, B. G., Collins, L. W., Cook, S. C., & Cook, L. (2020). Evidence-based reviews: How evidence-based practices are systematically identified. *Learning Disabilities Research & Practice*, 35(1), 6-13. <https://doi.org/10.1111/ldrp.12213>
- Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children*, 79(3), 135-144. <https://doi.org/f4j96f>

- Cook, B. G., & Schirmer, B. R. (2003). What is special about special education? Overview and analysis. *The Journal of Special Education, 37*(3), 200-205. <https://doi.org/c8f6xv>
- Cook, B. G., Smith, G. J., & Tankersley, M. (2012). Evidence-based practices in education. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA educational psychology handbook: Volume 1 theories, constructs, and critical issues* (pp. 493-525). American Psychological Association.
- Cook, B. G., Tankersley, M., Cook, L., & Landrum, T. J. (2008). Evidence-based practices in special education: Some practical considerations. *Intervention in School and Clinic, 44*(2), 69-75. <https://doi.org/10.1177%2F1053451208321452>
- Cook, B. G., Tankersley, M., & Harjusola-Webb, S. (2008). Evidence-based special education and professional wisdom: Putting it all together. *Intervention in School and Clinic, 44*(2), 105-111. <https://doi.org/10.1177%2F1053451208321566>
- *Denniston, L. M. (2017). *Evidence-based practices for students with autism spectrum disorder*. (Unpublished doctoral dissertation). California State Polytechnic University, Pomona.
- Dillard, D. M. (2017). The history of evidence-based practice. *International Journal of Childbirth Education, 32*(2), 7-10.
- Dixon-Woods, M., Agarwal, S., Jones, D., Young, B., & Sutton, A. (2005). Synthesizing qualitative and quantitative evidence: A review of possible methods. *Journal of Health Services Research & Policy, 10*(1), 45-53. <https://doi.org/ggw4cd>
- Dufrene, B. A., Lestremay, L., & Zoder-Martell, K. (2014). Direct behavioral consultation: Effects on teachers' praise and student disruptive behavior. *Psychology in the Schools, 51*(6), 567-580. <https://doi.org/10.1002/pits.21768>
- *Dydia, J. M., Walton, K. M., Brock, M. E., & Tiede, G. (2020). Early childhood special

education teachers' use of evidence-based practices with children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 77, 1-12. <https://doi.org/gg7xf3>

*Emanuel, N. J. (2017). *Multiple-case design of secondary special educators teaching students with high-incidence disabilities in self-contained settings: Rationales for instructional strategy choices and perspectives on evidence-based practices* (Publication No.10277046) [Doctoral dissertation, George Mason University]. ProQuest Dissertations and Theses Global.

Epstein, M., Atkins, M., Cullinan, D., Kutash, K., & Weaver, R. (2008). Reducing behavior problems in the elementary school classroom (IES Practice Guide, NCEE 2008-012). What Works Clearinghouse. <https://files.eric.ed.gov/fulltext/ED502720.pdf>

Epstein, M., Kinder, D., & Bursuck, B. (1989). The academic status of adolescents with behavioral disorders. *Behavioral Disorders*, 14(3), 157-165. <https://doi.org/fsdg>

Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *African Journal of Emergency Medicine*, 7(3), 93-99. <https://doi.org/gc8xw3>

Every Student Succeeds Act, Pub. L. No. 114-95 (2015).

*Ferreri, S. J., Witmer, S. E., & Shivers, C. M. (2016). Autism spectrum disorders and evidence based practices: A statewide exploration of public school programming. *Austin Journal of Autism & Related Disabilities*, 2(2), 1-10.

*Ficarra, L., & Quinn, K. (2014). Teachers' facility with evidence-based classroom management practices: An investigation of teachers' preparation programmes and in service conditions. *Journal of Teacher Education for Sustainability*, 16(2), 71-87.
<http://dx.doi.org/10.2478/jtes-2014-0012>

Fixsen, D., Blase, K., Metz, A. & Van Dyke, M. (2013). Statewide implementation of evidence-

- based programs. *Exceptional Children*, 79(3), 213-230. <https://doi.org/f4j969>
- Forness, S. R. (2001). Special education and related services: What have we learned from meta-analysis? *Exceptionality*, 9(4), 185-197. https://doi.org/10.1207/S15327035EX0904_3
- *Gable, R. A., Tonelson, S. W., Sheth, M., Wilson, C., & Park, K. L. (2012). Importance, usage, and preparedness to implement evidence-based practices for students with emotional disabilities: A comparison of knowledge and skills of special education and general education teachers. *Education and Treatment of Children*, 35(4), 499-519. <https://www.jstor.org/stable/42900173>
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children*, 71(2), 149-164. <https://doi.org/gg9rsn>
- Giangreco, M. F., Suter, J. C., & Doyle, M. B. (2010). Paraprofessionals in inclusive schools: A review of recent research. *Journal of Educational and Psychological Consultation*, 20(1), 41-57. <https://doi.org/10.1080/10474410903535356>
- Gray, M., Joy, E., Plath, D., & Webb, S. A. (2013). Implementing evidence-based practice: A review of the empirical research literature. *Research on Social Work Practice*, 23(2), 157-166. <https://doi.org/10.1177%2F1049731512467072>
- Greenway, R., McCollow, M., Hudson, R. F., Peck, C., & Davis, C. A. (2013). Autonomy and accountability: Teacher perspectives on evidence-based practice and decision-making for students with intellectual and developmental disabilities. *Education and Training in Autism and Developmental Disabilities*, 48(4), 456-468. <https://www.jstor.org/stable/24232503>
- Greenwood, C. R., & Abbott, M. (2001). The research to practice gap in special education.

- Teacher Education and Special Education*, 24(4), 276-289. <https://doi.org/cp3ttb>
- *Grimm, L. K. (2015). *Educator's implementation of the Connecticut Guidelines for the Identification and Education of Children and Youth with Autism* (Publication No. 10162851) [Doctoral dissertation, Andrews University]. ProQuest Dissertations and Theses Global.
- *Guckert, M., Mastropieri, M. A., & Scruggs, T. E. (2016). Personalizing research: Special educators' awareness of evidence-based practice. *Exceptionality*, 24(2), 63-78. <http://dx.doi.org/10.1080/09362835.2014.986607>
- Guyatt, G. (2018). An introduction to evidence-based medicine [Video file]. In *The Biomedical & Life Sciences Collection, Henry Stewart Talks*. <https://hstalks-com.srv-proxy1.library.tamu.edu/bs/3768/>.
- Harris, J. D., Quatman, C. E., Manring, M. M., Siston, R. A., & Flanigan, D. C. (2014). How to write a systematic review. *The American Journal of Sports Medicine*, 42(11), 2761-2768. <http://dx.doi.org/10.1177/0363546513497567>
- Hepburn, L., & Beamish, W. (2019). Towards implementation of evidence-based practices for classroom management in Australia: A review of research. *Australian Journal of Teacher Education*, 44(2), 82-98. <http://dx.doi.org/10.14221/ajte.2018v44n2.6>
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288. <https://doi.org/bhp2s9>
- *Hoover, K. N. (2013). *Evidence-based interventions: An examination of pre-service training, professional development, and classroom implementation* (Publication No. 3611927) [Texas A&M University-Corpus Christi]. ProQuest Dissertations and Theses Global.

- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*(2), 165-179. <https://doi.org/gfpqfk>
- Hudson, R. F., Davis, C. A., Blum, G., Greenway, R., Hackett, J., Kidwell, J., Liberty, L., McCollow, M., Patish, Y., Pierce, J., Schulze, M., Smith, M. M., & Peck, C. A. (2016). A socio-cultural analysis of practitioner perspectives on implementation of evidence-based practice in special education. *The Journal of Special Education, 50*(1), 27-36. <https://doi.org/10.1177%2F0022466915613592>
- Hume, K., Steinbrenner, J. R., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yucesoy-Ozkan, S., & Savage, M. N. (2021). Evidence-based practices for children, youth, and young adults with autism: Third generation review. *Journal of Autism and Developmental Disorders*. Advanced online publication. <https://doi.org/10.1007/s10803-020-04844-2>
- Institute of Education Sciences. (2019). *Director's biennial report to congress: Fiscal years 2017 and 2018*. Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/pdf/IESBR2017_2018.pdf
- Individuals with Disabilities Education Act, 20 U.S.C. §§ 1400 et seq.
- Johnson, B. T., & Hennessy, E. A. (2019). Systematic reviews and meta-analyses in the health sciences: Best practice methods for research syntheses. *Social Science & Medicine, 223*, 237-251. <http://dx.doi.org/10.1016/j.socscimed.2019.05.035>
- *Jones, M. L. (2009). A study of novice special educators' views of evidence-based practices. *Teacher Education and Special Education, 32*(2), 101-120. <https://doi.org/bn2pqb>
- Kauffman J. M., & Sasso G. M. (2006). Toward ending cultural and cognitive relativism in

- special education. *Exceptionality*, 14(2), 65-90. <https://doi.org/fqkbbc>
- *Keefe, E. S. (2017). *Licensed but underprepared: Special educators' preparation to teach autistic students* (Publication No. 10687296) [Doctoral dissertation, Boston College]. ProQuest Dissertations and Theses Global.
- Klingner, J. K., Boardman, A. G., & McMaster, K. L. (2013). What does it take to scale up and sustain evidence-based practices? *Exceptional Children*, 79(2), 195-211. <https://doi.org/10.1177%2F001440291307900205>
- *Knight, V. F., Huber, H. B., Kuntz, E. M., Carter, E. W., & Juarez, A. P. (2019). Instructional practices, priorities, and preparedness for educating students with autism and intellectual disability. *Focus on Autism and Other Developmental Disabilities*, 34(1), 3-14. <http://dx.doi.org/10.1177/1088357618755694>
- Koch, L. C., Cook, B. G., Tankersley, M., & Rumrill, P. (2006). Utilizing research in professional practice. *Work*, 26(3), 327-331.
- Landrum, T. J., & Collins, L. W. (2018). Sources of evidence-based practice in EBD: Issues and challenges. In T. J. Landrum, B. G. Cook, & M. Tankersley (Eds.), *Emerging research and issues in behavioral disabilities* (pp. 131-143). Emerald Publishing.
- Landrum, T. J., Cook, B. G., Tankersley, M., & Fitzgerald, S. (2002). Teacher perceptions of the trustworthiness, usability, and accessibility of information from different sources. *Remedial and Special Education*, 23(1), 42-48. <https://doi.org/bkcc4g>
- MacEachern, M. P., Townsend, W. A., & Allee, N. J. (2017). Planning the review, part 2: Team dynamics and data management. In M. J. Foster & S. T. Jewell (Eds.), *Assembling the pieces of a systematic review: A guide for librarians* (pp. 49-65). Rowman & Littlefield.
- Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works*.

Association for Supervision and Curriculum Development.

Mazzotti, V. L., & Plotner, A. J. (2016). Implementing secondary transition evidence-based practices: A multi-state survey of transition service providers. *Career Development and Transition for Exceptional Individuals*, 39(1), 12-22. <https://doi.org/f824>

*McNeill, J. (2019). Social validity and teachers' use of evidence-based practices for autism. *Journal of Autism and Developmental Disorders*, 49(11), 4585-4594. <http://dx.doi.org/10.1007/s10803-019-04190-y>

Meisenberg, G., & Williams, A. (2008). Are acquiescent and extreme response styles related to low intelligence and education? *Personality and Individual Differences*, 44(7), 1539-1550. <https://doi.org/10.1016/j.paid.2008.01.010>

Methods Group of the Campbell Collaboration. (2017). Methodological expectations of Campbell Collaboration intervention reviews: Conduct standards. Campbell Policies and Guidelines Series No. 3.

Metz, B., Mulick, J. A., & Butter, E. M. (2005). Autism: A late-20th-century fad magnet. In J. W. Jacobson, R. M. Foxx, J. A. Mulick. (Eds.), *Controversial therapies for developmental disabilities: Fad, fashion, and science in professional practice* (pp. 237-263). Psychology Press.

*Morin, K. L., Sam, A., Tomaszewski, B., Waters, V., & Odom, S. L. (2020). Knowledge of evidence-based practices and frequency of selection among school-based professionals of students with autism. *The Journal of Special Education*. Advanced online publication. <https://doi.org/10.1177%2F0022466920958688>

*Mutua, F. N. (2019). *Aligning autism focused classroom teaching with evidence-based practices*. (Publication No. 22623036) [Doctoral dissertation, California State

- Polytechnic University]. ProQuest Dissertations and Theses Global.
- National Autism Center. (2008). *National Standards Project*. Author. <https://mn.gov/mnddc/asd-employment/pdf/09-NSR-NAC.pdf>
- National Autism Center. (2009). *Evidence-based practice and autism in schools: A guide for providing appropriate interventions to students with autism spectrum disorders*. National Standards Project.
- National Secondary Transition Technical Assistance Center. (2013). *Evidence-based practices and predictors: What we know and what we still need to know*. Author.
- No Child Left Behind Act of 2001, 20 U.S.C. 70 § 6301 et seq.
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children*, 71(2), 137-148. <https://doi.org/gf8rqw>
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure: Alternative Education for Children and Youth*, 54(4), 275-282. <https://doi.org/10.1080/10459881003785506>
- Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan—a web and mobile app for systematic reviews. *Systematic Reviews*, 5(1), 210. <http://dx.doi.org/10.1186/s13643-016-0384-4>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., & Moher, D. (2021). Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *Journal of Clinical Epidemiology*. Advanced online publication. <https://doi.org/gh29km>

- Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Gimshaw, J. M., Hrobjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: Updated guidance and exemplars for reporting systematic reviews. *BMJ*, *372*(n71), 1-9. <https://doi.org/10.1136/bmj.n71>
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, *46*(3), 598-609. <https://doi.org/czzm4j>
- Paynter, J., Sulek, R., Luskin-Saxby, S., Trembath, D., & Keen, D. (2018). Allied health professionals' knowledge and use of ASD intervention practices. *Journal of Autism and Developmental Disorders*, *48*(7), 2335-2349. <https://doi.org/gdrkn9>
- *Pearson, J. M. (2018). *Special educators' math instruction for high school students with significant intellectual disabilities*. (Publication No. 10956903) [Doctoral dissertation, University of Illinois at Chicago]. ProQuest Dissertations and Theses Global.
- *Plotner, A. J., Mazzotti, V. L., Rose, C. A., & Carlson-Britting, K. B. (2016). Factors associated with enhanced knowledge and use of secondary transition evidence-based practices. *Teacher Education and Special Education*, *39*(1), 28-46. <https://doi.org/f2gb>
- *Probst, K. M., & Kyei-Blankson, L. (2017). Familiarity, use and perceived effectiveness of evidence based practices among teachers of students with visual impairment and other comorbid conditions. *International Journal of School and Cognitive Psychology*, *4*(2), 1-10. <http://dx.doi.org/10.4172/2469-9837.1000195>
- Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of*

- Special Education*, 38(3), 130-143. <https://doi.org/10.1177%2F00224669040380030101>
- Russo-Campisi, J. (2017). Evidence-based practices in special education: Current assumptions and future considerations. *Child & Youth Care Forum*, 46(2), 193-205. <https://doi.org/10.1007/s10566-017-9390-5>
- Sackett, D. L., Rosenberg, W. M., Gray, J. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: What it is and what it isn't. *British Medical Journal*, 312, 71-72. <http://dx.doi.org/10.1136/bmj.312.7023.71>
- Sam, A. M., Cox, A. W., Savage, M. N., Waters, V., & Odom, S. L. (2020). Disseminating information on evidence-based practices for children and youth with autism spectrum disorder: AFIRM. *Journal of Autism and Developmental Disorders*, 50(6), 1931-1940. <https://doi.org/10.1007/s10803-019-03945-x>
- Sasso, G. M. (2001). The retreat from inquiry and knowledge in special education. *The Journal of Special Education*, 34(4), 178-193. <http://dx.doi.org/10.1177/002246690103400401>
- Schiller, E. P., & Malouf, D. B. (2000). Research syntheses: Implications for research and practice. In R. Gersten, E. P. Schiller, & S. Vaughn (Eds.), *Contemporary special education research: Syntheses of the knowledge base on critical instructional issues* (pp. 251-262). Routledge.
- Sciuchetti, M. B., McKenna, J. W., & Flower, A. L. (2016). Teacher knowledge and selection of evidence-based practices: A survey study. *Journal of Vincentian Social Action*, 1(2), 20-31. <https://scholar.stjohns.edu/jovsa/vol1/iss2/8>
- Scruggs, T. E., Mastropieri, M. A., Berkeley, S., & Graetz, J. E. (2010). Do special education interventions improve learning of secondary content? A meta-analysis. *Remedial and Special Education*, 31(6), 437-449. <https://doi.org/10.1177%2F0741932508327465>

- Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children, 31*(3), 351-380. <https://www.jstor.org/stable/42899983>
- Simpson, R. (2005). Evidence-based practices and students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 20*(3), 140-149. <https://doi.org/cxp8tr>
- Slavin, R. E. (2020). How evidence-based reform will transform research and practice in education. *Educational Psychologist, 55*(1), 21-31. <https://doi.org/gf4hzh>
- Spooner, F., Root, J. R., Saunders, A. F., & Browder, D. M. (2019). An updated evidence-based practice review on teaching mathematics to students with moderate and severe developmental disabilities. *Remedial and Special Education, 40*(3), 150-165. <https://doi.org/10.1177%2F0741932517751055>
- Steinbrenner, J. R., Hume, K., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yucesoy-Ozkan, S., & Savage, M. N. (2020). *Evidence-based practices for children, youth, and young adults with Autism*. The University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Institute, National Clearinghouse on Autism Evidence and Practice Review Team. <https://ncaep.fpg.unc.edu/sites/ncaep.fpg.unc.edu/files/imce/documents/EBP%20Report%202020.pdf>
- *Stormont, M., Reinke, W., & Herman, K. (2011). Teachers' characteristics and ratings for evidence-based behavioral interventions. *Behavioral Disorders, 37*(1), 19-29. <http://dx.doi.org/10.1177/019874291103700103>
- Sur, R. L., & Dahm, P. (2011). History of evidence-based medicine. *Indian Journal of Urology, 27*(4), 487-489. <http://dx.doi.org/10.4103/0970-1591.91438>
- Swennen, M. H., van der Heijden, G. J., Boeije, H. R., van Rheenen, N., Verheul, F. J., van der

- Graaf, Y., & Kalkman, C. J. (2013). Doctors' perceptions and use of evidence-based medicine: a systematic review and thematic synthesis of qualitative studies. *Academic Medicine, 88*(9), 1384-1396. <https://doi.org/f49k7m>
- Talbott, E., Maggin, D. M., Van Acker, E. Y., & Kumm, S. (2018). Quality indicators for reviews of research in special education. *Exceptionality, 26*(4), 245-265. <https://doi.org/gftjmr>
- Test, D. W., Fowler, C. H., Richter, S. M., White, J., Mazzotti, V., Walker, A. R., Kohler, P., & Korterling, L. (2009). Evidence-based practices in secondary transition. *Career Development for Exceptional Individuals, 32*(2), 115-128. <https://doi.org/cfhk63>
- *Tomasi, K. C. (2020). *Special education teachers' perceptions of evidence-based practice: A case study* (Publication No. 27997321) [Doctoral dissertation, Northcentral University]. ProQuest Dissertations and Theses Global.
- Torres, C., Farley, C. A., & Cook, B. G. (2012). A special educator's guide to successfully implementing evidence-based practices. *Teaching Exceptional Children, 47*(2), 85-93. <https://doi.org/10.1177%2F0040059914553209>
- Travers, J. C. (2017). Evaluating claims to avoid pseudoscientific and unproven practices in special education. *Intervention in School and Clinic, 52*(4), 195-203. <http://dx.doi.org/10.1177/1053451216659466>
- Trout, A., Nordness, P. D., Pierce, C. D., & Epstein, M. H. (2003). Research on the academic status of children with emotional and behavioral disorders: A review of the literature from 1961 to 2000. *Journal of Emotional and Behavioral Disorders, 11*(4), 198-210. <https://doi.org/10.1177%2F10634266030110040201>
- Upton, D., & Upton, P. (2006). Knowledge and use of evidence-based practice by allied health

- and health science professionals in the United Kingdom. *Journal of allied health*, 35(3), 127-133.
- U.S. Department of Education. (2016). *Non-regulatory guidance: Using evidence to strengthen education investments*. Author.
<https://www2.ed.gov/policy/elsec/leg/essa/guidanceeusesinvestment.pdf>
- U.S. Department of Education. (2020). 41st annual report to Congress on the implementation of the Individuals with Disabilities Education Act, 2019. Office of Special Education and Rehabilitative Services.
- Van de Mortel, T. F. (2008). Faking it: social desirability response bias in self-report research. *The Australian Journal of Advanced Nursing*, 25(4), 40-48.
- Vannest, K. J., Mahadevan, L., Mason, B. A., & Temple-Harvey, K. K. (2009). Educator and administrator perceptions of the impact of No Child Left Behind on special populations. *Remedial and Special Education*, 30(3), 148-159. <https://doi.org/cx3p6s>
- *Vincent, T. N. (2019). *Educator knowledge and usage of evidence-based interventions for students with emotional and behavioral disorders in special education programs across California*. (Publication No. 27741146) [Doctoral dissertation, Brandman University]. ProQuest Dissertations and Theses Global.
- Voelker, R. (2015). Everything you ever wanted to know about evidence-based medicine. *JAMA*, 313(18), 1783-1785. <http://dx.doi.org/10.1001/jama.2015.2845>
- Wang, J. (2019). Demystifying literature reviews: What I have learned from an expert? *Human Resource Development Review*, 18(1), 3-15. <https://doi.org/fsdj>
- What Works Clearinghouse. (2020). *What Works Clearinghouse: Procedures handbook (Version 4.1)*. Institute of Education Sciences, U.S. Department of Education.

<https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Procedures-Handbook-v4-1-508.pdf>

White, M. D., & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library Trends*, 55(1), 22-45. <https://doi.org/fp6f34>

Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2013). *Evidence-based practices for children, youth, and young adults with autism spectrum disorder*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group.

Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders*, 45(7), 1951-1966. <https://doi.org/10.1007/s10803-014-2351-z>

Zane, T., Davis, C., & Rosswurm, M. (2008). The cost of fad treatments in autism. *Journal of Early and Intensive Behavior Intervention*, 5(2), 44. <https://doi.org/f829>

Zwolsman, S., te Pas, E., Hooft, L., Wieringa-de Waard, M., & van Dijk, N. (2012). Barriers to GPs' use of evidence-based medicine: A systematic review. *British Journal of General Practice*, 62(600), 511-521. <https://doi.org/ggxbg6>

Figure 1

Article Search Flow Diagram

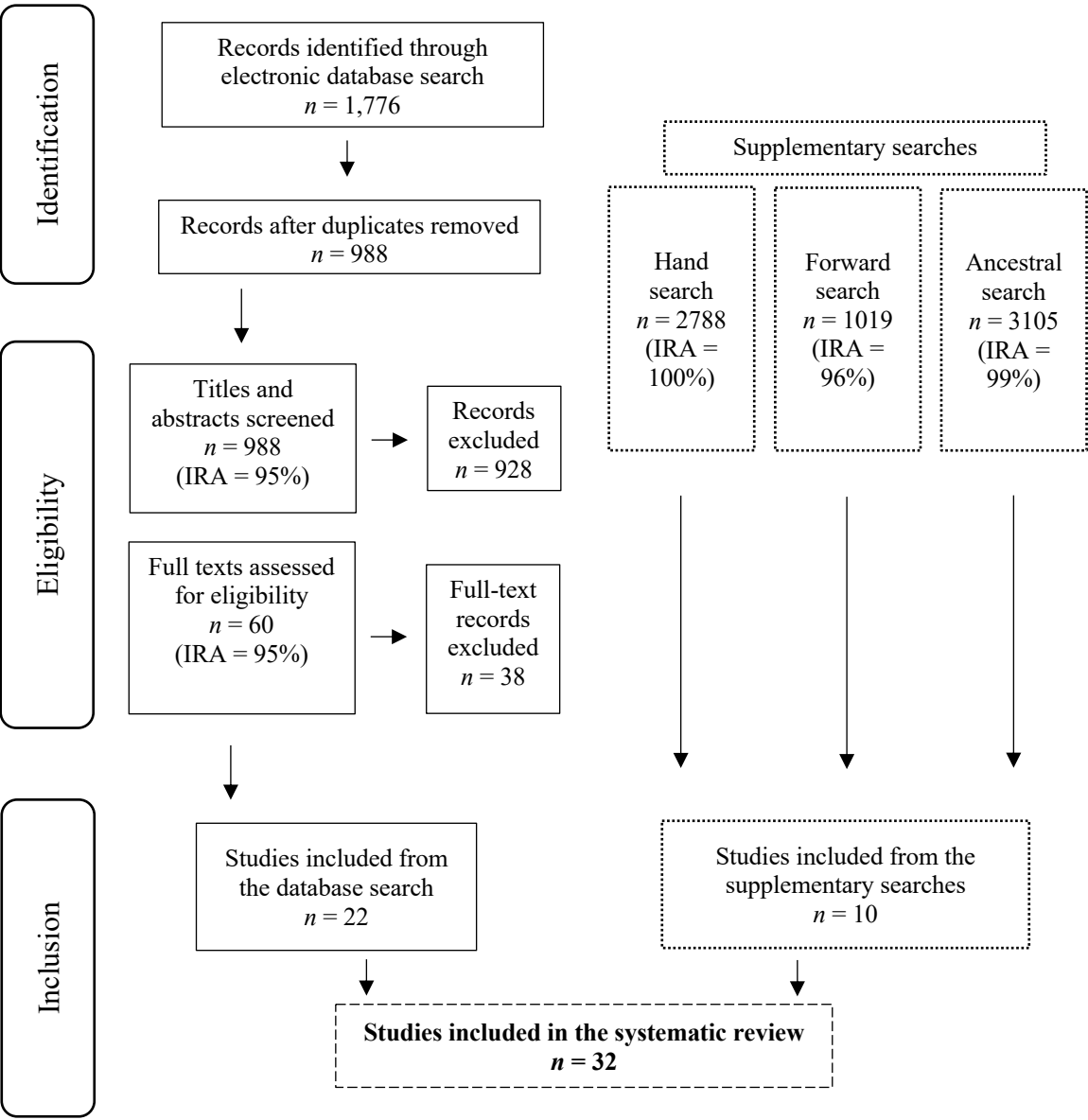


Table 1*Coding Categories: Knowledge and Use of Evidence-Based Practices in Special Education*

Source Information	Participants and Settings	Method Characteristics	Outcomes
author(s)	geographic location (e.g., rural, Midwest, New York)	dependent variable (i.e., knowledge and/or use);	list specific practices with corresponding data (e.g., $M[SD]$; %, frequency count)
funding source (e.g., Institute of Education Sciences)	grade level(s) served	EBP focus (e.g., autism, classroom management)	summary outcomes for overall knowledge or use (e.g., $M[SD]$; %, frequency count, narrative)
publication type (e.g., journal article, dissertation)	highest degree earned	method of data collection (e.g., survey, semi-structured interview, observation)	
year	practitioner categories represented and sample size (e.g., SET, paraprofessional)	reference for the chosen EBPs (i.e., evidence-based review citation)	
	race	scale or response details (e.g., 3-Point Likert Scale, never, sometimes, often; yes/no)	
	school type (e.g., public, private)	<i>survey only</i> : response rate	
	special education personnel total sample size		
	years' experience		

Table 2*Participant Demographics*

Coding Category	# Articles Represented	Percentage of Participants				
Race	11	Black 6%	Hispanic 3%	Other 5%	White 86%	
Category Sample Size	32	Behavior Specialists .1% (.6%)*	Other 1% (5%)*	Paraprofessional 27% (.2%)*	Related Service Personnel 12% (.2%)*	SET 60% (93%)*
Grade Level	16	Early Childhood 3%	Elementary 36%	Middle School 25%	High School 33%	
Highest Degree	16	Bachelor's 24%	Master's Degree+ 64%	Other 12%		
Geographic Region	10	Rural 37%	Suburban 41%	Urban 22%		

Note. SET = special education teacher; * = percentage of participants in that category removing Morin et al., 2020 from the sample.

Table 3*Knowledge and Use of Evidence-Based Practices Reported by Study*

Study	<i>n</i>	Grade Level	Setting	EBP Focus	# EBPs	EBP Source	Method and Scale		Results	
									Knowledge	Use
Aukes, 2018	228	NR	IA	ASD	27	NPDC-ASD	knowledge survey: not (1), somewhat, very (3)	use survey: not at all (1), sometimes, very often (3)	2.27(.39)	2.0(0.37)
Bak, 2013	142	E	NY	EBD	11	NR	use survey: never (1), rarely, sometimes, often, always used (5)		•	3.89(.53)*
Beam & Mueller, 2017	125	EC, E, M, H	USA	CM/B	4	NR	knowledge survey: not (1), somewhat, average, above average, very (5)		3.76(.46)*	•
Borders et al., 2015	68	EC, E, M, H	Mid-west, USA	ASD	25	NAC, 2009	knowledge survey: % of <i>n</i> familiar	use survey: % familiar with the practice that used it in last month	66%*	42%*
Bradley-Black, 2013	70	EC, E, M, H	USA	GEN	N/A	N/A	knowledge survey: no knowledge (1), somewhat, yes (3)	use survey: not(1); some, about half the time, much (4)	2.56 (SD)	•
Brock et al., 2020	70	EC, E, M, H	OH	ASD	28	Wong et al., 2015	use survey (open-ended response): % goals for which teachers described using the EBP		•	3.06%*
Burns et al., 2009	174	NR	USA	GEN	3	Forness, 2001	use survey: almost never (1), rarely, once or twice a month, at least once a week, almost every day (5)		•	4.1(.49)*
Callaway, 2014	6	E, M, H	TX	ASD	5	Wong et al., 2015	use interview: % participants that used the practice		•	77%*
Carter et al., 2011	193	NR	AU	GEN	3	Forness, 2001	use survey: almost never (1), rarely, once or twice a month, at least once a week, almost every day (5)		•	3.83(.58)*

Table 3 *Continued*

Study	n	Grade Level	Setting	EBP Focus	# EBPs	EBP Source	Method and Scale		Results	
									Knowledge	Use
Carter et al., 2012	531	NR	CZ	GEN	3	Forness, 2001	use survey: almost never (1), rarely, once or twice a month, at least once a week, almost every day (5)		●	4.62(.32)*
Chatlos, 2016	31	E, M	NJ	ASD	16	NR	knowledge survey: not knowledgeable (1) to very knowledgeable (4)		3.01(.56)	●
Denniston, 2017	12	EC, E, M	CA	ASD	26	NPDC-ASD	knowledge survey: % of participants correctly identified as an EBP	use survey: % participants that used the practice	66%*	85%*
Dynia et al., 2020	45	EC	Mid-west, USA	ASD	29	Wong et al., 2015	use survey (open-ended): % of responses that aligned with the EBP list		●	14.3%*
Emanuel, 2017	3	M, H	Mid-Atlantic, USA	HI	9	Marzano et al., 2001 Scruggs et al., 2010	use survey: occasional use (1), consistent use with modifications, consistent use, daily use (4)	use observation: frequency of practices	●	Survey: 2.67(.58) Obs: All displayed EBPs
Ferreri et al., 2016	194	E, M, H	MI	ASD	22	NR	use survey: % of participants that have used the practice		●	38%*
Ficarra & Quinn, 2014	27	E, M, H	NY	CM/B	5	Simonsen et al., 2008	knowledge survey: none (0), low, medium, high (3)		2.5(.19)*	●
Gable et al., 2012	1472	EC, E, M, H	Mid-Atlantic State, USA	EBD	20	multiple sources* (see article)	knowledge survey: % at least adequately prepared	use survey: % at least sometimes used	81.4%*	82.8%*

Table 3 *Continued*

Study	n	Grade Level	Setting	EBP Focus	# EBPs	EBP Source	Method and Scale		Results	
									Knowledge	Use
Grimm, 2015	377	EC, E, M, H	CT	ASD	17	NPDC-ASD; Wong et al., 2013	use survey: % of participants that used the practice		●	47.4%*
Guckert et al., 2016	10	E, M, H	USA	GEN	N/A	NR	use artifacts: coded analysis for evidence of EBPs in artifacts; reported as % at least sometimes implementing use interview: questions about use		●	artifacts: 100% interview: 100%
Hoover, 2013	44	E, M, H	TX	ASD	24	NPDC-ASD	use survey: none (1), rarely, occasionally, frequently, usually, extensive (6)		●	4.1(.57)*
Jones, 2009	10	E, M, H	Midwest, USA	HI	6	NR	knowledge survey: none (1), minimal, somewhat, great, extensive (5)	use survey: none (1), minimal, somewhat, great, extensive (5) use observation: frequency of practices	3.72 (.33) *	survey: 3.48 (.35)* obs: use lower than on survey
Keefe, 2017	121	NR	MA, USA	ASD	24	Wong et al., 2015; NPDC-ASD	knowledge survey: no knowledge (1), limited knowledge, adequate knowledge, vast knowledge (4)		2.1(.41)*	●
Knight et al., 2019	535	EC, E, M, H	USA	ASD; ID	18	Wong et al., 2015; NAC, 2008; Browder et al., 2014	use survey: never (1), less than monthly, at least monthly, at least weekly, at least daily (5)		●	3.2(.69)*
McNeill, 2019	130	EC, E, M, H	NC	ASD	27	Wong et al., 2015	knowledge survey: % participants familiar with the practice	use survey: % participants using the practice often or frequently	84.5%*	45.2%*

Table 3 Continued

Study	n	Grade Level	Setting	EBP Focus	# EBPs	EBP Source	Method and Scale	Results	
								Know	Use
Morin et al., 2020	19,213	EC, E, M, H	USA	ASD	27	Wong et al., 2015	knowledge assessment: practice-specific module pretest score	63.6%*	●
Mutua, 2019	59	EC, E, M, H	CA	ASD	26	Simpson, 2005	use survey: % participants that used the practice	●	76.4%*
Pearson, 2018	75	NR	USA	ID; Math	22	NR	use survey: not familiar (0), never, <once/month, 2-3 times/month, once/week, 2-3 times/ week, daily (6)	●	3.9(1.21)*
Plotner et al., 2016	280	M, H	IL, WI, NC, SC, VA	TRAN	N/A	NSTTAC, 2013; Test et al., 2009	use survey: use of EBPs across seven transition areas on a scale of never (1), sometimes, often, always (4)	●	2.11(.24)*
Probst et al., 2017	56	NR	Mid-west, USA	ASD; VI	25	NAC, 2009	knowledge survey: % familiar with the practice use survey: % familiar with the practice that used it in last month	67.8%*	46.9%*
Stormont et al., 2011	35	NR	MO	EBD	11	Epstein et al., 2008	Knowledge Survey: strongly disagree (1) to strongly agree (5)	4.4(.13)*	●
Tomasi, 2020	5	NR	TX	GEN	2	NR	use survey (open-ended): % of responses that included at least one EBP	●	40% included
Vincent, 2019	52	EC, E, M, H	CA	EBD	46	NR	knowledge survey: % participants prepared for the practice use survey: % participants that used the practice	80%*	72.4%*

Note. # = number of practice units represented; ASD = autism spectrum disorder; CM/B = classroom management or behavior strategy; E = elementary; EBD = emotional and behavioral disorder; EBP = evidence-based practice; EC = early childhood; GEN = general; H = high school; HI = high incidence; ID = intellectual disability; M = middle school; n = total number of special education personnel; N/A = not applicable; NAC = National Autism Center; NPDC-ASD =

National Professional Development Center on Autism Spectrum Disorders; NR = not reported; TRAN = transition; VI = visual impairment; * = author team manually calculated based on the data provided in the manuscript.

Table 4*Top Ten Practice Categories Investigated Most Often by Included Studies*

Evidence-Based Practice Category	# Studies Represented	# Units Represented
Peer-Based Instruction & Intervention (PBII)	22	42
Self-Management (SM)	18	21
Reinforcement-Based Strategies (RBS)	17	40
Visual Supports (VS)	17	33
Naturalistic Intervention (NI)	17	30
Modeling (MD)	17	27
Antecedent-Based Interventions (ABI)	16	29
Functional Behavior Assessment (FBA)	16	22
Social Narratives (SN)	16	16
Technology-Aided Instruction and Intervention (TAII)	15	18
Any Top 10 Practice Category	27/32 (84%)	
Total Units Represented		278/517 (54%)

Table 5*Knowledge Scores Broken Down by Category*

Study	Response Details	PBI	SM	RBS	NI	MD	VS	ABI	FBA	SN	TAII	
Denniston, 2017	% participants correctly identified it as an EBP	54%	50%	71%	71%	55%	71%	58%	67%	75%	75%	
Morin et al., 2020	module pretest score	74.8%	51%	52.2%	67.2%	68.1%	65.4%	56.8%	75.2%	61.2%	87.7%	
Vincent, 2019	% participants prepared	75.2%	88.1%	90.8%	•	•	•	84.4%	78.8%	•	•	
Keefe, 2017	% participants at least adequately prepared	33.1%	61.2%	71.4%	23.6%	44.6%	59.9%	68%	78.5%	68.6%	57.9%	
Gable et al., 2012		78.9%	82%	66%	•	•	•	86.3%	24.9%	•	•	
Borders et al., 2015	% participants familiar with the practice	55%	79%	88%	70%	81%	82%	54%	•	95%	•	
McNeill, 2019		78.5%	85.4%	89.5%	70%	87.7%	89.6%	86.2%	94.6%	91.5%	83.1%	
Probst et al., 2017		64.3%	85.7%	87.5%	73.2%	81.3%	80.4%	54.8%	•	94.6%	•	
Beam & Mueller, 2017	response mean: 5-point Likert scale	•	•	4.1	•	•	•	•	•	•	•	
Jones, 2009		3.9	3.1	•	•	•	•	•	•	•	3.6	
Stormont et al., 2011		•	•	4.4	•	•	•	•	4.4	4.4	•	•
Ficarra & Quinn, 2014		response mean: 3-point Likert scale	•	•	2.4	•	•	•	•	•	•	•

Note. EBP = evidence-based practice. Entries bolded represent an average of more than one practice in the category.

Table 6*Use Scores Broken Down by Practice Category*

Study	Response Details	PBI	SM	RBS	NI	MD	VS	ABI	FBA	SN	TAII
Callaway, 2014		•	•	•	83%	50%	50%	•	•	100%	•
Denniston, 2017		83%	50%	100%	84%	79%	80%	100%	100%	83%	75%
Ferreri et al., 2016	% of participants that use or have used the practice	39%	30%	•	33%	14%	69%	•	•	56%	28%
Grimm, 2015		47.2%	56.5%	•	17%	19.4%	61.4%	51.7%	69.8%	59.9%	62.1%
Mutua, 2019		61.5%	62.4%	90.7%	67%	74.7%	79.4%	71.1%	81.3%	89.7%	71.2%
Vincent, 2019		50.7%	85.9%	82.3%	•	•	•	85.4%	84.2%	•	•
Borders et al., 2015		% of participants that used the practice in the last month	26%	47%	59%	49%	54%	57%	35%	•	48%
Probst et al., 2017	33.4%		59.2%	58.8%	64.3%	52.8%	57.9%	41.2%	•	20%	•
McNeill, 2019	% of participants that used the practice often or frequently	23.9%	58.5%	54.1%	31.1%	42.7%	57.3%	36.2%	33.8%	40%	49.2%
Gable et al., 2012	% of participants that at least sometimes used the practice	77.3%	82.6%	74.2%	•	•	•	88.9%	78.2%	•	•
Brock et al., 2020	% goals for which teachers described using an EBP	2.0%	0.8%	4.7%	0%	9.7%	10.1%	0%	0%	2.3%	1.6%

Table 6 Continued

Study	Response Details	PBI	SM	RBS	NI	MD	VS	ABI	FBA	SN	TAII
Dynia et al., 2020	% of open-ended responses about current practices including an EBP	7.2%	0%	15.1%	2.4%	33.4%	38.1%	16.7%	0%	42.9%	31%
Tomasi, 2020		20%	•	•	•	•	•	•	•	•	•
Hoover, 2013	response mean: 6-point Likert scale	3.8	3.5	4.5	3.2	3.2	4.5	4.4	4.2	4.2	4.3
Pearson, 2018		4.3	4.3	•	4.3	•	5.4	•	•	•	0.9
Bak, 2013	response mean: 5-point Likert scale	3.1	•	•	•	4.4	•	•	•	•	3.5
Jones, 2009		3.9	3.1	•	•	•	•	•	•	•	3.6
Knight et al., 2019		2.8	3.6	•	2.8	3.2	3.3	3.9	3.0	2.9	3.1

Note. EBP = evidence-based practice. Entries bolded represent an average of more than one practice in the category.

3. A SYSTEMATIC LITERATURE REVIEW OF THE METHODS AND MEASURES USED TO ASSESS THE KNOWLEDGE AND USE OF EVIDENCE-BASED PRACTICES IN SPECIAL EDUCATION

The research-to-practice gap names the long-standing discrepancy between what research has identified as effective and the practices routinely used in the field (Carnine, 1997; Cook & Schirmer, 2003; Greenwood & Abbott, 2001; McLeskey & Billingsley, 2008). Several studies in the professional literature examine and report on a relevant component of this research-to-practice gap: the knowledge and use of evidence-based practices (EBPs) in school-based settings (e.g., Dynia et al., 2020; Gable et al., 2012; Morin et al., 2020; Plotner et al., 2016; Stormont et al., 2011). Practitioners often describe using non-evidence-based strategies (i.e., little to no effect) at similar or higher rates than strategies with demonstrated effects (Burns & Ysseldyke, 2009; Carter et al., 2011; 2012; Ferreri et al., 2016; Knight et al., 2019). A recent systematic literature review aggregated the evidence-based practice (EBP) knowledge and use outcome data of special education personnel across a number of variables finding heterogeneity in the constructs, variables, and procedures worth additional examination (Sallese, 2021). Author teams in these studies assessed knowledge and use of EBPs through artifact analysis, direct observation, knowledge tests, and most often through self-report measures (Sallese, 2021).

Self-report is one of the most common assessment techniques in behavioral research (Paulhus & Vazire, 2007; Schwarz, 1999; Stone & Shiffman, 2002). An individual has the most knowledge about themselves, making them a primary and credible source of information for their behavior. Practical, efficient, and cost-effective, self-report measures dominate the literature base with regard to evaluating the knowledge and use of EBPs in education (Sallese, 2021). Authors

of these studies are mixed in their recognition of the potential for bias and threat to conclusion validity when self-report methodology is the sole source of data (Donaldson, & Grant-Vallone, 2002; Dunning et al., 2004).

Self-report methodology is, however, often critiqued for the error introduced through socially desirable responding (SDR; i.e., choosing answers which portray the individual in a positive light), acquiescent responding (i.e., tendency to consistently agree with statements), and extreme responding (i.e., choosing answers at the edges of the scale); all of which are potential confounding variables that may influence the validity of the results (Meisenberg & Williams, 2008; Paulhus, 1984; Van de Mortel, 2008). An illustration of this issue is presented in the results of Jones (2009), where follow-up observation of using EBP compared results to the initial self-report survey. Results revealed that observed use was often lower than self-reported use. This illustration demonstrates the need for a methodological approach to validate self-report or a method to quantify the error inherent in self-report.

Direct observation, like self-report, is an often-used assessment tool for researchers, school psychologists, and practitioners to evaluate behavior in general, but is less frequently used to measure the knowledge and use of EBPs in research studies (Briesch, 2009; Hintze & Matthews, 2004; Sallese, 2021). Systematic direct observation lets a trained observer generate a detailed summary of a specific target behavior during a predetermined operational definition, time, and setting (Ledford & Gast, 2018). Unlike self-report, which allows for estimates, systematic direct observation provides a specific number of instances of the target behavior. The limited use of this methodology to determine the knowledge and use of EBPs in the literature may result from the significant amount of time, training, and human resources necessary to successfully use this approach (Briesch, 2009). Participant reactivity, observer bias, and observer

error may influence the validity of the results in studies using direct observation (Burghardt et al., 2012; Kazdin, 1979; Ledford & Gast, 2018; Mahtani et al., 2018; McCambridge et al., 2014; Salvia et al., 1980). Well-established guidelines recommend embedding procedures to help reduce these sources of error, such as using a secondary independent observer during a certain percentage of sessions (Kazdin, 1979; Ledford & Gast, 2018; Taplin & Reid, 1973; WWC, 2020b).

The knowledge base related to the use and knowledge of EBPs may be called into question depending on the quality of that research methodology and the instruments chosen by the research teams. Results of research studies are only as good as the technical adequacy of the measures, the fidelity of the procedures, and the soundness of the decision-making in identifying both appropriately. As noted, issues such as response bias, observer error, and observer bias impact measurement quality in self-report and observation research (Burghardt et al., 2012; Ledford & Gast, 2018; Mahtani et al., 2018; Meisenberg & Williams, 2008; Paulhus, 1984; Salvia et al., 1980; Van de Mortel, 2008). Situational factors and assessment features such as perception of anonymity, word choice, item ambiguity, mode, and the social desirability of the content are just a few additional variables that may influence the validity of study results across research methods (Donaldson & Grant-Vallone, 2002; Flemming, 2012; Gnambs & Kaspar, 2015; Joinson, 2007; Krumpal, 2013; Paulhus & Vazire, 2007). Built-in controls for threats to internal validity help to account for these potential sources of error and increase methodological rigor (McKibben & Silvia, 2016). Study results should be interpreted with an understanding of the presence or absence of these controls in the research protocol.

More recently, quality indicators or standards developed by panels of experts, professional associations, or government agencies outline minimum criteria for sufficient

methodological rigor in high-quality research (Odom et al., 2005; Talbott et al., 2018). Proposed quality indicators for qualitative (Brantlinger et al., 2005) and direct observation studies (i.e., related to single-case research data collection; Cook et al., 2014; Horner et al., 2005; WWC, 2020b) exist within the special education literature. Though, a list of endorsed quality indicators for survey-based research is noticeably absent from the field, which represents the majority of the studies examining the knowledge and use of EBPs (Sallese, 2021). The absence of a mutually agreed-upon standard for survey research in special education may influence the quality and consistency in reporting across studies.

Sallese (2021) conducted a systematic literature review that examined the knowledge and use of EBPs by special education personnel in early childhood through twelfth-grade school-based settings. High variability in knowledge and use levels appeared to possibly be the result of differences in the procedural and measurement characteristics across the included studies. Similarly, Hepburn and Beamish (2019) found discrepancies in levels of use based on the research approach (i.e., direct observation vs. self-report) in their systematic literature review focused on the use of classroom management EBPs across studies from Australia and the United States. Both reviews suggest that a detailed examination of the included measures and procedural characteristics of studies assessing the knowledge and use of EBPs would facilitate a greater understanding of the available data and thus the current state of EBPs. Further examination of these characteristics may also help the field to put the data in context, identify potential confounding variables, interpret the implications of the results, and design additional assessments in the future.

The purpose of the present manuscript is to describe and assess the measurement and procedural characteristics of studies on the knowledge and use of EBPs. This critical

examination may call into question the validity of prior studies on the topic. Data are derived from a secondary analysis of the studies included in the comprehensive systematic literature review conducted by Sallese (2021). The following research question guides the work: What are the methodological characteristics and technical adequacy of studies assessing the knowledge and use of EBPs by special education personnel?

Method

A systematic literature review evaluating the knowledge and use of EBPs by special education personnel serving students in early childhood through high school produced a data set of 32 articles for use in the current methodological and measurement summary review. The search included coordination with a university librarian specializing in systematic literature reviews to conduct the search according to current recommendations and standards (Page, McKenzie, et al., 2021; Page, Moher, et al., 2021; Talbott et al., 2018). The first author served as the primary screener and coder. Experience relevant to this methodological review encompassed status as a Ph.D. candidate in educational psychology, prior experience as a special education teacher, research foci on teacher preparation and training, and past participation in several systematic literature reviews and meta-analyses. The second independent rater, an educational psychology doctoral student with special education expertise, remained constant throughout the screening and coding procedures. This reviewer previously worked as a classroom teacher and reading specialist and had experience conducting research syntheses.

An electronic database search identified 988 unique articles with the keywords *special education* and *evidence-based practice* using Boolean search methods and database-specific thesaurus terms. The following electronic databases were included in the search: Educational Administration Abstracts, Educational Resources Information Center (ERIC), Education Source,

Academic Search Ultimate, and PsycINFO. No time restrictions were placed on the search. See Appendix A for detailed search terms available by electronic database. Titles and abstracts were imported into Rayyan (Ouzzani et al., 2016), a web-based systematic review platform, for screening purposes. Sixty articles remained after two independent reviewers applied eligibility criteria at the title and abstract level, and 22 studies from the database search were included in the current review after reviewers examined the full texts. Current standards recommend supplementary searches in addition to the electronic database search (Page, McKenzie, et al., 2021; Page, Moher, et al., 2021; Talbott et al., 2018). Supplementary searches (i.e., reference, forward, first author, and hand search) identified 10 additional studies for a final total of 32 studies included in the research synthesis. Table of contents searches from 2010 to December 2020 included the following journals: *Behavioral Disorders*, *Exceptional Children*, *Focus on Autism and Other Developmental Disabilities*, *Preventing School Failure*, *Remedial and Special Education*, *Teacher Education and Special Education*, *The Journal of Special Education*, *School Psychology Review*. See primary article (Sallese, 2021) for additional method characteristics and Figure 1 for a visual representation of the search process.

Studies meeting the following criteria were included: (a) written in English; (b) peer-reviewed journal article, dissertation, government report, or conference proceeding; (c) employed a nonexperimental quantitative or qualitative research design; (d) examined the degree of knowledge use of EBPs; (e) included special education teachers, transition specialists, pre-service special education teachers, paraprofessionals, special education administrators, or other special education personnel in the target population and provided disaggregated results for these participants; (f) participants worked at a public, private, charter, or alternative school and served students in pre-school through 12th grade. Studies were excluded if they examined the knowledge

or use of practices the authors described as best practices, research-based practices, recommended practices, or other terms used to denote a promising practice. When the information provided in the title and abstract did not allow for a definitive determination on inclusion criteria, the screeners kept the article for further examination in the full-text review process. Two independent coders screened all articles for eligibility against preterminal criteria with 95% agreement reviewing titles and abstracts and 95% agreement during the full-text review. The first author conducted the supplementary searches. A second rater screened at least 20% resulting in over 96% agreement in inclusion decisions across the three types (i.e., 100%, hand search; 99%, ancestral search; 96%, forward search). All disagreements were resolved through discussion and a review of inclusion criteria and study text.

Materials Request

The purpose of this study is to examine the methods used to assess the knowledge and use of EBPs. In addition to coding relevant information from the manuscript text, the research team requested additional material from the authors of the included studies. The first author sent an email request to the corresponding author of each study requesting a copy of the measurement tool (e.g., interview protocol, knowledge assessment, observation rating forms, survey) for coding purposes if it was not included in the manuscript or publicly available online. Close to half (44%) of the included studies were dissertations, which often include the measurement tool in the appendices. Materials for a few published articles were either available online (Morin et al., 2020) or provided within the manuscript (Guckert et al., 2016). Fourteen corresponding authors received a materials request email representing 15 studies, and seven of those authors (eight studies) provided the requested measurement tool for coding purposes in the current review. Coders used the information reported in the publicly available manuscript if the research

team was unable to acquire the materials requested. Studies analyzed with access to the measurement tool totaled 23 (72%) and are noted in Tables 7 & 8 with an asterisk (*).

Variable Coding

The first author developed a coding survey in Google Forms to extract data from the manuscript and measurement materials of the 32 included studies. The survey prompted coders to record the following across all studies: (a) article identification information and publication type; (b) research method(s) employed (e.g., survey, interview, knowledge assessment, observation, artifact analysis); (c) reliability estimates of the current sample; (d) author reported methods to establish validity; (e) research approach; (f) language neutrality; (g) presence or absence of practice descriptions or a definition for the term EBP; (h) data sharing practices; (i) time expectations for study participation, (j) prior relationship to participants, (k) item or response type (e.g., Likert scale, open-ended, ranking, dichotomous), and (l) participant incentives. An additional survey-specific code included anonymity. Coders also recorded mode across surveys (online, paper), interview (phone, video, in-person), observation (in-person, live video, recorded video), knowledge assessment (online, paper), and artifact analysis (electronic, paper). See Figure 2 for detailed code descriptions.

Sallese (2021) limited coding to extracting information from the research methods and items with disaggregated outcome data for special education personnel specifically related to the knowledge and use of EBPs in the included studies. While the formal inclusion criteria remain, this review included all relevant (i.e., measuring knowledge or use of EBPs) research methods and items regardless of the final reporting choices in the manuscript. There are additional features in two of the included studies (interview, Bradley-Black, 2013; artifact analysis, Emanuel, 2017) represented in this review compared to Sallese (2021). In both cases, the results

section did not provide a discrete knowledge or use score to meet inclusion criteria for Sallese (2021). The method section revealed the questions of the interview (Bradley-Black, 2013) and the purpose of the artifact analysis (Emanuel, 2017) examine the knowledge or use of EBPs and were consequently included in the present methodological review.

To determine the reliability of the data extracted, the secondary reviewer coded 25% of the included articles with corresponding assessment materials. Data extraction codes and procedures were taught in a 30-minute training to an independent reviewer. Interrater agreement was calculated as simple agreement over agreement plus disagreement and was reported as 94%. All disagreements were resolved through discussion and a review of the study manuscript, materials, and codebook.

Results

A total of 32 studies ranging in years from 2009-2020 met inclusion criteria for the original review (Sallese, 2021), and thus the present secondary analysis. Just over half of the included studies were peer-reviewed journal articles, with the rest of the studies classified as dissertations. A fourth of the investigations included the potential for a monetary award as an incentive for study participation. The majority of manuscripts did not address data sharing. Five research teams agreed to share the results outside of the immediate research team and publication purposes (e.g., school district, Stormont et al., 2011; state department, Aukes, 2018; original survey creator, Denniston, 2017), and four specifically stated in the materials that they would not share results (Hoover, 2013; Keefe, 2017; Pearson, 2018; Tomasi, 2020). A limited number of studies disclosed a prior relationship or connection with the study participants (Callaway, 2014; Emanuel, 2017; Guckert, 2016; Vincent, 2019). The remaining coding categories are reported by the research method employed (i.e., survey, interview, artifact analysis, assessment, observation).

See Tables 7 and 8 for detailed coded information from each study, and Figure 3 for summary statistics representing the results across studies for each coding category.

Surveys

Most of the included studies used a survey to evaluate the knowledge and use of EBPs by special education personnel. The maximum estimated time to complete the survey ranged from 7 to 45 mins ($M = 20$; $SD = 9.8$). Author teams chose an online survey format most often, with fewer opting for a paper format and giving participants the option of either online or paper. A little more than a third of study authors explicitly (i.e., in writing; manuscript text and/or measurement tool) confirmed participants' anonymity in the research process, meaning that no personally identifiable information (PII) was collected alongside the responses. A review of the measurement tool in several studies revealed no questions leading to the collection of PII. These studies were labeled as *potentially anonymous* even though it was not expressly stated in writing. Reliability estimates of the current sample were reported in 38% of studies and encompassed internal consistency scores (Cronbach's alpha; range: 0.78-0.95) and interrater agreement for coding open-ended responses (range: 88%-100%). Finally, a little more than half of the research teams described their process to establish validity (e.g., face validity; content validity).

This review identified six different research approaches to measuring knowledge and use in the included studies, and five of those were seen in various frequencies across the surveys. The most common approach (Self-Report [SR]-EBP List) involved offering a list of only EBPs and asking participants to self-report levels of knowledge or use. Similarly, another approach found in fewer studies required participants to SR knowledge or use from a list of a mix of EBPs and other teaching strategies (SR-Mix List). Across both list-based approaches, less than half of the studies provided a full definition. While all studies using the SR-Mix list approach kept

survey language neutral, studies aligned with the SR-EBP list approach varied on whether researchers chose to disclose the evidence-based label to study participants. A few studies took a general approach by asking participants to SR their overall knowledge or use of EBPs (SR-General; e.g., *How often do you use EBPs in your classroom?*). Among those using the SR-General approach, Dynia et al. (2020) provided a definition of the term EBP, Bradley-Black (2013) just used the term EBP, and two studies did not report if the survey included a definition for EBP (Emanuel, 2017; Mutua, 2019). Item response types for the surveys included Likert scales, dichotomous (e.g., yes or no), open-ended (Bradley Black, 2013), and drop down with the number of hours (Ferreri et al., 2016).

The research approaches found in the fewest studies involved knowledge assessments and researcher coding. Three studies (Brock et al., 2020; Dynia et al., 2020; Tomasi, 2020) requested an open-ended SR narrative of current teaching practices and then coded the responses for the existence of EBPs. Dynia et al. (2020) and Brock et al. (2020) kept survey language neutral by generally asking for teaching methods, and Tomasi (2020) specifically solicited the EBPs participants employed in their current setting. Mutua (2019) and Denniston (2017) assessed special education teachers' knowledge of EBPs by providing a list of practices and asking them to identify which items held a formal "evidence-based" classification. Participants had three response choices (*yes, no, unsure*). Though, all practices in both studies were EBPs. Denniston (2017) provided full definitions for each practice, while Mutua did not report if the survey included definitions.

Interviews

Study interview protocols needed to include at least one question specifically probing the participants' knowledge or use of EBPs to meet inclusion criteria for this systematic review., All

but one study (Bradley-Black, 2013; via phone) interviewed participants in person. Maximum time spent interviewing participants ranged from 15 to 180 mins ($M = 104$; $SD = 69$). Bradley-Black (2013) and Callaway (2014) studies took a general research approach asking a broad opened-ended question related to knowledge or use, and interviewers just used the term EBP (i.e., no definition). In addition to the general question, Callaway (2014) also incorporated a SR-EBP list approach by asking participants to provide a dichotomous response (yes or no) to their use of a few partially defined practices that were identified as EBPs. The remaining three studies used a more indirect and neutral approach by asking about current teaching practices and coding the interview transcripts for the existence of EBPs. Two studies reported reliability estimates concerning interview transcription agreement (Emanuel, 2017) and codes and categories (Guckert et al., 2016). Authors in four studies (Callaway, 2014; Emanuel, 2017; Guckert et al., 2016; and Jones, 2009) specifically describe actions taken by the research team to ensure the validity of the interview protocol, such as member checks, pilot tests, and a review of the protocol by teachers and researchers.

Other Research Methods

A small number of studies incorporated artifact analysis, module pretests, and observations in the research plan. Both Emanuel (2017) and Guckert et al. (2016) requested teaching artifacts (e.g., lesson plans, instructional materials, student worksheets) from the study participants and coded the documents for frequency or presence of EBPs. Artifact mode (i.e., paper copies or electronic copies) was not reported. Morin et al. (2020) included an online practice-specific professional development module pretest as an indicator of knowledge, with participants answering 10 multiple choice choices on the essential elements of the EBPs. Lastly, Emanuel (2017) and Jones (2009) conducted in-person observations in school-based settings,

recording the frequency of EBPs during instruction. The maximum time allocated for observations was 180 minutes in both studies. Across the three research approaches, only Emanuel (2017) reported a reliability estimate with an interobserver agreement for observations and interrater agreement for artifact analysis. Two of the four research teams recounted methods to establish validity, such as member checks and triangulation (Emanuel, 2017; Jones, 2009).

Discussion

This systematic literature review examined the measures and procedural characteristics of the studies evaluating the knowledge and use of EBPs in school-based settings by special education personnel serving students in early childhood through twelfth grade. The present research team conducted a secondary analysis of the 32 included studies from Sallese (2021) by extracting information from the publicly available manuscript and requesting additional material (i.e., measurement tool) from corresponding authors when necessary. As stated in the original review, author teams mostly relied on a survey as the research method (91%) with few studies representing interviews (Bradley-Black, 2013; Callaway, 2014; Emanuel et al., 2017; Guckert et al., 2016; Jones, 2009), observations (Emanuel et al., 2017; Jones, 2009), artifact analysis (Emanuel, 2017; Guckert et al., 2016), and module pretests (Morin et al., 2020). A total of six research approaches for measuring knowledge and use (i.e., assessment; observation, SR-Coding; SR-EBPs list; SR-General; SR-mix list; See Figure 2) were seen across the included studies. The majority of research teams (75%) designed a study with a single research approach (e.g., survey, interview, observation) while the rest incorporated two or more within the research plan. This review reveals several methodological considerations related to response bias, item ambiguity, and reporting practices in the primary studies.

Response Bias

Most studies (97%) incorporated at least one type of self-report measure in the research protocol. Given the prevalence of self-report measures in this review, it may be beneficial to evaluate the implications of methodological choices in reference to the potential for response bias. SDR, a commonly cited source of response bias, refers to the tendency to present oneself in an overly positive way on a self-report measure (Holtgraves, 2004; Paulhus, 1984; Paulhus, 2002). Participants tend to underreport inappropriate behaviors and overreport positive behaviors to align with societal or professional expectations (Donaldson & Grant-Vallone, 2002). SDR holds implications for the current methodological review in that data may not accurately reflect the true state of EBPs due to an educator's desire to respond in a way that meets the perceived professional expectation of high levels of effective teaching practices. This pressure may be exacerbated by the implied consequences of low knowledge and use levels of EBPs in the classroom (i.e., stifled student outcomes). The literature cites anonymity, mode, and word choice as factors that influence the likelihood of SDR.

A participant's perceived level of anonymity impacts an individual's willingness to disclose less than desirable behavior patterns or sensitive information (Donaldson & Grant-Vallone, 2002; Gnambs & Kaspar, 2017; Krumpal, 2013, Paulhus & Vazire, 2007). In the present review, 40% of the survey study materials explicitly confirmed anonymity, 10% collected PII, and several did not report. It is important to note that the codebook differentiated the classification of *anonymous* from the assurance of confidentiality. Common research practices such as sharing data with the school district, recruiting participants based on previous connections, or entering information for the chance at an incentive may have also impacted a participant's perception of the anonymity of their responses. Closely related to anonymity, the

literature suggests a potential link between mode and SDR (Buchanan, 2000). A meta-analysis of self-disclosure of sensitive behaviors (Gnambs & Kaspar, 2015) found that study participants were less likely to divulge socially undesirable behaviors in a paper survey when compared to online surveys. A majority of included studies from this review used an online survey format (72%), with most paper formats occurring early in the range of years.

SDR comes into consideration when a participant believes answering a question in a specific way would reveal socially inappropriate qualities. Specifically labeling a list of practices as evidence-based or effective might communicate the expectation that teachers should be familiar and regularly using the technique. Studies from the present review were mixed on the use of neutral language (i.e., no use of terms denoting effectiveness). Word choice may allow the researcher to “minimize the reactionary content of the item” in a way that limits pressure to engage in SDR (p. 58, Fleming, 2012; Krumpal, 2013). For example, Bak (2013) took the SR-EBP list approach to examine use and asked participants to rate the degree of the listed “strategies” rather than labeling them as evidence-based. Other approaches, such as SR-Mix list and SR-Coding lend themselves well to taking a more neutral approach to item language. Dynia et al. (2020) and Brock et al. (2020) asked participants to provide a narrative of current practices and coded for the use of EBPs. This could be compared to a researcher asking you to describe your typical daily routine or hobbies to screen for healthy habits (e.g., exercise) rather than asking directly because one might feel the pressure to provide a response at socially desirable levels. In the future, researchers may want to consider exploring additional ways to neutralize their approach for measuring the knowledge and use of EBPs.

Item Ambiguity

Terms used in the research literature may not match the clinical vocabulary of practitioners in the field. Across the list-based approaches (i.e., SR-EBP list and SR-Mix list), 44% of studies offered participants a full practice definition, with 24% providing partial descriptions and 16% only using the term. As evidenced in the comprehensive evidence-based reviews identifying EBPs for students with autism (Hume et al., 2021; Odom et al., 2010; Wong et al., 2015), terminology for the same teaching strategies fluctuates overtime as certain practices are subsumed under others (e.g., pivotal response training → naturalistic interventions) or the category language broadens or narrows (e.g., cognitive behavior strategies → cognitive behavior/instructional strategies). Lack of familiarity with the research term does not automatically imply low use. Educators may engage in common teaching practice (e.g., scripting) and not recognize it as being categorized under a broader, more complex EBP research term (e.g., visual supports). Conversely, a reported awareness of the practice does not ensure the participant's perception of the practice matches that of the researcher.

Of those taking the SR-General approach, one of the four studies provided a definition of the term EBP when asking the participant to rate the overall level of use. Study participants may not fully comprehend the rigorous standard of an EBP, potentially due to the ever-changing and varied terminology denoting effective teaching practices in the field (e.g., best, high-leverage, evidence-based, research-based, promising; Cook & Cook, 2013). As an illustration, Sciuchetti et al. (2016) surveyed general education and special education teachers on the meaning of the term EBP. They found only 31% of the participants' responses were coded as "research proof," with the rest mentioning proof of some kind (21%) or another descriptor (e.g., proven by teacher

data). Overall, assuming a mutual understanding of a practice or term could lead to inaccurate responses, which holds implications for data validity and the ability to draw conclusions.

Reporting Practices

The special education research community has yet to formally endorse a set of quality indicators or reporting standards for survey or descriptive observation studies, which is a stark contrast to the detailed and widely accepted quality indicators for experimental and quasi-experimental group design studies and single-case experimental design studies (Cook et al., 2014; Horner et al., 2005; Gersten et al., 2005; WWC, 2020b). This lack of direction may account for differences in the level of detail and reporting across the included studies employing these research methods. For example, several studies did not report details related to the technical adequacy of the instrument. Of those using a survey or knowledge assessment, 37% included reliability estimates for the current sample, and 57% detailed actions taken to establish the validity (e.g., face validity) of the instrument in the manuscript. As another example, the authors provided the estimated participation time for 48% of the surveys. Research shows the length of the survey impacts the response rate and quality of the responses (Galesic & Bosnjak, 2009; Eisele et al., 2020). Revilla and Ochoa (2017) asked participants to report their ideal survey length and the maximum length that they would complete and found the median ideal to be 10 min and the maximum to be 20 min. Reporting categories such as technical adequacy and duration offer valuable context for the implications of the results. Ultimately, detailed reporting facilitates replication, across study comparisons, and the ability to generalize the results.

Limitations

The results of this review should be considered with an understanding of the following limitations. First, the present research team was unable to obtain access to the measurement tool

of all the included studies, and the materials request did not include all study materials such as informed consent documents and recruitment communication. Codes listed represent the available research documents and, therefore, may be slightly altered with full access. Second, this study involved a secondary analysis of the included articles from Sallese (2021), which excluded studies measuring the knowledge and use of EBPs of only general education teachers and studies failing to provide disaggregated data for special education personnel. These excluded studies likely include similar methods. However, one of this review's primary purposes was to offer additional context for the discrepancies in levels found across measures and procedural characteristics found in Sallese (2021).

Implications for Future Research

Findings from this systematic literature review focused on the methodological characteristics provide implications for the future of research. First, researchers should consider designing self-report research design protocols with different types of response bias in mind (i.e., acquiescent responding, extreme responding, SDR). Examples include ensuring anonymity, adopting an online format when possible, and using neutral language to lessen the possibility of SDR. Self-report methods align well with research questions related to the knowledge and use of EBPs and offer researchers a cost-effective way to reach the population necessary to make generalizable conclusions. While appropriate, Paulhus and Vazire (2007) explain that the self-report method relies on the “assumption is that there is only one truth about an individual, truth that is fully available to that individual” (p. 232). However, individuals may not have the capacity to recall or understand all information relevant to the question posed by researchers regarding personal behavior habits (Dunning et al., 2004; Paulhus & Vizire, 2007). Therefore,

additional research is needed across the underrepresented research methods (e.g., artifact analysis, knowledge assessment, observation).

That is not to say that other research methods should be privileged over self-report measures. For example, the field should consider the accuracy (i.e., the degree to which an observation score provides an accurate approximation of the true score) of a one-hour observation session and the practicality of conducting widespread observations (Gresham et al., 2017; Hintze & Matthews, 2004). Several study procedures may influence the accuracy. Observation techniques are often obtrusive in that they require participant awareness of the evaluation, which may, in turn, lead to reactivity. The presence of observers may influence the rate of the target behavior towards socially desirable levels (Kazdin, 1979; McCambridge et al., 2014). As it stands, the field predominately relies on self-report to illustrate the current state of EBPs. Broadening the research methods will provide a more holistic view of the knowledge and use of EBPs by special education personnel.

Conclusion

The high frequency with which the research-to-practice gap is cited in the literature unaccompanied by quantitative data or a specific study reference speaks to the complexity of measuring, summarizing, and interpreting the current state of the knowledge and use of EBPs. After systematically searching the literature, Sallese (2021) determined that a detailed analysis of the methods would facilitate a greater understanding of the data set. The current study conducted a secondary analysis of studies from Sallese (2021), specifically examining the measures and procedural characteristics. Authors from the included studies employed five research methods and six different approaches across those methods, with survey methods and list-based approaches used most often. Method characteristics of the present sample offer implications for

the outcome data validity related to response bias, item ambiguity, and limited reporting practices in the primary studies that may inform measuring knowledge and use of EBPs moving forward. The special education field should consider endorsing quality indicators for survey and observational studies to promote strong research designs and comprehensive reporting.

References

*Indicates articles included in the literature review.

- *Aukes, J. A. B. (2018). *Relationships between special education teaching experience and the implementation of evidence-based practices for students with autism* (Publication No. 10937791) [Doctoral dissertation, Grand Canyon University]. ProQuest Dissertations and Theses Global.
- *Bak, N. L. (2013). *Best practices in programs for children with emotional behavioral disorders* (Publication No. 3588433) [Doctoral dissertation, State University of New York at Albany]. ProQuest Dissertations and Theses Global.
- *Beam, H. D., & Mueller, T. G. (2017). What do educators know, do, and think about behavior? An analysis of special and general educators' knowledge of evidence-based behavioral interventions. *Preventing School Failure: Alternative Education for Children and Youth, 61*(1), 1-13. <http://dx.doi.org/10.1080/1045988X.2016.1164118>
- *Borders, C. M., Bock, S. J., & Szymanski, C. (2015). Teacher ratings of evidence-based practices from the field of autism. *Journal of Deaf Studies and Deaf Education, 20*(1), 91-100. <http://dx.doi.org/10.1093/deafed/enu033>
- *Bradley-Black, K. (2013). *Teachers and evidence-based practices* [Unpublished doctoral Dissertation]. George Mason University.
- Brantlinger, E., Jimenez, R., Klingner, J., Pugach, M., & Richardson, V. (2005). Qualitative studies in special education. *Exceptional Children, 71*(2), 195-207. <https://doi.org/10.1177%2F001440290507100205>
- Briesch, A. M. (2009). *Generalizability and dependability of behavioral assessment methods: A*

- comparison of systematic direct observation and direct behavior ratings.* (Publication No. 3377034) [Doctoral dissertation, University of Connecticut]. ProQuest Dissertations and Theses Global.
- *Brock, M. E., Dynia, J. M., Dueker, S. A., & Barczak, M. A. (2020). Teacher-reported priorities and practices for students with autism: Characterizing the research-to-practice gap. *Focus on Autism and Other Developmental Disabilities, 35*(2), 67-78. <https://doi.org/gg7wr4>
- Buchanan, T. (2000). Internet research: Self-monitoring and judgments of attractiveness. *Behavior Research Methods, Instruments, & Computers, 32*(4), 521-527. <https://doi.org/10.3758/BF03200824>
- Burghardt, G. M., Bartmess-LeVasseur, J. N., Browning, S. A., Morrison, K. E., Stec, C. L., Zachau, C. E., & Freeberg, T. M. (2012). Perspectives—minimizing observer bias in behavioral studies: a review and recommendations. *Ethology, 118*(6), 511-517. <https://doi.org/10.1111/j.1439-0310.2012.02040.x>
- *Burns, M. K., & Ysseldyke, J. E. (2009). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education, 43*(1), 3-11. <http://dx.doi.org/10.1177/0022466908315563>
- *Callaway, S. E. (2014). *A study of novice special education teachers' preparation to teach students with autism spectrum disorders* (Publication No. 3691138) [Doctoral dissertation, University of North Texas]. ProQuest Dissertations and Theses Global.
- Carnine, D. (1997). Bridging the research-to-practice gap. *Exceptional Children, 63*(4), 513-521. <http://dx.doi.org/10.1177/001440299706300406>
- *Carter, M., Stephenson, J., & Strnadová, I. (2011). Reported prevalence by Australian special educators of evidence-based instructional practices. *Australasian Journal of Special*

Education, 35(1), 47-60. <http://dx.doi.org/10.1375/ajse.35.1.47>

- *Carter, M., Strnadová, I., & Stephenson, J. (2012). Reported prevalence of evidence-based instructional practices by special educators in the Czech Republic. *European Journal of Special Needs Education*, 27(3), 319-335. <https://doi.org/fsdk>
- *Chatlos, C. N. (2016). *Special education teachers and autism spectrum disorders: the role of knowledge and self-efficacy on burnout* (Publication No.10133318) [Doctoral dissertation, Fairleigh Dickinson University]. ProQuest Dissertations and Theses Global.
- Cook, B., Buysse, V., Klingner, J., Landrum, T., McWilliam, R., Tankersley, M., & Test, D. (2014). Council for Exceptional Children standards for evidence-based practices in special education. *Teaching Exceptional Children*, 46(6), 206-212.
- Cook, B. G., & Cook, S. C. (2013). Unraveling evidence-based practices in special education. *Journal of Special Education*, 47(2), 71-82. <https://doi.org/bhqsfb>
- *Denniston, L. M. (2017). *Evidence-based practices for students with autism spectrum disorder*. (Unpublished doctoral dissertation). California State Polytechnic University, Pomona.
- Donaldson, S. I., & Grant-Vallone, E. J. (2002). Understanding self-report bias in organizational behavior research. *Journal of Business and Psychology*, 17(2), 245-260. <https://doi.org/10.1023/A:1019637632584>
- Dunning, D., Heath, C., & Suls, J. M. (2004). Flawed self-assessment: Implications for health, education, and the workplace. *Psychological Science in the Public Interest*, 5(3), 69-106. <https://doi.org/10.1111%2Fj.1529-1006.2004.00018.x>
- *Dynea, J. M., Walton, K. M., Brock, M. E., & Tiede, G. (2020). Early childhood special education teachers' use of evidence-based practices with children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 77, 1-12. <https://doi.org/gg7xf3>

- Eisele, G., Vachon, H., Lafit, G., Kuppens, P., Houben, M., Myin-Germeys, I., & Viechtbauer, W. (2020). The effects of sampling frequency and questionnaire length on perceived burden, compliance, and careless responding in experience sampling data in a student population. *Assessment*. Advanced online publication. <https://doi.org/ghbch2>
- *Emanuel, N. J. (2017). *Multiple-case design of secondary special educators teaching students with high-incidence disabilities in self-contained settings: Rationales for instructional strategy choices and perspectives on evidence-based practices* [Unpublished Doctoral Dissertation]. George Mason University.
- *Ferreri, S. J., Witmer, S. E., & Shivers, C. M. (2016). Autism spectrum disorders and evidence based practices: A statewide exploration of public school programming. *Austin Journal of Autism & Related Disabilities*, 2(2), 1-10.
- *Ficarra, L., & Quinn, K. (2014). Teachers' facility with evidence-based classroom management practices: An investigation of teachers' preparation programmes and in service conditions. *Journal of Teacher Education for Sustainability*, 16(2), 71-87.
<http://dx.doi.org/10.2478/jtes-2014-0012>
- Fleming, P. (2012). Social desirability, not what it seems: A review of the implications for self-reports. *The International Journal of Educational and Psychological Assessment*, 11(1), 3-22.
- *Gable, R. A., Tonelson, S. W., Sheth, M., Wilson, C., & Park, K. L. (2012). Importance, usage, and preparedness to implement evidence-based practices for students with emotional disabilities: A comparison of knowledge and skills of special education and general education teachers. *Education and Treatment of Children*, 35(4), 499-519.
<https://www.jstor.org/stable/42900173>

- Galesic, M., & Bosnjak, M. (2009). Effects of questionnaire length on participation and indicators of response quality in a web survey. *Public Opinion Quarterly*, 73(2), 349-360. <https://doi.org/10.1093/poq/nfp031>
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children*, 71(2), 149-164. <https://doi.org/gg9rsn>
- Gnambs, T., & Kaspar, K. (2015). Disclosure of sensitive behaviors across self-administered survey modes: A meta-analysis. *Behavior Research Methods*, 47(4), 1237-1259. <http://dx.doi.org/10.3758/s13428-014-0533-4>
- Gnambs, T., & Kaspar, K. (2017). Socially desirable responding in web-based questionnaires: A meta-analytic review of the candor hypothesis. *Assessment*, 24(6), 746-762. <http://dx.doi.org/10.1177/1073191115624547>
- Greenwood, C. R., & Abbott, M. (2001). The research to practice gap in special education. *Teacher Education and Special Education*, 24(4), 276-289. <https://doi.org/cp3ttb>
- *Grimm, L. K. (2015). *Educator's implementation of the Connecticut Guidelines for the Identification and Education of Children and Youth with Autism* (Publication No. 10162851) [Doctoral dissertation, Andrews University]. ProQuest Dissertations and Theses Global.
- Gresham, F. M., Dart, E. H., & Collins, T. A. (2017). Generalizability of multiple measures of treatment integrity: Comparisons among direct observation, permanent products, and self-report. *School Psychology Review*, 46(1), 108-121. <https://doi.org/fsdh>
- *Guckert, M., Mastropieri, M. A., & Scruggs, T. E. (2016). Personalizing research: Special educators' awareness of evidence-based practice. *Exceptionality*, 24(2), 63-78.

<http://dx.doi.org/10.1080/09362835.2014.986607>

Hintze, J. M., & Matthews, W. J. (2004). The generalizability of systematic direct observations across time and setting: A preliminary investigation of the psychometrics of behavioral observation. *School Psychology Review, 33*(2), 258-270.

Holtgraves, T. (2004). Social desirability and self-reports: Testing models of socially desirable responding. *Personality and Social Psychology Bulletin, 30*(2), 161-172.

<https://doi.org/10.1177%2F0146167203259930>

*Hoover, K. N. (2013). *Evidence-based interventions: An examination of pre-service training, professional development, and classroom implementation* (Publication No. 3611927) [Texas A&M University-Corpus Christi]. ProQuest Dissertations and Theses Global.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*(2), 165-179. <https://doi.org/gfpqfk>

Hume, K., Steinbrenner, J. R., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yucesoy-Ozkan, S., & Savage, M. N. (2021). Evidence-based practices for children, youth, and young adults with autism: Third generation review. *Journal of Autism and Developmental Disorders*. Advanced online publication. <https://doi.org/10.1007/s10803-020-04844-2>

Joinson, A. N. (2007). Disinhibition and the internet. In J. Gackenbach (Ed.), *Psychology and the Internet* (Second Edition, pp. 75-92). Academic Press.

*Jones, M. L. (2009). A study of novice special educators' views of evidence-based practices. *Teacher Education and Special Education, 32*(2), 101-120. <https://doi.org/bn2pqb>

- Kazdin, A. E. (1979). Unobtrusive measures in behavioral assessment. *Journal of Applied Behavior Analysis, 12*(4), 713-724. <http://dx.doi.org/10.1901/jaba.1979.12-713>
- *Keefe, E. S. (2017). *Licensed but underprepared: Special educators' preparation to teach autistic students* (Publication No. 10687296) [Doctoral dissertation, Boston College]. ProQuest Dissertations and Theses Global.
- *Knight, V. F., Huber, H. B., Kuntz, E. M., Carter, E. W., & Juarez, A. P. (2019). Instructional practices, priorities, and preparedness for educating students with autism and intellectual disability. *Focus on Autism and Other Developmental Disabilities, 34*(1), 3-14. <http://dx.doi.org/10.1177/1088357618755694>
- Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity, 47*(4), 2025-2047. <https://doi.org/c6n9pk>
- Ledford, J. R., & Gast, D. L. (2018). *Single case research methodology: Applications in special education and behavioral sciences*. Routledge.
- Mahtani, K., Spencer, E. A., Brassey, J., & Heneghan, C. (2018). Catalogue of bias: Observer bias. *BMJ Evidence-Based Medicine, 23*(1), 23-24. <https://doi.org/gcvz5f>
- McCambridge, J., Witton, J., & Elbourne, D. R. (2014). Systematic review of the Hawthorne effect: New concepts are needed to study research participation effects. *Journal of Clinical Epidemiology, 67*(3), 267-277. <http://dx.doi.org/10.1016/j.jclinepi.2013.08.015>
- McKibben, W. B., & Silvia, P. J. (2016). Inattentive and socially desirable responding: Addressing subtle threats to validity in quantitative counseling research. *Counseling Outcome Research and Evaluation, 7*(1), 53-64. <https://doi.org/f82z>
- McLeskey, J., & Billingsley, B. S. (2008). How does the quality and stability of the teaching force influence the research-to-practice gap? A perspective on the teacher shortage in

- special education. *Remedial and Special Education*, 29(5), 293-305.
<https://doi.org/10.1177%2F0741932507312010>
- *McNeill, J. (2019). Social validity and teachers' use of evidence-based practices for autism. *Journal of Autism and Developmental Disorders*, 49(11), 4585-4594.
<http://dx.doi.org/10.1007/s10803-019-04190-y>
- Meisenberg, G., & Williams, A. (2008). Are acquiescent and extreme response styles related to low intelligence and education? *Personality and Individual Differences*, 44(7), 1539-1550. <https://doi.org/10.1016/j.paid.2008.01.010>
- *Morin, K. L., Sam, A., Tomaszewski, B., Waters, V., & Odom, S. L. (2020). Knowledge of evidence-based practices and frequency of selection among school-based professionals of students with autism. *The Journal of Special Education*. Advanced online publication.
<https://doi.org/10.1177%2F0022466920958688>
- *Mutua, F. N. (2019). *Aligning autism focused classroom teaching with evidence-based practices*. (Publication No. 22623036) [Doctoral dissertation, California State Polytechnic University]. ProQuest Dissertations and Theses Global.
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children*, 71(2), 137-148. <https://doi.org/gf8rqw>
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure: Alternative Education for Children and Youth*, 54(4), 275-282. <https://doi.org/10.1080/10459881003785506>
- Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan—a web and

mobile app for systematic reviews. *Systematic Reviews*, 5(1), 210.

<http://dx.doi.org/10.1186/s13643-016-0384-4>

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., & Moher, D. (2021). Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *Journal of Clinical Epidemiology*. Advanced online publication. <https://doi.org/gh29km>

Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Gimshaw, J. M., Hrobjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: Updated guidance and exemplars for reporting systematic reviews. *BMJ*, 372(n71), 1-9. <https://doi.org/10.1136/bmj.n71>

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, 46(3), 598-609. <https://doi.org/czzm4j>

Paulhus, D. L. (2002). Socially desirable responding: The evolution of a construct. In H. I. Braun, D. N. Jackson, & D. E. Wiley (Eds), *The role of constructs in psychological and educational measurement* (pp. 61-84). Routledge.

Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R. W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 224-239). Guilford.

*Pearson, J. M. (2018). *Special educators' math instruction for high school students with significant intellectual disabilities*. (Publication No. 10956903) [Doctoral dissertation, University of Illinois at Chicago]. ProQuest Dissertations and Theses Global.

- *Plotner, A. J., Mazzotti, V. L., Rose, C. A., & Carlson-Britting, K. B. (2016). Factors associated with enhanced knowledge and use of secondary transition evidence-based practices. *Teacher Education and Special Education, 39*(1), 28-46. <https://doi.org/f2gb>
- *Probst, K. M., & Kyei-Blankson, L. (2017). Familiarity, use and perceived effectiveness of evidence based practices among teachers of students with visual impairment and other comorbid conditions. *International Journal of School and Cognitive Psychology, 4*(2), 1-10. <http://dx.doi.org/10.4172/2469-9837.1000195>
- Revilla, M., & Ochoa, C. (2017). Ideal and maximum length for a web survey. *International Journal of Market Research, 59*(5), 557-565
- Sallese, M. R. (2021). *Knowledge and use of evidence-based practices in special education: A systematic literature review* [Manuscript in preparation]. Educational Psychology Department, Texas A&M University.
- Salvia, J. A., & Meisel, C. J. (1980). Observer bias: A methodological consideration in special education research. *The Journal of Special Education, 14*(2), 261-270. <https://doi.org/10.1177%2F002246698001400213>
- Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist, 54*(2), 93-105. <https://psycnet.apa.org/doi/10.1037/0003-066X.54.2.93>
- Sciuchetti, M. B., McKenna, J. W., & Flower, A. L. (2016). Teacher knowledge and selection of evidence-based practices: A survey study. *Journal of Vincentian Social Action, 1*(2), 20-31. <https://scholar.stjohns.edu/jovsa/vol1/iss2/8>
- Stone, A. A., & Shiffman, S. (2002). Capturing momentary, self-report data: A proposal for reporting guidelines. *Annals of Behavioral Medicine, 24*(3), 236-243. http://dx.doi.org/10.1207/S15324796ABM2403_09

- *Stormont, M., Reinke, W., & Herman, K. (2011). Teachers' characteristics and ratings for evidence-based behavioral interventions. *Behavioral Disorders, 37*(1), 19-29.
<http://dx.doi.org/10.1177/019874291103700103>
- Talbott, E., Maggin, D. M., Van Acker, E. Y., & Kumm, S. (2018). Quality indicators for reviews of research in special education. *Exceptionality, 26*(4), 245-265.
<https://doi.org/gftjmr>
- Taplin, P. S., & Reid, J. B. (1973). Effects of instructional set and experimenter influence on observer reliability. *Child Development, 44*(3), 547-554. <https://doi.org/b94m6q>
- *Tomasi, K. C. (2020). *Special education teachers' perceptions of evidence-based practice: A case study* (Publication No. 27997321) [Doctoral dissertation, Northcentral University]. ProQuest Dissertations and Theses Global.
- Van de Mortel, T. F. (2008). Faking it: social desirability response bias in self-report research. *The Australian Journal of Advanced Nursing, 25*(4), 40-48.
- *Vincent, T. N. (2019). *Educator knowledge and usage of evidence-based interventions for students with emotional and behavioral disorders in special education programs across California*. (Publication No. 27741146) [Doctoral dissertation, Brandman University]. ProQuest Dissertations and Theses Global.
- What Works Clearinghouse. (2020a). *What Works Clearinghouse: Procedures handbook (Version 4.1)*. Institute of Education Sciences, U.S. Department of Education.
<https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Procedures-Handbook-v4-1-508.pdf>
- What Works Clearinghouse. (2020b). *What Works Clearinghouse: Standards handbook (Version 4.1)*. Institute of Education Sciences, U.S. Department of Education.

<https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Standards-Handbook-v4-1-508.pdf>

Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders, 45*(7), 1951-1966.
<https://doi.org/10.1007/s10803-014-2351-z>

Table 7*Survey Method Characteristics*

Study	Time (min)	Mode	Anonymity	Research Approach	Item Type	Definition	Neutrality	Reliability	Validity
Aukes, 2018*	10-15	Online	Anonymous	SR-EBP List	3-Point Likert Scale	Full	No	Yes (α)	Yes
Bak, 2013*	10-15	Paper	Potentially	SR-EBP List	5-Point Likert Scale	Partial	Yes	NR	Yes
Beam & Mueller, 2017	5-7	Online	NR	SR-EBP List	5-Point Likert Scale	NR	NR	NR	Yes
Borders et al., 2015	NR	Online	NR	SR-EBP List	Dichotomous	None	NR	NR	NR
Bradley-Black, 2013*	25	Online	Anonymous	SR-General	3&4-Point Likert Scales & Open-Ended	None	N/A	Yes (α)	Yes
Brock et al., 2020*	NR	Online	Potentially	SR-Coding	Open-Ended	N/A	Yes	Yes (%)	NR
Burns et al., 2009*	NR	Paper	Anonymous	SR-Mix List	5-Point Likert Scale Peer Rater Ranking	Full	Yes	NR	NR
Carter et al., 2011*	NR	Paper	Potentially	SR-Mix List	5-Point Likert Scale	Full	Yes	NR	NR
Carter et al., 2012*	NR	Both	Potentially	SR-Mix List	5-Point Likert Scale	Full	Yes	NR	NR
Chatlos, 2016*	NR	Paper	Potentially	SR-EBPs List	4-Point Likert Scale	Partial	No	NR	NR
Denniston, 2017*	30	Online	Potentially	SR-EBPs List Assessment	Dichotomous 3-Point Likert Scale	Full Full	Yes N/A	NR	Yes
Dynia et al., 2020*	NR	Online	Potentially	SR-General SR-Coding	3-Point Likert Scale Open-Ended	Full N/A	N/A Yes	Yes (%)	NR
Emanuel, 2017*	NR	Both	Identifiable	SR-General	4-Point Likert Scale	NR	N/A	NR	NR
Ferreri et al., 2016	20	Online	NR	SR-Mix List	Dichotomous & Drop Down (hrs)	Full	Yes	NR	NR

Table 7 Continued

Study	Time (min)	Mode	Anonymity	Research Approach	Item Type	Definition	Neutrality	Reliability	Validity
Ficarra & Quinn, 2014*	NR	Online	Potentially	SR-EBPs List	3-Point Likert Scale	Full	No	Yes (α)	NR
Gable et al., 2012	NR	Paper	NR	SR-EBPs List	5-Point Likert Scale	NR	NR	NR	Yes
Grimm, 2015*	20-25	Online	Anonymous	SR-EBPs List	Dichotomous	Full	Yes	NR	Yes
Hoover, 2013*	5-10	Online	Anonymous	SR-EBPs List	6-Point Likert Scale	Partial	No	NR	Yes
Jones, 2009	NR	Paper	Identifiable	SR-EBPs List	5-Point Likert Scale	NR	NR	NR	NR
Keefe, 2017*	15	Online	Anonymous	SR-EBPs List	4-Point Likert Scale	None	Yes	Yes (α)	Yes
Knight et al., 2019	NR	Online	NR	SR-Mix List	5-Point Likert Scale	Full	Yes	Yes (α)	NR
McNeill, 2019*	30-45	Online	Anonymous	SR-EBPs List	6-Point Likert Scale	Full	Yes	NR	Yes
Mutua, 2019	NR	Online	NR	Assessment SR-EBPs List SR-General	3-Point Likert Scale Dichotomous Dichotomous	NR NR NR	N/A Yes N/A	Yes (α)	Yes
Pearson, 2018*	30	Online	Identifiable	SR-EBPs List	5-Point Likert Scale	Partial	Yes	Yes (α)	Yes
Plotner et al., 2016*	NR	Online	Anonymous	SR-EBPs List	4-Point Likert Scale	Partial	No	Yes (α)	Yes
Probst et al., 2017	15-20	Online	Anonymous	SR-EBPs List	Dichotomous	None	NR	NR	Yes
Stormont et al., 2011	15-20	Online	NR	SR-Mix List	5-Point Likert Scale	Full	N/A	NR	Yes
Tomasi, 2020*	10	Online	Anonymous	SR-Coding	Open-Ended	N/A	No	NR	Yes
Vincent, 2019*	10-15	Online	Anonymous	SR-EBPs List	3&4-Point Likert Scales	None	No	Yes (α)	Yes

Note. EBP = evidence-based practice; hrs = hours; min = minute; N = no; NR = not reported; N/A = not applicable; α = Cronbach's alpha; Y = yes. Studies

evaluated with access to the measurement tool are noted with an asterisk (*).

Table 8*Method Characteristics: Artifact Analysis, Interview, Knowledge Assessment, and Observation*

Study	Research Method	Time (min)	Mode	Research Approach	Item Type	Reliability	Validity
Bradley-Black, 2013*	Interview	15-20	Phone	SR-General No Definitions	Open-Ended	NR	NR
Callaway, 2014*	Interview	90-120	In Person	SR-General No Definitions SR-EBP List Partial Definitions	Open-Ended Dichotomous	NR	Yes
Emanuel, 2017*	Interview Observation Artifact Analysis	NR 180 N/A	In Person In Person N/A	SR-Coding Direct Observation SR-Coding	Open Ended Frequency Count Frequency Count	Yes Yes Yes	Yes Yes Yes
Guckert et al., 2016*	Interview Artifact Analysis	35 N/A	In Person N/A	SR-Coding SR-Coding	Open-Ended Frequency Count	Yes NR	Yes No
Jones, 2009	Interview Observation	20-90 120-180	In Person In Person	SR-Coding Direct Observation	Open Ended Frequency Count	NR	Yes
Morin et al., 2020*	Knowledge Assessment	NR	Online	Assessment	Multiple Choice	NR	NR

Note. EBP = evidence-based practice; min = minute; NR = not reported; N/A = not applicable; SR = self-report. Studies evaluated with access

to the measurement tool are noted with an asterisk (*).

Figure 2

Codebook: A Systematic Literature of the Methods and Measures Used to Assess the Knowledge and Use of EBPs in Special Education

<i>Not Reported:</i> This code was used across categories when the study materials, directions, or manuscript did not explicitly address the content.	
Anonymity (Survey Only): Is the survey anonymous?	
<i>Anonymous</i>	The study materials, directions, or manuscript explicitly stated that no personally identifiable information (e.g., name, email, phone number) was collected and participants remained anonymous.
<i>Potentially</i>	It does not appear that the research team collected personally identifiable information of the participants. However, the study materials, manuscript, or directions on the survey did not confirm. *Must have access to the survey to use this code.
<i>Identifiable</i>	The research team collected personally identifiable information.
Data Sharing: Did authors share or agree to share the results outside of the immediate research team? If yes, list with whom they shared the data.	
<i>Shared</i>	Authors reveal that the study results (deidentified or identifiable) were shared with individuals outside of the immediate research team beyond publication purposes (e.g., school district, administrator, state education department)
<i>Private</i>	Authors explicitly state in the IRB, survey, or manuscript that the results of the study will not be shared with anyone outside of the immediate research team and publication purposes.
Definition (SR-EBP List/SR-Mix List Only): Did the researchers provide a definition for evidence-based practices (EBPs)?	
<i>Full</i>	Each EBP was fully defined.
<i>Partial</i>	EBPs were partially defined, meaning that researchers gave brief examples if necessary (e.g., Visual Displays [Venn Diagrams]).
<i>None</i>	Researchers just used the name of the practice.
Definition (SR- General Only): Did the researchers provide a definition for the term EBP?	
<i>Full</i>	The term EBP was fully defined for study participants.
<i>None</i>	Researchers just used the term EBP.
Item & Response Options: What types of items and corresponding response types were used by research teams?	
<i>Dichotomous</i>	The study uses a question that has two possible answers (e.g., Yes/No; Familiar/Not Familiar).
<i>Dropdown</i>	The study includes a question that has participants pick a response from a dropdown list (e.g., hours per week).
<i>Frequency Count</i>	The study includes a question where researchers observe in-person or analyze a document and count the frequency of the EBP.
<i>Likert Scale</i>	The study includes a question that requires participants to choose from a range of options on a continuum (e.g., strongly agree to strongly disagree).
<i>Multiple Choice</i>	The study asks a question with a stem and a list of options, with only one correct option.
<i>Open Ended</i>	The study includes a question that requested participants to write in an open-ended narrative to provide a response.
<i>Peer Rater</i>	The study requires another population of school personnel to rate knowledge/use of EBPs of special education personnel.
Language Neutrality: Did the researchers use neutral language when they asked about the knowledge/use of EBPs?	
<i>Yes</i>	Neutral language (no use of terms denoting effectiveness) was used in survey, email correspondence, and IRB script.
<i>No</i>	Terms in the survey, email correspondence, or IRB script identify the practices as effective or the question requesting an open-ended narrative (SR-Coding) specifically asks for EBPs.
<i>N/A</i>	Code is not applicable for the SR-General, Observation, Assessment, and Artifact Analysis response types.

Mode: In what manner did study procedures occur?	
<i>Artifact Analysis</i>	option 1-electronic artifacts; option 2-paper artifacts
<i>Knowledge Assessment</i>	option 1-online assessment; option 2-paper assessment
<i>Interview</i>	option 1-in person; option 2-phone; or option 3-video
<i>Observations</i>	option 1-in person; option 2- live video; option 3-recorded video
<i>Survey</i>	option 1-online survey; option 2-paper survey
Publication Type: What type of article is it?	
<i>Journal Article</i>	The manuscript was published in a peer-reviewed academic journal.
<i>Dissertation/Thesis</i>	The manuscript details a study submitted in support of a student's candidacy for a masters or doctoral degree.
<i>Government Report</i>	The study manuscript was published by a government agency or supported center (i.e., What Works Clearinghouse)
Prior Relationship: Did any members of the research team have a prior connection or relationship with study participants?	
<i>Acquainted</i>	Authors disclose a prior connection with participants before study recruitment. Examples include: participated in a previous study, in a graduate class with a researcher, a teacher in the school they currently or previously worked
<i>No Prior Relationship</i>	Authors explicitly state in the manuscript or materials that they had no prior relationship with participants.
Research Approach: How did the researchers plan to assess the knowledge and use of EBPs?	
<i>Self-Report Evidence-Based Practices List (SR-EBPs List)</i>	The study participants are presented with a list of two or more specific EBPs and asked to self-report levels of knowledge or use.
<i>Self-Report Mix List (SR-Mix List)</i>	The study participants are presented with a list of two or more teaching strategies and asked to self-report levels of knowledge or use. The list included a mix of EBPs and other strategies (e.g., unproven practices, ineffective practices, promising practices).
<i>Self-Report General (SR-General)</i>	The study participants are asked a general question about their overall knowledge or use of EBPs without the specific reference to a particular EBP. Example: How often do you use EBPs in your classroom?
<i>Self-Report Researcher Coding (SR-Coding)</i>	Participants are asked to describe current teaching methods in an open-ended narrative and then researchers code for the presence of EBPs within the response.
<i>Observation</i>	Researchers observe study participants while instructing and record the frequency or presence of EBPs during the lesson.
<i>Knowledge Assessment (Assessment)</i>	The researchers formally test the study participants' knowledge of the EBP. Examples include: study participants taking a quiz on the essential elements or steps to implement, asking the participants to classify if a practice is an EBP or not.
<i>Artifact Analysis</i>	Researchers request teaching artifacts and examine the documents for the frequency or presence of EBPs.
Open Ended Coding Categories	
Questions	Copy and paste the question stem.
Reliability	Describe methods for assessing reliability and the results (e.g., internal consistency, Cronbach's Alpha; test-retest- Cohen's kappa).
Participant Incentive	Describe any incentives (e.g., gift cards) offered to participants for participation in the study.
Scale Details	What is the language associated with the items in the scale? (e.g., 0 = irrelevant, 1 = no impact, 2 = low impact, 3 = moderately effective, 4 = effective, and 5 = highly effective)
Time Expectations	What were the time expectations of participants for participation in the study (i.e., estimated time to complete survey or assessment, length of time for observations and interviews)?
Validity	Describe authors methods for establishing validity (e.g., face validity which is an estimate of whether a survey appears to measure a certain criterion often by content experts).

Figure 3

Knowledge and Use Methods Coding Results Summary

Coding Category	Percentage of Studies (Number of Studies/Total Number of Studies in Category)						
Publication Type	<i>Journal Article</i>	<i>Dissertation</i>					
	56% (18/32)	44% (14/32)					
Participant Incentive	<i>Offered</i>	<i>Not Offered</i>	<i>NR</i>				
	16% (5/32)	0% (0/32)	84% (27/32)				
Prior Relationship	<i>Acquainted</i>	<i>No Prior Relationship</i>	<i>NR</i>				
	13% (4/32)	0% (0/32)	87% (28/32)				
Data Sharing	<i>Private</i>	<i>Shared</i>	<i>NR</i>				
	12% (4/32)	16% (5/32)	72% (23/32)				
Reliability	<i>Reported</i>	<i>NR</i>					
	38% (12/32)	62% (20/32)					
Validity	<i>Reported</i>	<i>NR</i>					
	59% (19/32)	41% (13/32)					
Language Neutrality (Survey Only)	<i>Yes</i>	<i>No</i>	<i>N/A</i>	<i>NR</i>			
	48% (14/29)	24% (7/29)	10% (3/29)	17% (5/29)			
Anonymity (Survey Only)	<i>Anonymous</i>	<i>Potentially</i>	<i>Identifiable</i>	<i>NR</i>			
	38% (11/29)	28% (8/29)	10% (3/29)	24% (7/29)			
Definition (SR-EBP /SR-Mix Lists Only)	<i>Full</i>	<i>Partial</i>	<i>None</i>	<i>NR</i>			
	46% (11/24)	21% (5/24)	17% (4/24)	17% (4/24)			
Definition (SR-General Only)	<i>Full</i>	<i>None</i>	<i>NR</i>				
	17% (1/6)	50% (3/6)	33% (2/6)				
Research Method	<i>Artifact Analysis</i>	<i>Knowledge Assessment</i>	<i>Interview</i>	<i>Observation</i>	<i>Survey</i>		
	6% (2/32)	3% (1/32)	16% (5/32)	6% (2/32)	91% (29/32)		
Research Approach	<i>SR-EBPs List</i>	<i>SR-Mix List</i>	<i>SR-General</i>	<i>SR- Coding</i>	<i>Observation</i>	<i>Assessment</i>	
	59% (19/32)	19% (6/32)	16% (5/32)	19% (6/32)	6% (2/32)	9% (3/32)	
Response Type	<i>Dichotomous</i>	<i>Dropdown</i>	<i>Frequency Count</i>	<i>Likert Scale</i>	<i>Multiple Choice</i>	<i>Open-Ended</i>	<i>Peer Rater</i>
	22% (7/32)	3% (1/32)	9% (3/32)	72% (23/32)	3% (1/32)	28% (8/29)	3% (1/32)

Note. See Figure 2 for definitions of each category. NR = not reported; N/A = not applicable; SR = self-report; EBP = evidence-based practice.

4. ASSESSING KNOWLEDGE AND USE OF EVIDENCE-BASED PRACTICES: INSTRUMENT DEVELOPMENT WITH SOCIALLY DESIRABLE RESPONDING IN MIND

Standards-based education reforms (Every Student's Succeeds Act [ESSA], 2015; Individuals with Disabilities Education Act [IDEA], 2004; No Child Left Behind [NCLB], 2001) changed the landscape of special education, bringing with it additional roles, responsibilities, and heightened accountability for special education teachers (Billingsley et al., 2019). Moving beyond annual progress on individualized education program (IEP) goals, the large majority of students with disabilities are expected to demonstrate growth on state-wide standardized assessments regardless of current academic achievement (NCLB, 2001; Vannest et al., 2009). As a result, there is a growing expectation for special education teachers to address grade-level content standards, which may at times conflict with individual student needs (Billingsley et al., 2019; Russell & Bray, 2013; Pazey et al., 2015). Navigating increased caseloads with fewer resources, on top of these demands, often leaves special education teachers frustrated with their current position (Fowler et al., 2019; Hagaman & Casey, 2018). Assessments and accountability were the most cited reason for special education teachers leaving the profession in a nationally representative study (24%; Carver-Thomas & Darling-Hammond, 2017). Even under increased pressure, special educators continue to show up each day for their students.

Policy and the larger special education community support the use of evidence-based practices (EBPs) as the way to meet the high academic standards (Council of Exceptional Children [CEC], 2015; ESSA, 2015; IDEA, 2004; NCLB, 2001; Slavin, 2002). Hoping to bridge the research-to-practice gap, researchers and federal programs dedicate their time to identifying and disseminating lists of teaching techniques demonstrating positive outcomes in numerous

high-quality experimental studies (i.e., EBPs; Cook & Odom, 2013). Using EBPs with fidelity maximizes instructional time and provides a high likelihood of success (Travers, 2017). The identification process seems to be generally successful given the ever-growing list of EBPs. Though, dissemination and large-scale adoption efforts struggle.

Unlike an intervention that is a tool, product, package, or pharmacology, in special education, the practitioner's embodied knowledge and skills (K & S) are the intervention, and human nature is complicated (Fixsen et al., 2009) when translating K & S to practice. Several barriers, such as the feasibility of the procedures, accessibility of the research, and relevance to the unique student populations, impede the wide-spread use of EBPs (Greenwood & Abbot, 2001; Hudson et al., 2016; Jones, 2009; Koch et al., 2006; Landrum et al., 2002; Schiller & Malouf, 2000). Systems are working towards taking an active role in translating science into practice by focusing on the implementation process (Cook et al., 2013; Fixsen et al., 2009; Institute of Education Sciences [IES], 2019).

Early research in this cognate area has attempted to measure current levels of the knowledge and use of EBPs by special education teachers and service providers in public-school settings. Studies areas range broadly from the teams assessing EBPs for classroom management and behavior strategies (Beam & Muller, 2017; Ficarra & Quinn, 2014); for particular populations, including those with autism (Dydia et al., 2020; Knight et al., 2019; McNeill, 2019), emotional and behavioral disorders (Gable et al., 2012; Vincent, 2019); and for secondary and transition practices (Plotner et al., 2016). A recent systematic literature review (Sallese, 2021a) indicates moderate to high levels of knowledge and variability in use with a range of low to high levels across studies and practices. Self-report remains the primary measurement method when

investigating knowledge and use of EBPs with studies using semi-structured interviews, observations, knowledge assessments, and most commonly online or paper surveys.

Socially Desirable Responding

Self-report surveys seem to be the most direct and cost-effective option to assess the knowledge use of specific practices in a large population (i.e., special education teachers and service providers in the public-school setting; Paulhus & Vazire, 2007; Schwarz, 1999; Stone & Shiffman, 2002). Given the degree of autonomy in the classroom, the practitioner is privy to their own knowledge and behavior in a way that their supervisor or peer is not. Still, it is important to take into consideration the different types of response bias as a limitation of the self-report method, such as extreme responding, neutral responding, and acquiescent responding (Meisenberg & Williams, 2008; Paulhus, 2002; Paulhus & Vazire, 2007; Van de Mortel, 2008). The literature describes the potential for both intentional and unintentional distortions of the truth by participants on self-report measures (Paulhus, 1984). A commonly cited source of response bias is socially desirable responding (SDR), which refers to the tendency to present oneself in an overly positive way when completing a self-report questionnaire (Holtgraves, 2004; Paulhus, 1984; Paulhus, 2002). Participants tend to underreport inappropriate behaviors and over-report positive behaviors to align with societal or professional expectations (Donaldson & Grant-Vallone, 2002). It appears that individuals engage in SDR based on a variety of personal and situational factors, with the highest rates reported with sensitive topics such as drug use, sexual behavior, and body weight (Burke & Carman, 2017; Heggestad; 2012; Latkin et al., 1993; Tracey, 2016).

It may lead one to consider SDR in the measurement process given the great degree of pressure placed on modern special education teachers. High levels of EBPs are not only desirable

but are expected to meet the needs of their students. Educators are often emotionally and personally connected to their profession, leading the individual to see teaching as an extension of self (O'Connor, 2008; Nias, 1986). Teaching is an “emotional practice” with personal student connections sustaining continued employment and guiding many instructional decisions (Hargreaves, 1998, p. 850). The profession asks individuals to show commitment by caring for their students (O'Connor, 2008), and most recently, educators are told the way to do this is through the use of EBPs. However, current barriers in the dissemination and implementation process may inhibit them from doing so (Hudson et al., 2016; Jones, 2009; Koch et al., 2006; Greenwood & Abbot, 2001; Schiller & Malouf, 2000). Data may not accurately reflect current rates of knowledge and use of EBPs, because educators might intentionally or unintentionally misrepresent themselves to meet the perceived expectation. Indicating low levels of knowledge or use could call into question the practitioners' ability to “care” for their students. Ultimately, integration of personal and professional identity has the potential to inflate the level of sensitivity when assessing professional behaviors.

There is disagreement in the literature regarding the significance of SDR and how to address it in empirical investigations. Some claim that this tendency does not meaningfully alter the validity of the results claiming that subjects prone to SDR will also have personality traits that spur them to engage in the behavior in real life (Tracey, 2016). Though, this may not apply to over-extended educators placed in a scarce environment that does not allow them to engage with students in line with their personality characteristics.

When considered to be a potential threat, researchers typically address SDR in one of two ways. First, the team may add a SDR measure to the research protocol (i.e., Balanced Inventory of Desirable Responding; Paulhus, 1988) and use covariate techniques (Paulhus & Vazire, 2007).

Studies incorporating SDR measures in addition to questions about the construct of interest reveal inconsistencies with some exhibiting little or no effect (Lajunen & Summala, 2003; Mathie & Wakeling, 2011; Ward & King, 2018) and others reporting a significant effect on outcomes (Anderson, 2019; Nelson & Liebel, 2017; Schell et al., 2020). This further supports the notion that situational or contextual factors influence a participant's likelihood to engage in SDR, as opposed to theorizing SDR remains constant across all types of self-report measures regardless of the content. However, there are several concerns about this first method's (i.e., including a SDR measure in the research protocol) connection to personality traits and the inability to parse out one from the other (Ward & King, 2018). The second, largely more accepted method of accounting for SCR treats it as a nuisance factor, using built-in controls in the questionnaire to reduce its influence (Krumpal, 2013; Pelt et al., 2019). Researchers primarily focus on anonymity, mode, neutrality, and item ambiguity when taking this approach (Donaldson & Grant-Vallone, 2002; Fleming, 2012; Gnambs & Kaspar, 2017; Krumpal, 2013, McKibben & Silvia, 2016; Paulhus & Vazire, 2007).

Anonymity

A commonly reported and significant influence on SDR relates to the participants' perceived level of privacy. Individuals are more likely to divulge personally sensitive information and unfavorable information when the study ensures anonymity, data security, and confidentiality of the responses (Donaldson & Grant-Vallone, 2002; Gnambs & Kaspar, 2017; Krumpal, 2013, Paulhus & Vazire, 2007). For instance, Joinson et al. (2007) found that participants were less likely to disclose their salary when a username and password were required for the questionnaire instead of an anonymous link. Before that, Joinson (2001) reported that more personal information was shared when individuals were asked to visually disguise

themselves in online discussion groups. In applied organizational research, employees may answer questions with the belief that there is at least a small chance their employer could gain access to their responses, especially when study participation was contingent on employment in a specific field (Donaldson & Grant-Vallone, 2002).

Mode

A large majority of modern survey research is done with an online application. However, teams may still decide to proceed with both online and paper surveys to reach those individuals without access to the internet (Gnambs & Kaspar, 2017). The “candor hypothesis” (Buchanan, 2000; 2001) theorizes that non-proctored web-based research increases the perception of privacy and therefore reduces SDR. A recent meta-analysis (Gnambs & Kaspar, 2017) found no mode effect for surveys and tests administered either online or on paper related to SDR. Though, the author’s caution against making sweeping conclusions given that very few studies enrolled participants in applied settings (i.e., most studies used college-age participants), the analysis included studies with topics of varying degrees of sensitivity. The same author team (Gnambs & Kaspar, 2015) conducted a meta-analysis focused on the self-disclosure of sensitive behaviors. Results show that participants were about 1.5 times more likely to disclose socially undesirable behaviors in an online survey than on paper. This reinforces the assertion that levels of SDR vary across constructs and largely depend on situational and contextual factors. While additional research is needed to make a definitive claim, research suggests that online and paper surveys yield comparable results (Gnambs & Kaspar, 2017).

Neutrality

SDR becomes a concern primarily when the participant feels that answering the question in a specific direction would identify them as having socially inappropriate qualities.

Consequently, a simple approach to lessen the influence of SDR would be to neutralize the study purpose and survey items as much as possible (Fleming, 2012; Krumpal, 2013). The goal is to “minimize the reactionary content of the item and response options that might prompt someone to present one’s self in an overly positive way” (McKibben & Silvia, 2016, p. 58). Given the current pressure on educators to incorporate EBPs into instruction, identifying the practices as “expected” or “ideal” (e.g., evidence-based) may pressure participants into reporting based on professional expectation rather than personal reality.

Item Ambiguity

The literature suggests that featuring clear, concise, and concrete wording within the survey decreases participants’ likelihood of responding in a socially desirable way (Fleming, 2012; McKibben & Silvia, 2016). Special education features numerous acronyms, and often research vocabulary does not match clinical vocabulary when describing the same teaching practices. Practitioners may know the practice in question without being aware of the technical terminology. Also, seeing technical language may infer importance to the survey participant and increase the pressure to respond with higher levels than reality.

Purpose of Current Project

The present author conducted a recent systematic literature review examining the methodological choices of studies assessing the knowledge and use of EBPs by special education personnel in EC-12 school-based settings (Sallese, 2021b). Most of the studies (91%) incorporated a self-report survey in the research protocol. None of the survey-based studies reported that they attempted to intentionally address SDR in the design or implementation process. However, several studies did note the potential for bias based on self-report data in the limitations (Bak, 2014; Burns & Ysseldyke, 2009; Ficarra and Quinn, 2014; Gable et al. 2012;

Knight et al., 2019; McNeill, 2019). It is possible that some of the authors designed the instrument with SDR in mind without formally reporting it in the manuscript. Literature suggests anonymity and language neutrality impact the likelihood of SDR (Donaldson & Grant-Vallone, 2002; Fleming, 2012; Gnambs & Kaspar, 2017; Krumpal, 2013, Paulhus & Vazire, 2007). Only 38% of survey-based studies in the systematic literature review (Sallese, 2021b) explicitly confirmed anonymity, and less than half (48%) confirmed the use of neutral language in the survey (i.e., no use of language denoting teaching practice effectiveness). Moving forward, SDR may need to be taken into consideration when designing surveys.

When approaching the concept of the current state of EBPs, the implications of false positives or overrepresenting the existence of EBPs in today's schools are far more concerning for students with disabilities than underreporting. Funding for implementation efforts such as professional development and teaching resources often depends on data indicating the need. In Sallese (2021a), only 6% or two of the author teams focused on classroom management or behavior EBPs from the 32 total studies that met eligibility criteria for the systematic literature review. In comparison, half of the studies represented EBPs identified for students with autism.

This study fills a gap in the literature by developing a self-report survey that can address the unchecked threat to validity (SDR) present in prior studies. The new assessment is designed to measure the knowledge and use of EBPs by special education personnel in the area of classroom management and behavior support with specific characteristics embedded to reduce the influence of SDR. Attending to a potential source of response bias with a sensitive subject will improve the degree of confidence in conclusions from the resulting data and may provide data leading to alternate or unbiased understandings.

Method

This manuscript describes the iterative development of an instrument designed to assess the knowledge and use of classroom management and behavior strategies of special education school-based personnel (e.g., special education teachers, paraprofessionals, related service personnel) with features to limit the potential for SDR. The development process aligned with current recommendations (Benson & Clark, 1982; Boateng et al., 2018; Dillman et al., 2014; Grant & Davis, 1997) and involved four distinct phases: practice selection, definition creation, survey construction, and assessing the potential for SDR. See Figure 4 for a visual representation of the instrument development process.

Development phases incorporate relevant stakeholder feedback (Boateng et al., 2018). The literature fluctuates on the recommended number of content experts needed for instrument development with suggestions ranging from two to 20 individuals (Boateng et al., 2018; Grant & Davis, 1997; Lynn, 1986). Numbers largely depend on specific situational factors such as the range of expertise of each individual. One expert may not be able to speak to all aspects of the survey or assess the instrument from multiple viewpoints (Grant & Davis, 1997). Individuals with content area expertise, methodological expertise, and the target population should engage in the feedback process (Boateng et al., 2018; Dillman et al., 2014). The current project solicits feedback on the online survey from school-based personnel currently employed in school-based settings and individuals working in research and teaching positions in higher education (i.e., content area and methodological expertise). Representation from both groups brings multiple viewpoints and a range of expertise to the development process (Grant & Davis, 1997).

Practice Selection

Instrument development began with reviewing the literature and existing surveys to identify teaching practices in classroom management and behavior support. Sallese (2021) conducted a systematic literature review of studies measuring the knowledge and use of EBPs by special education personnel. A comprehensive search identified 32 studies, most of which used self-report survey methodology. The research team examined the classroom management and behavior surveys identified in Sallese (2021; Beam & Mueller, 2017; Ficarra & Quinn, 2014; Gable et al., 2012) and articles including surveys citing these studies also involving general education personnel (e.g., Cooper et al., 2018; Garcia, 2020; Moore et al., 2017). Simonsen et al. (2008) emerged as an evidence-based review cited by the studies focusing on classroom management. The first author selected three articles (i.e., scales, Cooper et al., 2018; Gable et al., 2012; evidence-based review, Simonsen et al., 2008) as foundational sources to identify potential practices for inclusion in this survey. Survey articles chosen (Cooper et al., 2018; Gable et al., 2012; Hepburn, 2019) encompassed the practices represented in the other classroom management survey-based studies found and therefore were chosen for parsimony.

The first author conducted an electronic database search using Educational Resources Information Center and Google Scholar for an evidence-based review for each teaching practice (n = 45 unique practices) from the foundational sources (Cooper et al., 2018; Gable et al., 2012; Simonsen et al., 2008). In addition, the table of contents of relevant special education journals were searched for the last five years (*Journal of Special Education; Exceptional Children, Behavior Disorders, Journal of Positive Behavior Interventions, Remedial and Special Education*). Practices from the foundational sources were included in this survey if they met the following criteria: (a) a classroom management or behavioral practice with an evidence-based

review from a journal article, dissertation, or government report, (b) using Council for Exceptional Children (CEC; Cook et al., 2014) or recent What Works Clearinghouse (WWC; WWC, 2014; 2017; 2020) EBP standards, (c) in school-based settings, (e) with a comprehensive or broad student population or multiple evidence-based reviews across two or more disability categories, and (f) the results indicated the practice was an EBP or potentially an EBP. A total of eight practices met inclusion criteria for this survey: active supervision, behavior-specific praise (BSP), high probability request sequence (HPRS), check-in check-out (CICO), group contingency, opportunities to respond (OTR), pre-correction, and token economy. Remaining practices were excluded based on insufficient evidence (e.g., choice, Royer et al., 2017), use of alternative EBP standards (e.g., Simonsen et al., 2008), or a limited population (e.g., self-management, Hume et al., 2021) in an evidence-based review or an inability to find an evidence-based review in the literature concentrated on the practice.

Definition Creation

The first author generated definitions for the eight practices based on the description from the corresponding evidence-based review (see citations in Table 9), foundational sources (Cooper et al., 2018; Gable et al., 2012; Simonsen et al., 2008), and a review of the literature (e.g., Bross et al., 2018; Ennis, Lane, et al., 2018; Ennis, Royer, et al., 2018; Menzies et al., 2018). The operational definition included practitioner-friendly language and examples/non-examples where appropriate and avoided acronyms and overly technical language per recommendations for survey creation and limiting the possibility of SDR (Fleming, 2012; McKibben & Silvia, 2016). Three independent content area experts specializing in classroom management and behavior strategies (i.e., research and college-level teaching experience) working in higher education evaluated the definitions for correctness, parsimony, and clarity. All

three content experts offered suggestions for improvement, and edits were made based on the feedback. Following this, three teachers reviewed the updated definitions for clarity and alignment with practitioner-friendly language. They rated each definition on a scale of *strongly agree* (1) to *strongly disagree* (4) with an open-ended question after the Likert scale to provide additional feedback. Teachers ranged in experience from six to twelve years in the field and taught students at the elementary or high school level. Final definitions incorporate revisions recommended by the teachers. See Table 9 for a full list of the practice definitions and details for the corresponding evidence-based reviews.

Survey Construction

This online questionnaire consists of three major sections: (a) familiarity with the practices, (b) use of the practices, and (c) demographic characteristics. The survey restricts participants' ability to go backward in the survey and incorporates display logic in the design. The first author developed a draft survey through Qualtrics, an online survey platform. An outside reviewer with expertise in survey methodology and prior experience examining the knowledge and use of EBPs by special education personnel evaluated the survey. This appraisal focused on methodical choices, alignment to current recommendations, best practices in survey-based research (e.g., Dillman et al., 2014), choice of demographic characteristics, and language clarity. The first author made initial edits based on the formal written feedback and incorporated a further round of revisions after continued discussions with the methodologist. A full version of the survey, including edits, is available in Appendix D.

The first section of the survey focuses on educator knowledge of the teaching practices. Knowledge was represented by the term familiarity in the current survey, which encompasses both participant understanding of the practice and preparedness to implement it in their current

setting. In the first question, survey participants indicate familiarity with each of the eight practices without definitions on a scale of *unfamiliar* (1) to *very familiar* (4). This question evaluates educator knowledge of the practice based on the research term alone. Directions indicate to the participants that they will receive a full definition in the next section of the survey and to focus on the term alone in the initial question. Following this, the survey mirrors the same question about familiarity, now providing practice definitions, and the directions designate that understanding the definition may or may not change their response. Including both questions offers the opportunity to analyze the difference between a participant's familiarity with the technical term and familiarity with the technical term alongside a practitioner-friendly definition. The result may contribute beneficial information for the field on the relative importance of including a definition within a survey.

The second section of the survey assesses the frequency with which the educator engages in the practice in their current work setting with two questions per practice. To begin, the survey participant specifies their use of one practice in their current setting on a scale of *I do not use this practice* (1) to *more than once per day* (6). This question is immediately followed by a second question asking them if they used the same practice today or the last day school was in session (*yes/no*). These question formats allow for an estimated frequency and a discrete frequency. The current author hypothesizes individuals may be less likely to engage in SDR on the second question if allowed to estimate in the first question. Use questions are separated by page breaks, meaning that the participant sees one question at a time, and survey settings prohibit going backward. Further, the participants will most likely have a more accurate response, self-reflecting on a recent event, than behavior over time (Dillman et al., 2014). Display logic ensures only participants indicating some level of familiarity receive a use question. Similarly, if the

respondent chooses, *I do not use this practice* for the first general use question; they do not receive the question about their use that day.

The final demographics section (section three) requests the following items from the participant: race/ethnicity, role (e.g., special education teacher, general education teacher, paraprofessional), highest level of education, and years' experience. Informants will also describe their current employment situation by offering school community type (e.g., rural), approximate free and reduced lunch population at their school, grade level(s) served, student support needs (e.g., complex and significant support needs; minimal support needs), and student disability categories. Demographic responding was purposely placed as the last section of the survey to account for the possibility of survey or response fatigue. Galesic and Bosnjak (2009) manipulated the length and position of questions for an online survey and found the items closer to the end of the survey received "faster, shorter, and more uniform" responses (p. 349). Theoretically, demographic questions are easier to respond to, and these questions can be answered quickly. The literature shows mixed recommendations for the placement of demographic questions (i.e., beginning or end), with many ultimately suggesting the decision should be made on a case-by-case basis with the specific sample and context in consideration (Hughes et al., 2016).

Socially Desirable Responding

Features for Socially Desirable Responding

The primary author reviewed the literature related to SDR, paying attention to situational factors and questionnaire features. Four main areas emerged as significant factors to address when SDR is anticipated to occur, and they are anonymity, mode, neutrality, and item ambiguity (Donaldson & Grant-Vallone, 2002; Fleming, 2012; Gnamb & Kaspar, 2017; Krumpal, 2013,

McKibben & Silvia, 2016; Paulhus & Vazire, 2007). The development process ensured the instrument characteristics addressed the four areas.

Participant anonymity is protected. The current questionnaire will ensure privacy by not offering results sharing with school districts as an incentive for participation and site authorization. This is a common strategy used by researchers to increase the sample size. Local administrators advertise and encourage study participation based on the desire to access the data for district planning. However, this seemingly mutually beneficial relationship may increase the likelihood of SDR based on the educators' fear that district leaders may see deidentified results. Further, there may be an unwillingness to represent true scores, knowing that low numbers might stimulate additional district-wide initiatives on top of an already full workload. The survey is sent via an anonymous link and includes specific language in the directions ensuring anonymity, data security, and confidentiality (Donaldson & Grant-Vallone, 2002; Gnambs & Kaspar, 2017; Joinson, 2001; Joinson et al., 2007; Krumpal, 2013, Paulhus & Vazire, 2007). Participants will receive the anonymous survey link from a source other than their employer (e.g., directly from the researcher, social media platform, listserv) to increase the participants' confidence the results will remain confidential.

Mode, language neutrality, item ambiguity were also considered in survey development. The current survey uses a non-proctored online survey format to address the potentially sensitive subject (Gnambs & Kaspar, 2015). Researchers sometimes choose to provide a survey in both an online and paper format to remove internet connectivity as a potential factor in the nonresponder rate. However, participation in the current questionnaire is contingent on their employment status, and it can be assumed that the educator has internet at their workplace. Additionally, the survey platform (i.e., Qualtrics) offers a mobile-friendly version of the measure if the participant

prefers to complete it outside of the workplace. Language neutrality remained the primary focus throughout the instrument development process. The survey does not label the chosen techniques as EBPs or offer any indication of effectiveness to neutralize the content of the instrument (Fleming, 2012; Krumpal, 2013; McKibben & Silvia, 2016). Instead, all participant communication identifies the study's aim as an investigation to explore the familiarity and use of the common teaching practices. Withholding the evidence-based or potentially evidence-based label helps to minimize the reactionary content. Neutral wording will be used across all study materials (e.g., recruitment resources, email communication, consent documents, survey directions and items). Item ambiguity is addressed in the survey by using concise language and practitioner-friendly operational definitions (Fleming, 2012; McKibben & Silvia, 2016). Typical instrument development recommendations endorse the use of clear and concise language (Boateng et al., 2018). Therefore, these actions improve the quality in addition to limiting the potential for SDR.

Stakeholder Feedback Related to Socially Desirable Responding

The final stage of feedback centered on SDR. The project requested feedback from six in-service school-based personnel working directly with students in public schools. Years' experience in education ranged from three to 34 years for the teachers ($M = 16.17$). Reviewers completed the survey in its original form, with a link to an additional rating form at the end of the survey requesting feedback related to anonymity, the potential for SDR, and clarity in the directions and items. For example, the following is one of the questions: *Consider the directions, format of test administration, and content of the survey. How much do you agree with the following statement (strongly disagree to strongly agree)? Participants filling out this survey will feel pressure to alter their "true" familiarity and use based on their perception of professional*

norms. See Appendix C for a full list of the questions asked for this review. The first author analyzed the stakeholder feedback to identify themes and determine the necessary edits. A full version of the survey is available in Appendix D.

Results

Definition Creation Feedback Summary

A total of six reviewers evaluated the practice definitions created for use in the current survey. To begin, three content area experts examined the definitions for correctness, parsimony, and clarity. Feedback across content expert reviewers included suggestions for edits in all but one practice definition (BSP). Reviewers requested the following edits: removing practice intent from the definition (active supervision), including examples, clarifying language (HPRS, OTR, pre-correction), removing optional practice components (CICO), and adding core components to ensure correctness (group contingencies, token economy). After incorporating all edits, three practicing teachers reviewed the updated definitions for clarity on a scale of *strongly agree* (1) to *strongly disagree* (4), with the option for open-ended feedback. Teachers strongly agreed four practice definitions ($M = 4/4$; CICO, group contingency, OTR, token economy) were written clearly and easy to understand and gave no suggested edits to the proposed definition. The definitions for BSP and pre-correction received top scores by all three teachers ($M = 4/4$). However, one educator requested further description of the term explicitly in the space for open-ended feedback for both practices. She explained, “as teachers, we hear ‘explicitly’ a lot... I think sometimes [we] skim over words like this that are used so often. I wonder if ‘specifically’ or ‘very clearly’ would do the same job.” Suggested edits for active supervision ($M = 3.67/4$) included reordering of sentence structure for clarity. Teachers requested the removal of technical language for HPRS ($M = 3/4$) and additional explanation on key aspects of the definition.

Survey Construction Feedback Summary

One survey methodology expert with experience measuring the knowledge and use of EBPs with school-based personnel reviewed a complete draft of the survey with the final definitions in the online platform. The reviewer found the definitions clear and the scales well operationalized. Overall, requested edits encompassed rewording the items as questions rather than imperative statements, inserting page breaks to reduce the number of questions per page, and cutting down the number of words (i.e., wordiness) for each item. Several suggestions from the methodologist related to the demographic questions, which included both technical (e.g., using piped text, changing response type) and substantive (i.e., change in the content or target of the conversation, such as the type of special education teacher) recommendations.

Socially Desirable Responding Feedback Summary

A total of six general education and special education teachers evaluated the updated survey with the methodologist's suggested edits in the online platform to provide feedback related to SDR. Teachers strongly agreed (83.3%) or agreed (16.7%) that they think survey participants will trust their responses are anonymous, and all teachers (100%) strongly agreed that participants will believe their responses will remain private and for research purposes only. In the open-ended response, one teacher responded, "if there are a large number of participants, anonymity will be better perceived." Responses varied in the reviewers' reactions when asked if survey participants will feel pressure to alter their "true" familiarity and use based on their perception of professional norms (strongly disagree, 16.7%; disagree, 50%; neutral, 16.7%; agree, 16.7%). While one teacher remarked that the "language was neutral and did not reflect bias" in the open-ended response, others offered suggestions such as adding language to each question emphasizing anonymity, requesting honesty, and explaining that

“each classroom may vary on the need for these practices.” Further, one teacher explained, “some practices are done naturally due to teaching style without even realizing it, so it might require some reflection time.” Finally, all teacher reviewers strongly agreed (83.3%) or agreed (16.7%) the survey included clear and concise language in the directions and questions.

Discussion

This manuscript details the initial development of a measure designed to assess the familiarity and use of classroom management and behavior strategies of school-based personnel with instrument features to limit the potential for SDR. The iterative process involved four consecutive phases: practice selection, definition creation, survey construction, and assessing the potential for SDR. A total of 15 content experts engaged in the survey development process outside of the immediate research team, which falls within the suggested range (i.e., 2-20; Boateng et al., 2018; Grant & Davis, 1997; Lynn, 1986). Per recommendations (Boateng et al., 2018), individuals with content area expertise (i.e., research and college-level teaching), methodological expertise (i.e., survey-based research), and the target population (i.e., school-based personnel) examined the different aspects of the survey and provided feedback for improvement. A recent systematic literature review (Sallese, 2021) synthesized studies examining the knowledge and use of EBPs. None of the included survey designs specifically reported considering SDR during the design or implementation process (Sallese, 2021). This survey adds to the literature by purposely embedding features to limit SDR. The results of this development process reveal findings worth noting related to the existence of classroom management EBPs, technical language, and the potential for SDR.

At the present moment, not all effective teaching practices have been the focus of an evidence-based review or have enough experimental studies meeting current standards (Cook et

al., 2014; WWC, 2020) to allow for an evidence-based label (Cook et al., 2019). Of the 45 unique classroom management practices found across early reviews and surveys (Cooper et al., 2018; Gable et al., 2012; Simonsen et al., 2008), only four practices held an evidence-based classification with a broad student population based on recent standards in the special education field (Cook et al., 2014; WWC, 2014; 2017; 2020). This may be surprising for some, as many of the remaining practices have long been regarded as the gold standard for effective classroom management (e.g., Lane et al., 2015; Simonsen et al., 2008). The strong reputation of these practices in the literature may deter researchers from engaging in experimental research examining the practices' effectiveness. However, additional research adhering to current guidelines is needed to evaluate the evidence base of standard classroom management practices (e.g., instructional choice, pacing). Given its applicability to all students, future experimental research studies and evidence-based reviews should aim to identify practice effectiveness with diverse student populations. A robust and high-quality literature base provides the contextual understanding to interpret the implications of the knowledge and use rates of these practices produced by a survey such as the one in development.

The terminology used in the research literature may not mirror the practitioners' language in the field. In a manuscript, technical practice definitions support future replication and facilitate a clear connection to the mechanism of action. If, however, a survey contains these definitions, practitioners may unintentionally misrepresent their knowledge or use of a practice if they lack the background knowledge to interpret the technical language. This survey development process incorporated two rounds of feedback, the first from researchers with content-area expertise and the second from practicing teachers. The teachers offered meaningful suggestions for improving half of the survey definitions, primarily related to rewording technical aspects for a more

practitioner-friendly definition. Sallese (2021b) found 57% of the author teams detailed their process for establishing the validity (e.g., face validity) of a survey or knowledge assessment measuring the knowledge and use of EBPs in a recent methodological systematic literature review. About half of studies reporting a process for establishing validity (Bak, 2014; Beam & Mueller, 2017; Denniston, 2017; Keefe, 2017; McNeill, 2019; Plotner et al., 2016; Stormont et al., 2011) incorporated the survey target population, with only one (Pearson, 2018) specifically mentioning a review of the practice definitions by practitioners in the field. The quality of the practice description impacts the validity of the survey results, and researchers may want to consider additional attention to and practitioner involvement in the definition development.

Educators take on the professional and societal expectation to go above and beyond for their students. Currently, the policymakers and the education community promote EBPs as the primary way to maximize the likelihood of student success in the classroom (Council of Exceptional Children [CEC], 2015; ESSA, 2015; IDEA, 2004; NCLB, 2001; Slavin, 2002). A variety of barriers limit the use of EBPs by educators in school-based settings, a few of which include the feasibility of practice procedures, accessibility of research findings, and the general capacity of educators given the increased demands placed on the profession (Fowler et al., 2019; Greenwood & Abbot, 2001; Hagaman & Casey, 2018; Hudson et al., 2016; Jones, 2009; Koch et al., 2006; Landrum et al., 2002; Schiller & Malouf, 2000). High expectations paired with a limiting environment may increase the likelihood of SDR when asking educators about their knowledge and use of EBPs. The current survey embedded features to lessen the possibility of SDR (e.g., neutral language, anonymity, mode). Even so, the practitioner reviews submitted mixed responses on whether they believed future survey participants would feel pressure to alter their familiarity and use responses based on their perception of professional norms strongly

disagree, 16.7%; disagree, 50%; neutral, 16.7%; agree, 16.7%). After feedback is evaluated and incorporated into the current survey, an additional round of feedback related to SDR may need to be considered before pilot testing. While this mixed feedback on the possibility of SDR represents a very limited sample size of practitioners, if replicated, it might hold implications for survey results, especially those without the embedded features. Researchers creating surveys examining the knowledge and use of EBPs may never be able to fully minimize SDR. As with any other response bias, survey creators should consider intentionally designing surveys with SDR in mind.

Limitations

A limitation of the current survey development process relates to the selection of practices. The first author searched the literature (i.e., hand search and electronic database search) for evidence-based reviews of the 45 unique practices found in the chosen evidence-based review (Simonsen et al., 2008) and previous surveys (Cooper et al., 2018; Gable et al., 2012). However, the search process for supporting evidence-based reviews did not incorporate a secondary screener to assess the reliability of inclusion decisions. It is possible that a secondary screener may have identified additional evidence-based reviews that would allow more practices to be included in the survey. Though the duration is a factor in the validity of survey results (e.g., Galesic & Bosnjak, 2009; Eisele et al., 2020), and focusing on a smaller number of practices allows for a shorter survey duration.

Future Directions

The next phase of the survey development process includes a small pilot study of the newly constructed survey. Pilot studies are recommended in the development process to evaluate technical adequacy prior to large-scale dissemination (Dillman et al., 2014; Johanson & Brooks,

2010; Thabane et al., 2010). Subsequent analyses also allow for an examination of the psychometric properties and response rates. The primary author will recruit currently active special education school-based personnel (e.g., teachers, paraprofessionals, behavior specialists) and pre-service teachers with regular and direct contact with students. Participants will not be limited based on grade level or subject area. For this phase, the participants must be currently employed or be placed for a field experience in a public, private, charter, or alternative EC-12 school. The literature lacks consensus on a recommended sample size for initial scale development pilot studies. Contextual factors often influence a priori minimums. Johanson and Brooks (2010) used simulated data to identify “that point at which a sample size increment produced a notably lesser effect in estimating relevant population parameters” (p. 396). Based on the results, the author team recommended a minimum sample size of 30 participants as long as the individuals were representative of the larger population. The future pilot study will recruit a minimum of 30 participants representative of the population of interest. Practitioners will receive an email with a description of the study and a survey link. Teacher education faculty willing to support the project will forward an email from the primary author to pre-service special education teachers. Data collection will last approximately four weeks, with email reminders sent two and three weeks after the initial email.

The final sample size will determine the extent of the analyses. However, with a minimum sample size of 30, the predicted process will include internal consistency estimates and overall response rate calculations. The Cronbach’s alpha coefficient will be reported as an internal consistency reliability indicator (Cronbach, 1951; Tavakol & Dennick, 2011). Given the multi-dimensionality of the current measure (i.e., knowledge and use), coefficients will be reported for the overall scale and each subscale (Gliem & Gliem, 2003). Distinct and universal

reliability standards are not advisable given the vast differences across constructs and fields. However, the current project will aim to be at or below a reliability score of .80, which has been provided as a recommendation for basic research (Lance et al., 2006; Nunnally, 1978). Response rates will be examined and used to inform the recruitment plan for future survey distribution. In the event larger sample sizes are obtained (200+), a more comprehensive analysis plan will be executed (e.g., confirmatory factor analysis) with familiarity and use serving as the latent factors.

Conclusion

Cooper and Scott (2017) describe management of behavior as an “integral foundational component of effective instruction” (p. 102). Therefore, the current state (i.e., knowledge and use) of classroom management and behavior EBPs in school-based settings hold implications for district, university, and policy-level decisions. This manuscript details the initial development of a survey designed to evaluate practitioner familiarity and use of classroom management and behavior EBPs and practices deemed to be potentially an EBP. The process incorporated distinct and consecutive phases that built on each other, and intentionally considered the potential for SDR during design. A sound survey stems from a thorough development process that involves stakeholder feedback (Boateng et al., 2018; Dillman et al., 2014; Grant & Davis, 1997; Lynn, 1986). Educators working in school settings and researchers with expertise in classroom management and behavior analysis evaluated the survey and provided meaningful feedback for improvement throughout the development process. Future directions include a pilot study to assess the technical adequacy of the measure.

References

- Allen, G. E., Common, E. A., Germer, K. A., Lane, K. L., Buckman, M. M., Oakes, W. P., & Menzies, H. M. (2020). A systematic review of the evidence base for active supervision in pre-K–12 settings. *Behavioral Disorders, 45*(3), 167-182.
<https://doi.org/10.1177%2F0198742919837646>
- Anderson, J. R. (2019). The moderating role of socially desirable responding in implicit–explicit attitudes toward asylum seekers. *International Journal of Psychology, 54*(1), 1-7.
<https://doi.org/10.1002/ijop.12439>
- Bak, N. L. (2013). *Best practices in programs for children with emotional behavioral disorders* (Publication No. 3588433) [Doctoral dissertation, State University of New York at Albany]. ProQuest Dissertations and Theses Global.
- Beam, H. D., & Mueller, T. G. (2017). What do educators know, do, and think about behavior? An analysis of special and general educators' knowledge of evidence-based behavioral interventions. *Preventing School Failure: Alternative Education for Children and Youth, 61*(1), 1-13. <http://dx.doi.org/10.1080/1045988X.2016.1164118>
- Benson, J., & Clark, F. (1982). A guide for instrument development and validation. *American Journal of Occupational Therapy, 36*(12), 789-800.
<http://dx.doi.org/10.5014/ajot.36.12.789>
- Billingsley, B., Bettini, E., Mathews, H. M., & McLeskey, J. (2020). Improving working conditions to support special educators' effectiveness: A call for leadership. *Teacher Education and Special Education, 43*(1), 7-27. <https://doi.org/ggqmxz>
- Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and

- behavioral research: A primer. *Frontiers in Public Health*, 6, 1-18.
<http://dx.doi.org/10.3389/fpubh.2018.00149>
- Bross, L. A., Common, E. A., Oakes, W. P., Lane, K. L., Menzies, H. M., & Ennis, R. P. (2018). High-probability request sequence: An effective, efficient low-intensity strategy to support student success. *Beyond Behavior*, 27(3), 140-145.
<https://doi.org/10.1177%2F1074295618798615>
- Burke, M. A., & Carman, K. G. (2017). You can be too thin (but not too tall): Social desirability bias in self-reports of weight and height. *Economics & Human Biology*, 27, 198-222.
<https://doi.org/10.1016/j.ehb.2017.06.002>
- Burns, M. K., & Ysseldyke, J. E. (2009). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education*, 43(1), 3-11.
<http://dx.doi.org/10.1177/0022466908315563>
- Buchanan, T. (2000). Internet research: Self-monitoring and judgments of attractiveness. *Behavior Research Methods, Instruments, & Computers*, 32(4), 521-527.
<https://doi.org/10.3758/BF03200824>
- Buchanan, T. (2001). Online personality assessment. In U. D. Reips & M. Bosnjak (Eds.), *Dimensions of Internet Science* (pp. 57-74). Pabst Science Publishers.
- Carver-Thomas, D. & Darling-Hammond, L. (2017). *Teacher turnover: Why it matters and what we can do about it*. Learning Policy Institute.
- Common, E. A., Bross, L. A., Oakes, W. P., Cantwell, E. D., Lane, K. L., & Germer, K. A. (2019). Systematic review of high probability requests in K-12 settings: Examining the evidence base. *Behavioral Disorders*, 45(1), 3-21. <https://doi.org/fqfh>
- Common, E. A., Lane, K. L., Cantwell, E. D., Brunsting, N. C., Oakes, W. P., Germer, K. A., &

- Bross, L. A. (2020). Teacher-delivered strategies to increase students' opportunities to respond: A systematic methodological review. *Behavioral Disorders, 45*(2), 67-84. <https://doi.org/10.1177%2F0198742919828310>
- Cook, B., Buysse, V., Klingner, J., Landrum, T., McWilliam, R., Tankersley, M., & Test, D. (2014). Council for Exceptional Children standards for evidence-based practices in special education. *Teaching Exceptional Children, 46*(6), 206-212.
- Cook, B. G., Cook, L., & Landrum, T. J. (2013). Moving research into practice: Can we make dissemination stick? *Exceptional Children, 79*(2), 163-180. <https://doi.org/f4j94r>
- Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children, 79*(3), 135-144. <https://doi.org/f4j96f>
- Cooper, J. T., Gage, N. A., Alter, P. J., LaPolla, S., MacSuga-Gage, A. S., & Scott, T. M. (2018). Educators' self-reported training, use, and perceived effectiveness of evidence-based classroom management practices. *Preventing School Failure: Alternative Education for Children and Youth, 62*(1), 13-24. <https://doi.org/10.1080/1045988X.2017.1298562>
- Couch, K. L. (2018). *A Synthesis and Meta-Analysis of the Effects of Token Economies on Student Behavior* (Publication No. 10928527) [Doctoral dissertation, University of California Riverside]. ProQuest Dissertations and Theses Global.
- Council for Exceptional Children. (2015). *What every special educator must know: Professional ethics and standards*. CEC.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334. <https://doi.org/10.1007/BF02310555>
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons.

- Donaldson, S. I., & Grant-Vallone, E. J. (2002). Understanding self-report bias in organizational behavior research. *Journal of Business and Psychology, 17*(2), 245-260.
<https://doi.org/10.1023/A:1019637632584>
- *Dydia, J. M., Walton, K. M., Brock, M. E., & Tiede, G. (2020). Early childhood special education teachers' use of evidence-based practices with children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 77*, 1-12. <https://doi.org/gg7xf3>
- Eisele, G., Vachon, H., Lafit, G., Kuppens, P., Houben, M., Myin-Germeys, I., & Viechtbauer, W. (2020). The effects of sampling frequency and questionnaire length on perceived burden, compliance, and careless responding in experience sampling data in a student population. *Assessment*. Advanced online publication. <https://doi.org/ghbch2>
- Ennis, R. P., Royer, D. J., Lane, K. L., & Griffith, C. E. (2017). A systematic review of precorrection in PK-12 settings. *Education and Treatment of Children, 40*(4), 465-495.
<https://doi.org/fp9g>
- Ennis, R. P., Lane, K. L., Menzies, H. M., & Owens, P. P. (2018). Precorrection: An effective, efficient, low-intensity strategy to support student success. *Beyond Behavior, 27*(3), 146-152. <https://doi.org/10.1177%2F1074295618799360>
- Ennis, R. P., Royer, D. J., Lane, K. L., Menzies, H. M., Oakes, W. P., & Schellman, L. E. (2018). Behavior-specific praise: An effective, efficient, low-intensity strategy to support student success. *Beyond Behavior, 27*(3), 134-139. <https://doi.org/gfz3sm>
- Every Student Succeeds Act, Pub. L. No. 114-95 (2015).
- Ficarra, L., & Quinn, K. (2014). Teachers' facility with evidence-based classroom management practices: An investigation of teachers' preparation programmes and in service

- conditions. *Journal of Teacher Education for Sustainability*, 16(2), 71-87.
<http://dx.doi.org/10.2478/jtes-2014-0012>
- Fixsen, D. L., Blasé, K. B., Naoom, D. F., & Wallace, F. (2009). Core implementation components. *Research on Social Work Practice*, 19(5), 531-540.
<https://doi.org/10.1177%2F1049731509335549>
- Fleming, P. (2012). Social desirability, not what it seems: A review of the implications for self-reports. *The International Journal of Educational and Psychological Assessment*, 11(1), 3-22.
- Fowler, S. A., Coleman, M. R. B., & Bogdan, W. K. (2019). *The state of the special education profession survey report*. Council for Exceptional Children.
- Gable, R. A., Tonelson, S. W., Sheth, M., Wilson, C., & Park, K. L. (2012). Importance, usage, and preparedness to implement evidence-based practices for students with emotional disabilities: A comparison of knowledge and skills of special education and general education teachers. *Education and Treatment of Children*, 35(4), 499-519.
<https://www.jstor.org/stable/42900173>
- Galesic, M., & Bosnjak, M. (2009). Effects of questionnaire length on participation and indicators of response quality in a web survey. *Public Opinion Quarterly*, 73(2), 349-360.
<https://doi.org/10.1093/poq/nfp031>
- Garcia, E. M. (2020). *An analysis of the use of evidence-based classroom management practices in pre-kindergarten through fifth grade classrooms* [Unpublished Doctoral Dissertation]. University of Central Florida.
- Gliem, J. A., & Gliem, R. R. (2003, October 8-10). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales* [Conference Paper].

- Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, Columbus, OH, United States. <http://hdl.handle.net/1805/344>
- Gnambs, T., & Kaspar, K. (2015). Disclosure of sensitive behaviors across self-administered survey modes: A meta-analysis. *Behavior Research Methods*, *47*(4), 1237-1259. <http://dx.doi.org/10.3758/s13428-014-0533-4>
- Gnambs, T., & Kaspar, K. (2017). Socially desirable responding in web-based questionnaires: A meta-analytic review of the candor hypothesis. *Assessment*, *24*(6), 746-762. <http://dx.doi.org/10.1177/1073191115624547>
- Grant, J. S., & Davis, L. L. (1997). Selection and use of content experts for instrument development. *Research in Nursing & Health*, *20*(3), 269-274. [https://doi.org/10.1002/\(SICI\)1098-240X\(199706\)20:3%3C269::AID-NUR9%3E3.0.CO;2-G](https://doi.org/10.1002/(SICI)1098-240X(199706)20:3%3C269::AID-NUR9%3E3.0.CO;2-G)
- Greenwood, C. R., & Abbott, M. (2001). The research to practice gap in special education. *Teacher Education and Special Education*, *24*(4), 276-289. <https://doi.org/cp3ttb>
- 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. <http://dx.doi.org/10.1177/0888406417725797>
- Hargreaves, A. (1998). The emotional practice of teaching. *Teaching and Teacher Education*, *14*(8), 835-854. [http://dx.doi.org/10.1016/S0742-051X\(98\)00025-0](http://dx.doi.org/10.1016/S0742-051X(98)00025-0)
- Heggestad, E. D. (2012). A conceptual representation of faking: Putting the horse back in front of the cart. In M. Ziegler, C. MacCann, & R. D. Roberts (Eds.), *New perspectives on faking in personality assessment* (pp. 87-101). Oxford.
- Holtgraves, T. (2004). Social desirability and self-reports: Testing models of socially desirable

responding. *Personality and Social Psychology Bulletin*, 30(2), 161-172.

<https://doi.org/10.1177%2F0146167203259930>

Hudson, R. F., Davis, C. A., Blum, G., Greenway, R., Hackett, J., Kidwell, J., Liberty, L., McCollow, M., Patish, Y., Pierce, J., Schulze, M., Smith, M. M., & Peck, C. A. (2016). A socio-cultural analysis of practitioner perspectives on implementation of evidence-based practice in special education. *The Journal of Special Education*, 50(1), 27-36.

<https://doi.org/10.1177%2F0022466915613592>

Hughes, J. L., Camden, A. A., & Yangchen, T. (2016). Rethinking and updating demographic questions: Guidance to improve descriptions of research samples. *Psi Chi Journal of Psychological Research*, 21(3), 138-151. <https://doi.org/10.24839/2164-8204.JN21.3.138>

Hume, K., Steinbrenner, J. R., Odom, S. L., Morin, K. L., Nowell, S. W., Tomaszewski, B., Szendrey, S., McIntyre, N. S., Yucesoy-Ozkan, S., & Savage, M. N. (2021). Evidence-based practices for children, youth, and young adults with autism: Third generation review. *Journal of Autism and Developmental Disorders*. Advanced online publication.

<https://doi.org/10.1007/s10803-020-04844-2>

Individuals with Disabilities Education Act, 20 U.S.C. §§ 1400 et seq.

Institute of Education Sciences. (2019). *Director's biennial report to congress: Fiscal years 2017 and 2018*. Institute of Education Sciences, U.S. Department of Education.

https://ies.ed.gov/pdf/IESBR2017_2018.pdf

Johanson, G. A., & Brooks, G. P. (2010). Initial scale development: Sample size for pilot studies. *Educational and Psychological Measurement*, 70(3), 394-400.

<https://doi.org/10.1177%2F0013164409355692>

Joinson, A. N. (2001). Self-disclosure in computer-mediated communication: The role of self-

- awareness and visual anonymity. *European Journal of Social Psychology*, 31(2), 177-192. <https://doi.org/10.1002/ejsp.36>
- Joinson, A. N. (2007). Disinhibition and the internet. In J. Gackenbach (Ed.), *Psychology and the Internet* (Second Edition, pp. 75-92). Academic Press.
- Joinson, A. N., Woodley, A., & Reips, U. D. (2007). Personalization, authentication and self-disclosure in self-administered Internet surveys. *Computers in Human Behavior*, 23(1), 275-285. <https://doi.org/10.1016/j.chb.2004.10.012>
- Jones, M. L. (2009). A study of novice special educators' views of evidence-based practices. *Teacher Education and Special Education*, 32(2), 101-120. <http://dx.doi.org/10.1177/0888406409333777>
- Knight, V. F., Huber, H. B., Kuntz, E. M., Carter, E. W., & Juarez, A. P. (2019). Instructional practices, priorities, and preparedness for educating students with autism and intellectual disability. *Focus on Autism and Other Developmental Disabilities*, 34(1), 3-14. <http://dx.doi.org/10.1177/1088357618755694>
- Koch, L. C., Cook, B. G., Tankersley, M., & Rumrill, P. (2006). Utilizing research in professional practice. *Work*, 26(3), 327-331.
- Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity*, 47(4), 2025-2047. <https://doi.org/c6n9pk>
- Lajunen, T., & Summala, H. (2003). Can we trust self-reports of driving? Effects of impression management on driver behaviour questionnaire responses. *Transportation Research Part F: Traffic Psychology and Behaviour*, 6(2), 97-107. <https://doi.org/dv76xg>
- Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational Research Methods*, 9(2), 202-

220. <https://doi.org/10.1177%2F1094428105284919>

- Landrum, T. J., Cook, B. G., Tankersley, M., & Fitzgerald, S. (2002). Teacher perceptions of the trustworthiness, usability, and accessibility of information from different sources. *Remedial and Special Education, 23*(1), 42-48. <https://doi.org/bkcc4g>
- Lane, K. L., & Oakes, W. P., Menzies, H. M., Ennis, R. P., & Oakes, W. P. (2015). *Supporting behavior for school success: A step-by-step guide to key strategies*. Guilford Publications.
- Latkin, C. A., Vlahov, D., & Anthony, J. C. (1993). Socially desirable responding and self-reported HIV infection risk behaviors among intravenous drug users. *Addiction, 88*(4), 517-526. <https://doi.org/10.1111/j.1360-0443.1993.tb02058.x>
- Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing research, 35*(6), 382-386. <http://dx.doi.org/10.1097/00006199-198611000-00017>
- Maggin, D. M., Pustejovsky, J. E., & Johnson, A. H. (2017). A meta-analysis of school-based group contingency interventions for students with challenging behavior: An update. *Remedial and Special Education, 38*(6), 353-370. <https://doi.org/gcmjkm>
- Maggin, D. M., Zurheide, J., Pickett, K. C., & Baillie, S. J. (2015). A systematic evidence review of the check-in/check-out program for reducing student challenging behaviors. *Journal of Positive Behavior Interventions, 17*(4), 197-208. <https://doi.org/f7ptz5>
- Mathie, N. L., & Wakeling, H. C. (2011). Assessing socially desirable responding and its impact on self-report measures among sexual offenders. *Psychology, Crime & Law, 17*(3), 215-237. <https://doi.org/10.1080/10683160903113681>
- McKibben, W. B., & Silvia, P. J. (2016). Inattentive and socially desirable responding: Addressing subtle threats to validity in quantitative counseling research. *Counseling Outcome Research and Evaluation, 7*(1), 53-64. <https://doi.org/f82z>

- McNeill, J. (2019). Social validity and teachers' use of evidence-based practices for autism. *Journal of Autism and Developmental Disorders*, 49(11), 4585-4594. <http://dx.doi.org/10.1007/s10803-019-04190-y>
- Meisenberg, G., & Williams, A. (2008). Are acquiescent and extreme response styles related to low intelligence and education? *Personality and Individual Differences*, 44(7), 1539-1550. <https://doi.org/10.1016/j.paid.2008.01.010>
- Menzies, H. M., Lane, K. L., Oakes, W. P., Ruth, K., Cantwell, E. D., & Smith-Menzies, L. (2018). Active supervision: An effective, efficient, low-intensity strategy to support student success. *Beyond Behavior*, 27(3), 153-159. <https://doi.org/gfz3sq>
- Moore, T. C., Wehby, J. H., Oliver, R. M., Chow, J. C., Gordon, J. R., & Mahany, L. A. (2017). Teachers' reported knowledge and implementation of research-based classroom and behavior management strategies. *Remedial and Special Education*, 38(4), 222-232. <https://doi.org/10.1177%2F0741932516683631>
- Nelson, J. M., & Liebel, S. W. (2018). Socially desirable responding and college students with dyslexia: Implications for the assessment of anxiety and depression. *Dyslexia*, 24(1), 44-58. <https://doi.org/10.1002/dys.1563>
- Nias, J. (1986). *Teacher socialisation: The individual in the system*. Deakin University Press.
- No Child Left Behind Act of 2001, 20 U.S.C. 70 § 6301 et seq.
- Nunnally, J. C. (1978). An overview of psychological measurement. In B. B. Wolman (Eds.), *Clinical Diagnosis of Mental Disorders* (pp. 97-146). Springer. <https://doi.org/gh2mkg>
- O'Connor, K. E. (2008). "You choose to care": Teachers, emotions and professional identity. *Teaching and Teacher Education*, 24(1), 117-126. <https://doi.org/cbkg65>
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of*

- Personality and Social Psychology*, 46(3), 598-609. <https://doi.org/czzm4j>
- Paulhus, D. L. (1988). Balanced inventory of desirable responding (BIDR). *Acceptance and Commitment Therapy. Measures Package*, 41, 79586-79587
- Paulhus, D. L. (2002). Socially desirable responding: The evolution of a construct. In H. I. Braun, D. N. Jackson, & D. E. Wiley (Eds), *The role of constructs in psychological and educational measurement* (pp. 61-84). Routledge.
- Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R. W. Robins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology* (pp. 224-239). Guilford.
- Pazey, B. L., Heilig, J. V., Cole, H. A., & Sumbera, M. (2015). The more things change, the more they stay the same: Comparing special education students' experiences of accountability reform across two decades. *The Urban Review*, 47(3), 365-392. <https://doi.org/10.1007/s11256-014-0312-7>
- Pelt, D. H., Van der Linden, D., Dunkel, C. S., & Born, M. P. (2019). The motivation and opportunity for socially desirable responding does not alter the general factor of personality. *Assessment*. Advanced online publication. <https://doi.org/f822>
- *Plotner, A. J., Mazzotti, V. L., Rose, C. A., & Carlson-Britting, K. B. (2016). Factors associated with enhanced knowledge and use of secondary transition evidence-based practices. *Teacher Education and Special Education*, 39(1), 28-46. <https://doi.org/f2gb>
- Royer, D. J., Lane, K. L., Cantwell, E. D., & Messenger, M. L. (2017). A systematic review of the evidence base for instructional choice in K–12 settings. *Behavioral Disorders*, 42(3), 89-107. <https://doi.org/10.1177%2F0198742916688655>
- Royer, D. J., Lane, K. L., Dunlap, K. D., & Ennis, R. P. (2019). A systematic review of teacher-

- delivered behavior-specific praise on K–12 student performance. *Remedial and Special Education*, 40(2), 112-128. <https://doi.org/10.1177%2F0741932517751054>
- Russell, J. L., & Bray, L. E. (2013). Crafting coherence from complex policy messages: Educators' perceptions of special education and standards-based accountability policies. *Education Policy Analysis Archives*, 21(12), 1-25. <https://doi.org/f823>
- Ryan, J. B., Pierce, C. D., & Mooney, P. (2008). Evidence-based teaching strategies for students with EBD. *Beyond Behavior*, 17(3), 22-29.
- Sallese, M. R. (2021). *Knowledge and use of evidence-based practices in special education: A systematic literature review* [Manuscript in preparation]. Educational Psychology Department, Texas A&M University.
- Schell, C., Godinho, A., & Cunningham, J. A. (2020). To thine own self, be true: Examining change in self-reported alcohol measures over time as related to socially desirable responding bias among people with unhealthy alcohol use. *Substance Abuse*, 1-7. <https://doi.org/10.1080/08897077.2019.1697998>
- Schiller, E. P., & Malouf, D. B. (2000). Research syntheses: Implications for research and practice. In R. Gersten, E. P. Schiller, & S. Vaughn (Eds.), *Contemporary special education research: Syntheses of the knowledge base on critical instructional issues* (pp. 251-262). Routledge.
- Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist*, 54(2), 93-105. <https://psycnet.apa.org/doi/10.1037/0003-066X.54.2.93>
- Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Considerations for research to practice. *Education and Treatment of Children*, 31(3), 351-380. <https://www.jstor.org/stable/42899983>

- Slavin, R. E. (2002). Evidence-based education policies: Transforming educational practice and research. *Educational researcher*, 31(7), 15-21. <https://doi.org/ff3rzh>
- Stone, A. A., & Shiffman, S. (2002). Capturing momentary, self-report data: A proposal for reporting guidelines. *Annals of Behavioral Medicine*, 24(3), 236-243.
http://dx.doi.org/10.1207/S15324796ABM2403_09
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53-55. <https://dx.doi.org/10.5116%2Fijme.4dfb.8dfd>
- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., Reid, R., Thabane, M., Giangregorio, L., & Goldsmith, C. H. (2010). A tutorial on pilot studies: The what, why and how. *BMC Medical Research Methodology*, 10(1), 1. <https://doi.org/fg2x75>
- Tracey, T. J. (2016). A note on socially desirable responding. *Journal of Counseling Psychology*, 63(2), 224-232. <https://psycnet.apa.org/doi/10.1037/cou0000135>
- Travers, J. C. (2017). Evaluating claims to avoid pseudoscientific and unproven practices in special education. *Intervention in School and Clinic*, 52(4), 195-203.
<http://dx.doi.org/10.1177/1053451216659466>
- Van de Mortel, T. F. (2008). Faking it: Social desirability response bias in self-report research. *The Australian Journal of Advanced Nursing*, 25(4), 40-48.
- Vannest, K. J., Mahadevan, L., Mason, B. A., & Temple-Harvey, K. K. (2009). Educator and administrator perceptions of the impact of No Child Left Behind on special populations. *Remedial and Special Education*, 30(3), 148-159. <https://doi.org/cx3p6s>
- *Vincent, T. N. (2019). *Educator knowledge and usage of evidence-based interventions for students with emotional and behavioral disorders in special education programs across California*. (Publication No. 27741146) [Doctoral dissertation, Brandman University].

ProQuest Dissertations and Theses Global.

Ward, S. J., & King, L. A. (2018). Religion and moral self-image: The contributions of prosocial behavior, socially desirable responding, and personality. *Personality and Individual Differences, 131*, 222-231. <https://doi.org/10.1016/j.paid.2018.04.028>

What Works Clearinghouse. (2014). *What Works Clearinghouse: Procedures and standards handbook* (Version 3.0). Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_v3_0_standards_handbook.pdf

What Works Clearinghouse. (2017). *What Works Clearinghouse: Procedures handbook* (Version 4.0). Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_handbook_v4.pdf

What Works Clearinghouse. (2020). *What Works Clearinghouse: Procedures handbook* (Version 4.1). Institute of Education Sciences, U.S. Department of Education. <https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Procedures-Handbook-v4-1-508.pdf>

Figure 4

Instrument Development Process

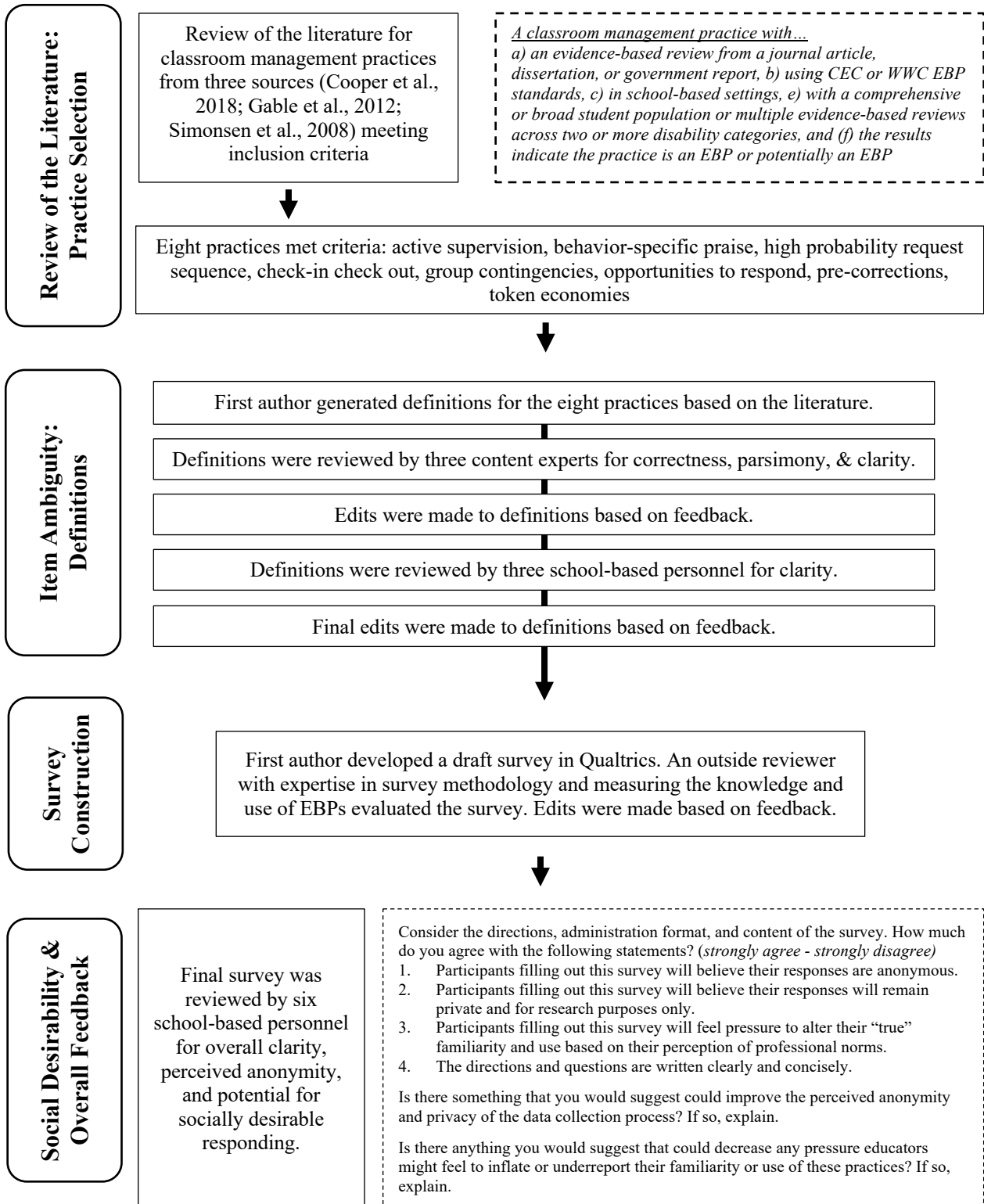


Table 9*Survey Practices*

Practice	Survey Definition	Review	Evidence-Based Review Details			Population
			Status	Standards	Setting	
Active Supervision	visually scanning, moving around the classroom, and interacting with students in order to maintain proximity and supervise behavior	Allen et al., 2020	P-EBP	CEC	traditional pre-K–12 setting	No Limits
Behavior-Specific Praise	praise statements that specifically describe the desirable behavior performed by the student (e.g., <i>You got started on that problem right away. Great job!</i>)	Royer et al., 2019	P-EBP	CEC	traditional K–12 setting	No Limits
Check-In/Check-Out	a daily program where students a) check in with a mentor in the morning, b) receive points (e.g., 0, 1, or 2) from teachers on a card throughout the day based on how closely they met expectations, c) check out at the end of the day with mentor and gain access to a reward if point goal is met	Maggin et al., 2015	EBP	WWC	K–12 school or classroom environment	No Limits
Group Contingency	reinforcing an entire class or a smaller group of students based on the performance (e.g., completing tasks, appropriate behaviors) of one or more of those students	Maggin et al., 2017	EBP	WWC	K–12 school or classroom environment	No Limits
High Probability Request Sequence	a set of three to five simple requests the student is highly likely to comply with (e.g., mastered or preferred tasks) delivered just prior to a request in which the student typically does not comply	Common et al., 2019	P-EBP	CEC	traditional K–12 setting	No Limits
Opportunities to Respond	asking a question or providing a prompt that requires an active academic student response and then giving feedback based on the response (e.g., choral response, thumbs up/down, response cards, clickers)	Common et al., 2020	P-EBP	CEC	traditional K–12 setting	No Limits
Pre-Correction	specifically stating the expectations just prior to an activity where there is a history of not meeting expectations	Ennis et al., 2017	EBP	CEC	traditional pre-K–12 setting	No Limits
Token Economy	a reinforcement system where students receive tokens for desirable behavior and then trade those tokens in for preferred items or privileges based on predetermined criteria (e.g., earn 10 tokens and get a 5-minute break)	Couch et al., 2018 Hume et al., 2021	EBP	WWC	K–12 school environment birth-22	Excluded ASD & ID ASD

Note. ASD = autism spectrum disorder; CEC = Council for Exceptional Children; EBP = evidence-based practice; ID = intellectual disability; P-EBP =

potentially evidence-based practice; WWC = What Works Clearinghouse

5. CONCLUSIONS

This dissertation consists of three interconnected manuscripts related to the knowledge and use of EBPs by special education personnel. Evidence-based practices (EBPs) refer to instructional strategies supported by numerous high-quality experimental showing positive outcomes (Gersten, 2005; Horner et al. 2005; Odom et al., 2005) that meet the predetermined level of rigor as prescribed by the standards in the field (e.g., Cook et al., 2014; What Works Clearinghouse, 2020). Theoretically, when educators prioritize the use EBPs during instruction, they increase the likelihood of positive student outcomes given the consistent record of the practice established in the research literature. Maximizing the impact of instructional time through EBPs is especially important for students with disabilities who are often academically behind their typically developing peers (Epstein et al., 1989; Reid et al., 2004; Trout et al., 2003). Consequently, the status of EBPs in school settings serving students with disabilities becomes a point of interest for school administrators, policymakers, and researchers looking to improve student outcomes. The present dissertation explores the knowledge and use of EBPs by special education personnel through a systematic literature review followed by a secondary analysis of the studies' methodological characteristics as well as the in-progress iterative development of a survey intended for future use.

The first of the three manuscripts described a systematic literature review examining the knowledge and use of EBPs by special education personnel employed in school-based settings working with students in early childhood through high school. A comprehensive search of the literature discovered 32 studies meeting inclusion criteria. All studies included special education teachers in the target population with a smaller percentage (25%) of studies also incorporating

behavior specialists, paraprofessionals, related service personnel, and special education administrators. Author teams primarily relied on survey research methodology (91%) and self-report data (97%) to measure knowledge or use of EBPs. The included studies most often assessed participants on EBPs for students with autism (50%). Data showed within and across study variability at both the study and practice level, demonstrating low, moderate, and high knowledge and use scores and noticeable differences in the results based on measurement characteristics. Overall, examining outcomes across studies and at the practice level suggests generally higher knowledge scores than use levels considering scale differences.

In response to the differences across methodological choices, the second study involved a secondary analysis of the measures and procedural characteristics of the 32 studies examining the knowledge and use of EBPs. Coders extracted information from the publicly available manuscript and requested additional material (i.e., survey, interview questions, scales) from corresponding authors when necessary. Research teams from the included studies adopted a total of six research approaches for assessing knowledge and use (i.e., assessment, observation, self-report coding, self-report EBPs list, self-report general, self-report-mix list). Most studies relied on survey methodology, though interviews, observations, artifact analysis, and module pretests were also seen as supplementary or standalone methods. The results of this secondary analysis systematic literature review revealed methodological implications related to the potential for socially desirable responding (SDR), the ambiguity of practice definitions, and limited reporting practices of survey development and characteristics.

The final manuscript detailed the initial development of a survey intended to assess the familiarity and use of classroom management and behavior strategies with specific features embedded to decrease the likelihood of SDR. Survey development involved four consecutive and

cumulative phases: (a) selection of EBPs or potentially EBPs, (b) formation and evaluation of practice definitions, (c) survey construction with particular attention to features associated with SDR, and (d) finally requesting stakeholder feedback on the potential for SDR. Individuals with classroom management and behavior content area expertise (i.e., research and college-level teaching), methodologists (i.e., survey-based research), and the survey target population (i.e., school-based personnel) engaged in the survey development process. The next steps include a small pilot study to assess the instrument's technical adequacy before large-scale dissemination. This survey development process revealed a limited number of EBPs in classroom management and behavior and the importance of including the target population ensuring all development phases. Even with the features embedded to limit the potential for SDR, feedback was mixed on their opinion if the target population would feel pressure to alter their true scores to professional norms. Additional research is needed on the impacts of SDR and ways to mitigate its effects.

The complex nature of translating research into practice is well established and frequently discussed in the special education literature (Carnine, 1997, Cook et al., 2013; Cook & Odom, 2013; Fixsen et al., 2013; Klingner et al., 2013; Slavin, 2020). A variety of epistemological, technical, and resource-based barriers limit the prevalence of EBPs in school settings (Greenway et al., 2013; Greenwood & Abbot, 2001; Hudson et al., 2016; Jones, 2009; Koch et al., 2006; Landrum et al., 2002; Landrum et al., 2018; Mazzotti & Plotner, 2016; Schiller & Malouf, 2000). Identifying a practice as evidence-based is just the first step in a long line of necessary efforts to achieve widespread use. The present dissertation reveals the complexity of implementation is mirrored and reflected in the measurement of the status of EBPs for the education of students with disabilities. Generating a research protocol to measure the knowledge and use of EBPs requires an understanding of the intricacies and implications of the present barriers. The field

requires additional research examining the prevalence of EBPs and exploring the impact of methodological choices on the accuracy of the data.

References

- Carnine, D. (1997). Bridging the research-to-practice gap. *Exceptional Children*, 63(4), 513-521.
<http://dx.doi.org/10.1177/001440299706300406>
- Cook, B., Buysse, V., Klingner, J., Landrum, T., McWilliam, R., Tankersley, M., & Test, D. (2014). Council for Exceptional Children standards for evidence-based practices in special education. *Teaching Exceptional Children*, 46(6), 206-212.
- Cook, B. G., Cook, L., & Landrum, T. J. (2013). Moving research into practice: Can we make dissemination stick? *Exceptional Children*, 79(2), 163-180. <https://doi.org/f4j94r>
- Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional Children*, 79(3), 135-144. <https://doi.org/f4j96f>
- Epstein, M., Atkins, M., Cullinan, D., Kutash, K., & Weaver, R. (2008). Reducing behavior problems in the elementary school classroom (IES Practice Guide, NCEE 2008-012). What Works Clearinghouse. <https://files.eric.ed.gov/fulltext/ED502720.pdf>
- Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children*, 79(3), 213-230. <https://doi.org/f4j969>
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children*, 71(2), 149-164. <https://doi.org/gg9rsn>
- Greenway, R., McCollow, M., Hudson, R. F., Peck, C., & Davis, C. A. (2013). Autonomy and accountability: Teacher perspectives on evidence-based practice and decision-making for students with intellectual and developmental disabilities. *Education and Training in Autism and Developmental Disabilities*, 48(4), 456-468.
<https://www.jstor.org/stable/24232503>

- Greenwood, C. R., & Abbott, M. (2001). The research to practice gap in special education. *Teacher Education and Special Education, 24*(4), 276-289. <https://doi.org/cp3ttb>
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*(2), 165-179. <https://doi.org/gfpqfk>
- Hudson, R. F., Davis, C. A., Blum, G., Greenway, R., Hackett, J., Kidwell, J., Liberty, L., McCollow, M., Patish, Y., Pierce, J., Schulze, M., Smith, M. M., & Peck, C. A. (2016). A socio-cultural analysis of practitioner perspectives on implementation of evidence-based practice in special education. *The Journal of Special Education, 50*(1), 27-36. <https://doi.org/10.1177%2F0022466915613592>
- Jones, M. L. (2009). A study of novice special educators' views of evidence-based practices. *Teacher Education and Special Education, 32*(2), 101-120. <https://doi.org/bn2pqb>
- Klingner, J. K., Boardman, A. G., & McMaster, K. L. (2013). What does it take to scale up and sustain evidence-based practices? *Exceptional Children, 79*(2), 195-211. <https://doi.org/10.1177%2F001440291307900205>
- Koch, L. C., Cook, B. G., Tankersley, M., & Rumrill, P. (2006). Utilizing research in professional practice. *Work, 26*(3), 327-331.
- Landrum, T. J., & Collins, L. W. (2018). Sources of evidence-based practice in EBD: Issues and challenges. In T. J. Landrum, B. G. Cook, & M. Tankersley *Emerging research and issues in behavioral disabilities* (pp. 131-143). Emerald Publishing.
- Landrum, T. J., Cook, B. G., Tankersley, M., & Fitzgerald, S. (2002). Teacher perceptions of the trustworthiness, usability, and accessibility of information from different sources. *Remedial and Special Education, 23*(1), 42-48. <https://doi.org/bkcc4g>

- Mazzotti, V. L., & Plotner, A. J. (2016). Implementing secondary transition evidence-based practices: A multi-state survey of transition service providers. *Career Development and Transition for Exceptional Individuals*, 39(1), 12-22. <https://doi.org/f824>
- Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. R. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children*, 71(2), 137-148. <https://doi.org/gf8rqw>
- Reid, R., Gonzalez, J. E., Nordness, P. D., Trout, A., & Epstein, M. H. (2004). A meta-analysis of the academic status of students with emotional/behavioral disturbance. *The Journal of Special Education*, 38(3), 130-143. <https://doi.org/10.1177%2F00224669040380030101>
- Schiller, E. P., & Malouf, D. B. (2000). Research syntheses: Implications for research and practice. In R. Gersten, E. P. Schiller, & S. Vaughn (Eds.), *Contemporary special education research: Syntheses of the knowledge base on critical instructional issues* (pp. 251-262). Routledge.
- Slavin, R. E. (2020). How evidence-based reform will transform research and practice in education. *Educational Psychologist*, 55(1), 21-31. <https://doi.org/gf4hzh>
- Trout, A., Nordness, P. D., Pierce, C. D., & Epstein, M. H. (2003). Research on the academic status of children with emotional and behavioral disorders: A review of the literature from 1961 to 2000. *Journal of Emotional and Behavioral Disorders*, 11(4), 198-210. <https://doi.org/10.1177%2F10634266030110040201>
- What Works Clearinghouse. (2020). *What Works Clearinghouse: Procedures handbook (Version 4.1)*. Institute of Education Sciences, U.S. Department of Education. <https://ies.ed.gov/ncee/wwc/Docs/referenceresources/WWC-Procedures-Handbook-v4-1-508.pdf>

APPENDIX A

DETAILED SEARCH TERMS BROKEN DOWN BY DATABASE

Electronic Database	Search Terms
Education Resources Information Center (ERIC)	(DE "Evidence Based Practice" OR TI evidence based practice* OR AB evidence based practice* or TI(ebp) or AB(ebp)) AND (DE "Special Education" OR TI "special education" OR AB "special education")
Academic Search Ultimate	(DE "SPECIAL education" OR DE "ACTIVITIES of daily living training" OR DE "CONDUCTIVE education" OR DE "COUNSELING in special education" OR DE "EARLY childhood special education" OR DE "EDUCATION of children with disabilities" OR DE "EDUCATION of gifted children" OR DE "EDUCATION of learning disabled persons" OR DE "EXTENDED School Year (Special education)" OR DE "HOMEBOUND instruction" OR DE "MAINSTREAMING in special education" OR DE "MUSIC education (Special education)" OR DE "MUSIC in special education" OR DE "RELIGIOUS education of exceptional children" OR DE "STORYTELLING in special education" OR DE "VOCATIONAL education of exceptional children") OR (((AB "special education" OR TI "special education"))) AND ((AB evidence based practice* OR TI evidence based practice*))
Education Source	((DE "Special education" OR DE "Activities of daily living training" OR DE "Conductive education" OR DE "Counseling in special education" OR DE "Early childhood special education" OR DE "Education of children with disabilities" OR DE "Education of gifted children" OR DE "Education of learning disabled persons" OR DE "Extended School Year (Special education)" OR DE "Homebound instruction" OR DE "Mainstreaming in special education" OR DE "Music education (Special education)" OR DE "Music in special education" OR DE "Religious education of exceptional children" OR DE "Storytelling in special education" OR DE "Vocational education of exceptional children") OR AB "special education" OR TI "special education") AND (AB evidence based practice* OR TI evidence based practice*)
PsycINFO	DE "Special Education" OR ((AB "special education" OR TI "special education")) AND ((AB evidence based practice* OR TI evidence based practice*))
Educational Administration Abstracts	((ZU "special education") OR (AB "special education" OR TI "special education")) AND ((AB evidence based practice* OR TI evidence based practice*))

APPENDIX B

TOP 25 PRACTICE CATEGORIES WITH CORRESPONDING STUDY DESCRIPTIONS

Category	Study	Practice Descriptions from Original Study	
Peer-Based Instruction & Intervention (22 Studies, 42 Practices)	Aukes, 2018	peer-mediated instruction and intervention; structured play group	
	Bak, 2013	peer assisted learning	
	Borders et al., 2015	peer buddies; peer initiation training	
	Brock et al., 2020	peer-mediated instruction and intervention; structured play group	
	Chatlos, 2016	cooperative learning; peer buddies; peer tutoring	
	Denniston, 2017	peer mediated instruction/ intervention; structured play groups	
	Dynia, 2020	peer mediated instruction and intervention; structured play group	
	Emanuel, 2017	peer mediation	
	Ferreri et al., 2016	peer tutoring; peer assisted learning strategies; peer buddies; peer social groups	
	Gable et al., 2012	peer-assisted learning; a program of peer-mediated intervention to promote positive behavior skills; the use of peer-reinforcement to promote appropriate student behavior; a systematic approach to cooperative learning	
	Grimm, 2015	peer-mediated interventions	
	Hoover et al., 2013	peer-mediated instruction	
	Jones, 2009	peer-mediated learning	
	Keefe, 2017	peer-mediated intervention	
	Knight et al., 2019	peer-mediated intervention; structured playgroups	
	McNeill, 2019	peer mediated intervention; structured play groups	
	Morin et al., 2020	peer-mediated instruction and intervention; structured play group	
	Mutua, 2019	peer-mediated intervention; structured play group	
	Pearson, 2018	peer-assisted learning	
	Probst et al., 2016	peer initiation training; peer buddies	
	Tomasi, 2020	peer-mediated instruction	
	Vincent, 2019	peer-assisted learning; peer tutoring; peer counseling	
	Self-Management (18 Studies, 21 Practices)	Aukes, 2018	self-management
		Borders et al., 2015	self-management
		Brock et al., 2020	self-management
Denniston, 2017		self-management	
Dynia, 2020		self-management	
Ferreri et al., 2016		self-evaluation and reinforcement*; self-goal setting*; self-monitoring* (*identified as self-management in article)	
Gable et al., 2012		instruction in self-monitoring of student performance; instruction in self-monitoring of nonacademic behavior	
Grimm, 2015		self-management	
Hoover et al., 2013		self-management	
Jones, 2009		self-management	
Keefe, 2017		self-management	
Knight et al., 2019		self-management	
McNeill, 2019		self-management	
Morin et al., 2020		self-management	
Mutua, 2019		self-management	
Pearson, 2018		Self-monitoring	
Probst et al., 2016		self-management	
Vincent, 2019		self-monitoring	

Reinforcement-Based Strategies (17 Studies, 40 Practices)	Aukes, 2018	differential reinforcement of other/alternative behavior; reinforcement; extinction
	Beam & Mueller, 2017	token economy
	Borders et al., 2015	contingency contracts; token economies
	Brock et al., 2020	differential reinforcement; extinction; reinforcement
	Chatlos, 2016	positive reinforcement
	Denniston, 2017	differential reinforcement, reinforcement; extinction
	Dynia, 2020	reinforcement; differential reinforcement of incompatible, alternative, or other behavior; extinction
	Ficarra & Quinn, 2014	using a continuum of continuum of strategies to a acknowledge appropriate behavior; employing a variety of techniques to respond to inappropriate behavior
	Gable et al., 2012	behavior contracts; group-oriented contingency management
	Hoover et al., 2013	behavior reinforcement (consequences); differential reinforcement; extinction
	Keefe, 2017	differential reinforcement; extinction; reinforcement
	McNeill, 2019	differential reinforcement; extinction; reinforcement
	Morin et al., 2020	differential reinforcement; extinction; reinforcement
	Mutua, 2019	differential reinforcement; extinction
	Probst et al., 2016	token economies; contingency contracts
Stormont et al., 2011	Manage consequences so that reinforcers are provided for appropriate behavior and withheld for inappropriate behavior.	
Vincent, 2019	behavior specific praise; differentiated reinforcement; behavior contracts; point and or level systems	
Naturalistic Intervention (17 Studies, 30 Practices)	Aukes, 2018	naturalistic intervention; pivotal response training
	Borders et al., 2015	incidental teaching; pivotal response training
	Brock et al., 2020	naturalistic intervention; pivotal response training
	Callaway, 2014	naturalistic teaching
	Chatlos, 2016	incidental teaching
	Denniston, 2017	naturalistic interventions; pivotal response training
	Dynia, 2020	naturalistic intervention; pivotal response training
	Ferreri et al., 2016	naturalistic teaching strategies; pivotal response training or natural language paradigm
	Grimm, 2015	pivotal response training
	Hoover et al., 2013	naturalistic training; pivotal response training
	Keefe, 2017	naturalistic intervention; pivotal response training
	Knight et al., 2019	naturalistic intervention; pivotal response training
	McNeill, 2019	naturalistic interventions; pivotal response training
	Morin et al., 2020	naturalistic intervention; pivotal response training
	Mutua, 2019	naturalistic intervention; pivotal response training
Pearson, 2018	use natural environment	
Probst et al., 2016	incidental teaching; pivotal response training	
Modeling (17 Studies, 27 Practices)	Aukes, 2018	modeling; video modeling
	Bak, 2013	modeling/demonstrations
	Borders et al., 2015	modeling live; video modeling
	Brock et al., 2020	modeling; video modeling
	Callaway, 2004	video modeling
	Chatlos, 2016	video modeling
	Denniston, 2017	modeling; video modeling
	Dynia, 2020	modeling; video modeling
	Ferreri et al., 2016	video modeling
	Grimm, 2015	video modeling
	Hoover et al., 2013	video modeling
Keefe, 2017	video modeling	

	Knight et al., 2019	modeling; video modeling
	McNeill, 2019	modeling; video modeling
	Morin et al., 2020	modeling; video modeling
	Mutua, 2019	modeling; video modeling
	Probst et al., 2016	modeling live; video modeling
Visual Supports (17 Studies, 33 Practices)	Aukes, 2018	scripting; visual support
	Borders et al., 2015	contingency mapping; schedules
	Brock et al., 2020	scripting; visual support
	Callaway, 2004	visual strategies
	Chatlos, 2016	scripts; visual support
	Denniston, 2017	scripting; visual support
	Dynia, 2020	scripting; visual supports
	Ferreri et al., 2016	structured teaching; visual supports or strategies
	Grimm, 2015	structured work systems; visual supports
	Hoover et al., 2013	structured work systems; visual supports
	Keefe, 2017	structured work systems; visual supports
	Knight et al., 2019	independent work systems; scripting; visual support
	McNeill, 2019	scripting; visual support
	Morin et al., 2020	scripting; visual support
	Mutua, 2019	scripting; visual support
	Pearson, 2018	visuals and graphics
	Probst et al., 2016	contingency mapping; schedules
Antecedent- Based Interventions (16 Studies, 29 Practices)	Aukes, 2018	antecedent-based interventions
	Borders et al., 2015	environmental enrichment; special interests; choice; errorless learning; stimulus familiarity; behavioral toilet training
	Brock et al., 2020	antecedent-based intervention
	Denniston, 2017	antecedent-based interventions
	Dynia, 2020	antecedent-based intervention
	Gable et al., 2012	choice making opportunities for students; pre-correction instructional strategies
	Grimm, 2015	antecedent-based interventions
	Hoover et al., 2013	environment modification
	Keefe, 2017	antecedent-based intervention
	Knight et al., 2019	physical structure/environmental arrangement
	McNeill, 2019	antecedent-based intervention
	Morin et al., 2020	antecedent-based intervention
	Mutua, 2019	antecedent-based intervention
	Probst et al., 2016	environmental enrichment; special interests; choice; behavioural toilet training; stimulus familiarity; errorless learning
	Stormont et al., 2011	modify classroom environment to encourage instructional momentum
Vincent, 2019	choice making opportunities for students; matching instruction to student interest; behavior momentum	
Functional Behavior Assessment (16 Studies, 22 Practices)	Pearson, 2018	functional behavior assessment
	Probst et al., 2016	functional behavior assessment
	Vincent, 2019	functional analysis; functional behavior assessment
	Chatlos, 2016	functional analysis; replacement behavior
	Denniston, 2017	functional behavior assessment
	Dynia, 2020	functional analysis; functional behavior assessment
	Gable et al., 2012	a formal procedure to develop function-based interventions
	Grimm, 2015	functional behavior assessment
	Hoover et al., 2013	functional behavior assessment
	Keefe, 2017	functional behavior assessment

	Knight et al., 2019	functional behavior assessment
	McNeill, 2019	functional behavior assessment
	Morin et al., 2020	functional behavior assessment
	Mutua, 2019	functional behavior assessment
	Stormont et al., 2011	observe and record what happens before and after problem behavior; identify what triggers and reinforces problem behavior; concretely describe behavior problems and the effects problem behaviors have on learning; observe and record the frequency of problem behavior
	Vincent, 2019	functional behavior assessment
Social Narratives (16 Studies, 16 Practices)	Aukes, 2018	social narratives
	Borders et al., 2015	social stories
	Brock et al., 2020	social narratives
	Callaway, 2004	social stories or social narratives
	Chatlos, 2016	social stories
	Denniston, 2017	social narratives (stories)
	Dynia, 2020	social narratives
	Ferreri et al., 2016	social stories
	Grimm, 2015	social narrative
	Hoover et al., 2013	social narrative
	Keefe, 2017	social narratives
	Knight et al., 2019	social narratives
	McNeill, 2019	social narratives
	Morin et al., 2020	social narratives
	Mutua, 2019	social narratives
	Probst et al., 2016	social stories
Technology-Aided Instruction and Intervention (15 Studies, 18 Practices)	Aukes, 2018	technology-aided instruction and intervention
	Bak, 2013	computer assisted instruction
	Brock et al., 2020	technology-aided instruction and intervention
	Denniston, 2017	computer aided instruction and speech generating devices
	Dynia, 2020	technology-aided instruction
	Ferreri et al., 2016	personal digital assistant PDA training; interactive websites; education software; computer assisted instruction
	Grimm, 2015	computer aided instruction
	Hoover et al., 2013	computer aided instruction
	Jones, 2009	technology integration
	Keefe, 2017	computer-aided instruction
	Knight et al., 2019	technology-aided instruction and interventions
	McNeill, 2019	technology assisted intervention
	Morin et al., 2020	technology-aided intervention
	Mutua, 2019	computer-aided instruction and speech generating devices
	Pearson, 2018	Demonstrate use of assistive and other technologies
Augmentative & Alternative Communication (15 Studies, 19 Practices)	Aukes, 2018	picture exchange communication system
	Brock et al., 2020	picture exchange communication system
	Chatlos, 2016	assistive technology (voice output communication devices); picture exchange communication system
	Tomasi, 2019	picture exchange communication system
	Denniston, 2017	picture exchange communication system
	Dynia, 2020	picture exchange communication system
	Ferreri et al., 2016	picture exchange communication system; voice output communication device
	Grimm, 2015	picture exchange communication systems; voice output communication aide
	Hoover et al., 2013	picture exchange communication; voice output communication aide/speech generating devices
	Keefe, 2017	picture exchange communication system; speech generating devices
	Knight et al., 2019	picture exchange communication system

	McNeill, 2019	picture exchange communication system
	Morin et al., 2020	picture exchange communication system
	Mutua, 2019	picture exchange communication system
Prompting & Prompt Fading (13 Studies, 27 Practices)	Aukes, 2018	prompting; time delay
	Borders et al., 2015	prompting/cueing
	Brock et al., 2020	systematic prompting; time delay
	Chatlos, 2016	prompts
	Denniston, 2017	prompting; time delay
	Dynia, 2020	graduated guidance prompting; prompting
	Hoover et al., 2013	behavior prompting (antecedent strategies); time delay
	Keefe, 2017	prompting; time delay
	McNeill, 2019	prompting; time delay
	Morin et al., 2020	prompting; time delay
	Mutua, 2019	prompting; time delay
	Pearson, 2018	constant time delay; most to least prompts; progressive time delay; prompting and fading; simultaneous prompting; system of least prompts
	Probst et al., 2016	prompting/cueing
Social Skills Training (13 Studies, 13 Practices)	Aukes, 2018	social skills training
	Brock et al., 2020	social skills training
	Denniston, 2017	social skills training
	Dynia, 2020	social skills training
	Gable et al., 2012	social skills instruction taught as part of regular class instruction
	Grimm, 2015	social skills groups
	Hoover et al., 2013	social skills training groups
	Keefe, 2017	social skills training groups
	Knight et al., 2019	social skills training
	McNeill, 2019	social skills training
	Morin et al., 2020	social skills training
	Mutua, 2019	social skills training
	Vincent, 2019	social skills training
Discrete Trial Training (13 Studies, 13 Practices)	Aukes, 2018	discrete trial teaching
	Borders et al., 2015	discrete trial training
	Brock et al., 2020	discrete trial teaching
	Denniston, 2017	discrete trial teaching
	Dynia, 2020	discrete trial training
	Ferreri et al., 2016	discrete trial training
	Grimm, 2015	discrete trial training
	Hoover et al., 2013	discrete trial training
	Keefe, 2017	discrete trial training
	McNeill, 2019	discrete trial training
	Morin et al., 2020	discrete trial training
	Mutua, 2019	discrete trial teaching
	Probst et al., 2016	discrete trial training
Functional Communication Training (12 Studies, 12 Practices)	Aukes, 2018	functional communication training
	Borders et al., 2015	functional communication training
	Brock et al., 2020	functional communication training
	Denniston, 2017	functional communication training
	Dynia, 2020	functional communication training
	Grimm, 2015	functional communication training
	Hoover et al., 2013	functional communication training
	Keefe, 2017	functional communication training
	McNeill, 2019	functional communication training
	Morin et al., 2020	functional communication training
	Mutua, 2019	functional communication training
	Probst et al., 2016	functional communication training

Task Analysis (12 Studies, 12 Practices)	Aukes, 2018 Borders et al., 2015 Brock et al., 2020 Denniston, 2017 Dynia, 2020 Hoover et al., 2013 Keefe, 2017 McNeill, 2019 Morin et al., 2020 Mutua, 2019 Pearson, 2018 Probst et al., 2016	task analysis task analysis task analysis task analysis and training task analysis task analysis & chaining task analysis task analysis task analysis task analysis and training task analytic task analysis
Response Interruption/ Redirection (9 Studies, 9 Practices)	Aukes, 2018 Brock et al., 2020 Denniston, 2017 Dynia, 2020 Hoover et al., 2013 Keefe, 2017 McNeill, 2019 Morin et al., 2020 Mutua, 2019	response interruption/redirection response interruption/redirection response interruption, redirection redirection redirection response interruption/redirection redirection response interruption/redirection response interruption
Parent Implemented Intervention (9 Studies, 9 Practices)	Aukes, 2018 Brock et al., 2020 Denniston, 2017 Dynia, 2020 Grimm, 2015 Hoover et al., 2013 McNeill, 2019 Morin et al., 2020 Mutua, 2019	parent implemented intervention parent implemented intervention parent implemented interventions parent implemented intervention Parent-implemented interventions parent implemented intervention parent implemented intervention Parent-implemented intervention parent implemented intervention
Cognitive Behavioral/ Instructional Strategies (8 Studies, 8 Practices)	Aukes, 2018 Brock et al., 2020 Denniston, 2017 Dynia, 2020 Knight et al., 2019 McNeill, 2019 Morin et al., 2020 Mutua, 2019	cognitive behavioral intervention cognitive behavioral intervention cognitive behavioral interventions cognitive behavioral intervention cognitive behavioral interventions cognitive behavioral intervention cognitive behavioral intervention cognitive behavior
Applied Behavior Analysis (8 Studies, 8 Practices)	Burns et al., 2009 Callaway, 2014 Carter et al., 2011 Carter et al., 2012 Dynia, 2020 Ferreri et al., 2016 Grimm, 2015 Knight et al., 2019	applied behavior analysis applied behavior analysis applied behavior analysis applied behavior analysis other behavioral strategies** applied behavior analysis interventions-based on behavioral principles applied behavior analysis-based interventions
Exercise & Movement (7 Studies, 7 Practices)	Aukes, 2018 Brock et al., 2020 Denniston, 2017 Dynia, 2020 McNeill, 2019 Morin et al., 2020 Mutua, 2019	Exercise Exercise Exercise Exercise Exercise Exercise Exercise
Direct Instruction (7 Studies, 7 Practices)	Bradley-Black, 2013 Burns et al., 2009 Carter et al., 2011	direct instruction direct instruction direct instruction

Studies, 7 Practices)	Carter et al., 2012 Jones, 2009 Pearson, 2018 Vincent, 2019	direct instruction direct instruction direct instruction direct instruction
Memory Strategies (6 Studies, 6 Practices)	Bradley-Black, 2013 Burns et al., 2009 Carter et al., 2011 Carter et al., 2012 Pearson, 2018 Vincent, 2019	memory strategies mnemonic strategies mnemonic strategies mnemonic strategies strategies (e.g., mnemonics) mnemonic devices
Teaching & Reinforcing Expectations (4 Studies, 5 Practices)	Ficarra & Quinn, 2014 Gable et al., 2012 Stormont et al., 2011 Vincent, 2019	posting, teaching, reviewing, monitoring, and reinforcing expectations clear rules/expectations revisit, reinforce, and continue to practice behavior expectations for classroom clear rules/expectations; teaching expected behaviors
Opportunities to Respond (3 Studies, 4 Practices)	Bak, 2013 Pearson, 2015 Vincent, 2019	discussion/response cards response cards frequent opportunities to respond during instruction; response cards

APPENDIX C

SOCIALLY DESIRABLE RESPONDING FEEDBACK RATING FORM

(Directions) Thank you for being willing to help review the survey and provide feedback in the development process! Please be honest on the following questions, I am not looking for agreement but accurate and honest feedback. If there are aspects about the survey we need to change, please tell us so we can improve it prior to dissemination. This survey will benefit from your feedback.

- (a) Consider the directions, administration format, and content of the survey.
 - a. How much do you agree with the following statement? Participants filling out this survey will believe their responses are anonymous. *Strongly Disagree* (1) to *Strongly Agree* (5)
 - b. How much do you agree with the following statement? Participants filling out this survey will believe their responses will remain private and for research purposes only. *Strongly Disagree* (1) to *Strongly Agree* (5)
 - c. Is there anything that you would suggest could improve the perceived anonymity and privacy of the data collection process? If so, explain.
- (b) Consider the directions, format of test administration, and content of the survey.
 - a. How much do you agree with the following statement? Participants filling out this survey will feel pressure to alter their “true” familiarity and use based on their perception of professional norms. *Strongly Disagree* (1) to *Strongly Agree* (5)
 - b. Is there anything you would suggest that could decrease any pressure educators might feel to inflate or underreport their familiarity or use of these practices? If so, explain.
- (c) Questions and Directions.
 - a. How much do you agree with the following statement? The directions and questions are written clearly and concisely. *Strongly Disagree* (1) to *Strongly Agree* (5)
 - b. Is there a specific question, set of directions, or section that was not written clearly or concisely? If so, explain.
- (d) Do you have any additional comments for improvement? If so, explain.

Teaching Practices Draft Survey

Qualtrics Survey Flow

Block: Default Question Block (1 Question)
Standard: Familiarity 1 (1 Question)
Standard: Familiarity 2 (4 Questions)
Standard: USE (17 Questions)
Standard: Demographic Characteristics (10 Questions)

Page Break

Start of Block: Default Question Block

Q2 The purpose of this online survey is to examine the familiarity and use of common teaching practices.

You are being asked to complete this survey because you are employed in a school-based setting and provide direct services to students in your current role. The survey is anonymous, meaning that no identifying information (e.g., email, IP address, school district) will be collected or tracked with your submission. Responses will be used for research purposes only and will not be shared with employers. Your participation is voluntary and should take approximately 10 minutes to complete.

By continuing and completing the survey, you affirm that you are employed in a school-based setting, work directly with students, and voluntarily agree to participate in the research study.

End of Block: Default Question Block

Start of Block: Familiarity 1



Q5 How familiar are you with each of the following teaching practices?

In the next section, you will be given a full description of the practice and the chance to indicate familiarity with the updated information. Focus on just the term in this section.

	Unfamiliar I have never heard of this practice. (1)	Somewhat Familiar I have heard of the practice, but do not fully understand or feel prepared to use it. (2)	Familiar I understand and feel prepared to use this practice. (3)	Very Familiar I thoroughly understand and feel very prepared to use this practice. (4)
Active Supervision (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behavior-Specific Praise (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Check-in Check-out (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group Contingency (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High Probability Request Sequence (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pre-Correction (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities to Respond (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Token Economy (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Familiarity 1

Start of Block: Familiarity 2

Q58

The next set of items will ask you to rate your familiarity with the same set of practices with **full descriptions**. This may or may not change your response.

Page Break



Q57 How familiar are you with each of the following practices?

	Unfamiliar I have never heard of this practice. (1)	Somewhat Familiar I have heard of the practice, but do not fully understand or feel prepared to use it. (2)	Familiar I understand and feel prepared to use this practice. (3)	Very Familiar I thoroughly understand and feel very prepared to use this practice. (4)
Active Supervision: visually scanning, moving around the classroom, and interacting with students in order to maintain proximity and supervise behavior (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behavior-Specific Praise: praise statements that specifically describe the desirable behavior performed by the student (e.g., <i>You got started on that problem right away. Great job!</i>) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Check-in Check-out: a daily program where students a) check in with a mentor in the morning, b) receive points (e.g., 0, 1, or 2) from teachers on a card throughout the day based on how closely they met expectations, c) check out at the end of the day with mentor and gain access to a reward if point goal is met (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break



Q58 How familiar are you with each of the following practices?

	Unfamiliar I have never heard of this practice. (1)	Somewhat Familiar I have heard of the practice, but do not fully understand or feel prepared to use it. (2)	Familiar I understand and feel prepared to use this practice. (3)	Very Familiar I thoroughly understand and feel very prepared to use this practice. (4)
<p>Group Contingency: reinforcing an entire class or a smaller group of students based on the performance (e.g., completing tasks, appropriate behaviors) of one or more of those students (1)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>High Probability Request Sequence: a set of three to five simple requests the student is highly likely to comply with (e.g., mastered or preferred tasks) delivered just prior to a request in which the student typically does not comply (2)</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break



Q56 How familiar are you with each of the following practices?

	Unfamiliar I have never heard of this practice. (1)	Somewhat Familiar I have heard of the practice, but do not fully understand or feel prepared to use it. (2)	Familiar I understand and feel prepared to use this practice. (3)	Very Familiar I thoroughly understand and feel very prepared to use this practice. (4)
Opportunities to Respond: asking a question or providing a prompt that requires an active academic student response and then giving feedback based on the response (e.g., choral response, thumbs up/down, response cards, clickers) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pre-Correction: specifically stating the expectations just prior to an activity where there is a history of not meeting expectations (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Token Economy: a reinforcement system where students receive tokens for desirable behavior and then trade those tokens in for preferred items or privileges based on predetermined criteria (e.g., earn 10 tokens and get a 5-minute break) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Familiarity 2

Start of Block: USE

Q59 The next set of items will ask you to rate your use of the practices you indicated you were at least somewhat familiar with in the previous section.

Page Break

Display This Question:

If How familiar are you with each of the following practices? != Active Supervision: visually scanning, moving around the classroom, and interacting with students in order to maintain proximity and supervise behavior [Unfamiliar I have never heard of this practice.]

Q8 How often do you use **Active Supervision** in your current setting?

Active Supervision: visually scanning, moving around the classroom, and interacting with students in order to maintain proximity and supervise behavior

- I do not use this practice. (1)
 - less than once per month (2)
 - 2-3 times per month (3)
 - at least once per week (4)
 - once per day (5)
 - more than once per day (6)
-

Page Break

Display This Question:

If How often do you use Active Supervision in your current setting? Active Supervision: visually scan... != I do not use this practice.

And How familiar are you with each of the following practices? != Active Supervision: visually scanning, moving around the classroom, and interacting with students in order to maintain proximity and supervise behavior [Unfamiliar I have never heard of this practice.]

Q10 Did you use **Active Supervision** today? If you did not have school today, did you use Active Supervision the last day school was in session?

- Yes (1)
 - No (2)
-

Display This Question:

If How familiar are you with each of the following practices? != Behavior-Specific Praise: praise statements that specifically describe the desirable behavior performed by the student (e.g., <i>You got started on that problem right away. Great job!</i> [Unfamiliar I have never heard of this practice.]

Q11 How often do you use **Behavior-Specific Praise** in your current setting?

Behavior-Specific Praise: praise statements that specifically describe the desirable behavior performed by the student (e.g., *You got started on that problem right away. Great job!*)

- I do not use this practice. (1)
 - less than once per month (2)
 - 2-3 times per month (3)
 - at least once per week (4)
 - once per day (5)
 - more than once per day (6)
-

Display This Question:

If How often do you use Behavior-Specific Praise in your current setting? Behavior-Specific Praise: p... != I do not use this practice.

And How familiar are you with each of the following practices? != Behavior-Specific Praise: praise statements that specifically describe the desirable behavior performed by the student (e.g., <i>You got started on that problem right away. Great job!</i> [Unfamiliar I have never heard of this practice.]

Q12 Did you use **Behavior-Specific Praise** today? If you did not have school today, did you use Behavior-Specific Praise the last day school was in session?

- Yes (1)
 - No (2)
-

Display This Question:

If How familiar are you with each of the following practices? != Check-in Check-out: a daily program where students a) check in with a mentor in the morning, b) receive points (e.g., 0, 1, or 2) from teachers on a card throughout the day based on how closely they met expectations, c) check out at the end of the day with mentor and gain access to a reward if point goal is met [Unfamiliar I have never heard of this practice.]

Q13 How often do you use **Check-in Check-out** in your current setting?

Check-in Check-out: a daily program where students a) check in with a mentor in the morning, b) receive points (e.g., 0, 1, or 2) from teachers on a card throughout the day based on how closely they met expectations, c) check out at the end of the day with mentor and gain access to a reward if point goal is met

- I do not use this practice. (1)
- less than once per month (2)
- 2-3 times per month (3)
- at least once per week (4)
- once per day (5)
- more than once per day (6)

Page Break

Display This Question:

If How often do you use Check-in Check-out in your current setting?Check-in Check-out: a daily progr... != I do not use this practice.

And How familiar are you with each of the following practices? != Check-in Check-out: a daily program where students a) check in with a mentor in the morning, b) receive points (e.g., 0, 1, or 2) from teachers on a card throughout the day based on how closely they met expectations, c) check out at the end of the day with mentor and gain access to a reward if point goal is met [Unfamiliar I have never heard of this practice.]

Q14 Did you use **Check-in Check-out** today? If you did not have school today, did you use Check-in Check-out the last day school was in session?

- Yes (1)
- No (2)

Page Break

Display This Question:

If How familiar are you with each of the following practices? != Group Contingency: reinforcing an entire class or a smaller group of students based on the performance (e.g., completing tasks, appropriate behaviors) of one or more of those students [Unfamiliar I have never heard of this practice.]

Q15 How often do you implement **Group Contingencies** in your current setting?

Group Contingencies: reinforcing an entire class or a smaller group of students based on the performance (e.g., completing tasks, appropriate behaviors) of one or more of those students

- I do not use this practice. (1)
- less than once per month (2)
- 2-3 times per month (3)
- at least once per week (4)
- once per day (5)
- more than once per day (6)

Page Break

Display This Question:

If How often do you implement Group Contingencies in your current setting?Group Contingencies: reinf... != I do not use this practice.

And How familiar are you with each of the following practices? != Group Contingency: reinforcing an entire class or a smaller group of students based on the performance (e.g., completing tasks, appropriate behaviors) of one or more of those students [Unfamiliar I have never heard of this practice.]

Q16 Did you use **Group Contingencies** today? If you did not have school today, did you use Group Contingencies the last day school was in session?

- Yes (1)
- No (2)

Page Break

Display This Question:

If How familiar are you with each of the following practices? != High Probability Request Sequence: a set of three to five simple requests the student is highly likely to comply with (e.g., mastered or preferred tasks) delivered just prior to a request in which the student typically does not comply [Unfamiliar I have never heard of this practice.]

Q37 How often do you use **High Probability Request Sequence** in your current setting?

High Probability Request Sequence: a set of three to five simple requests the student is highly likely to comply with (e.g., mastered or preferred tasks) delivered just prior to a request in which the student typically does not comply

- I do not use this practice. (1)
- less than once per month (2)
- 2-3 times per month (3)
- at least once per week (4)
- once per day (5)
- more than once per day (6)

Page Break

Display This Question:

If How often do you use High Probability Request Sequence in your current setting?High Probability R... != I do not use this practice.

And How familiar are you with each of the following practices? != High Probability Request Sequence: a set of three to five simple requests the student is highly likely to comply with (e.g., mastered or preferred tasks) delivered just prior to a request in which the student typically does not comply [Unfamiliar I have never heard of this practice.]

Q38 Did you use **High Probability Request Sequence** today? If you did not have school today, did you use High Probability Request Sequence the last day school was in session?

- Yes (1)
- No (2)

Page Break

Display This Question:

If How familiar are you with each of the following practices? != Opportunities to Respond: asking a question or providing a prompt that requires an active academic student response and then giving feedback based on the response (e.g., choral response, thumbs up/down, response cards, clickers) [Unfamiliar I have never heard of this practice.]

Q39 How often do you use **Opportunities to Respond** in your current setting?

Opportunities to Respond: asking a question or providing a prompt that requires an active academic student response and then giving feedback based on the response (e.g., choral response, thumbs up/down, response cards, clickers)

- I do not use this practice. (1)
- less than once per month (2)
- 2-3 times per month (3)
- at least once per week (4)
- once per day (5)
- more than once per day (6)

Page Break

Display This Question:

If How often do you use Opportunities to Respond in your current setting? Opportunities to Respond: a... != I do not use this practice.

And How familiar are you with each of the following practices? != Opportunities to Respond: asking a question or providing a prompt that requires an active academic student response and then giving feedback based on the response (e.g., choral response, thumbs up/down, response cards, clickers) [Unfamiliar I have never heard of this practice.]

Q40 Did you use **Opportunities to Respond** today? If you did not have school today, did you use **Opportunities to Respond** the last day school was in session?

- Yes (1)
- No (2)

Page Break

Display This Question:

If How familiar are you with each of the following practices? != Pre-Correction: specifically stating the expectations just prior to an activity where there is a history of not meeting expectations [Unfamiliar I have never heard of this practice.]

Q41 How often do you use **Pre-Correction** in your current setting?

Pre-Correction: specifically stating the expectations just prior to an activity where there is a history of not meeting expectations

- I do not use this practice. (1)
- less than once per month (2)
- 2-3 times per month (3)
- at least once per week (4)
- once per day (5)
- more than once per day (6)

Page Break

Display This Question:

If How often do you use Pre-Correction in your current setting?Pre-Correction: specifically stating... != I do not use this practice.

And How familiar are you with each of the following practices? != Pre-Correction: specifically stating the expectations just prior to an activity where there is a history of not meeting expectations [Unfamiliar I have never heard of this practice.]

Q42 Did you use **Pre-Correction** today? If you did not have school today, did you use Pre-Correction the last day school was in session?

- Yes (1)
- No (2)

Page Break

Display This Question:

If How familiar are you with each of the following practices? != Token Economy: a reinforcement system where students receive tokens for desirable behavior and then trade those tokens in for preferred items or privileges based on predetermined criteria (e.g., earn 10 tokens and get a 5-minute break) [Unfamiliar I have never heard of this practice.]

Q43 How often do you use **Token Economy** in your current setting?

a reinforcement system where students receive tokens for desirable behavior and then trade those tokens in for preferred items or privileges based on predetermined criteria (e.g., earn 10 tokens and get a 5-minute break)

- I do not use this practice. (1)
- less than once per month (2)
- 2-3 times per month (3)
- at least once per week (4)
- once per day (5)
- more than once per day (6)

Page Break

Display This Question:

If How often do you use Token Economy in your current setting? a reinforcement system where students... != I do not use this practice.

And How familiar are you with each of the following practices? != Pre-Correction: specifically stating the expectations just prior to an activity where there is a history of not meeting expectations [Unfamiliar I have never heard of this practice.]

Q44 Did you use **Token Economy** today? If you did not have school today, did you use Token Economy the last day school was in session?

- Yes (1)
- No (2)

End of Block: USE

Start of Block: Demographic Characteristics

Q35

Demographic Characteristics

Q28 How would you classify the community where your school is located?

- rural (1)
 - suburban (2)
 - urban (3)
-

Q29 What percentage of students qualify for free and reduced lunch prices at your school?

- 0-50% (1)
 - 51%-100% (2)
 - Unsure (3)
-

Page Break

Q63 How do you identify?

- American Indian or Alaska Native (1)
 - Asian (2)
 - Black or African American (3)
 - Hispanic (4)
 - Native Hawaiian or Pacific Islander (5)
 - White (6)
-

Q25 What is the highest level of education you have completed?

- High School Diploma (1)
 - Associate's Degree (8)
 - Bachelor's Degree (9)
 - Master's Degree (10)
 - Doctorate (11)
-

Q34 What is your current position?

- special education teacher (1)
 - general education teacher (6)
 - paraprofessional (2)
 - behavior specialist (3)
 - related service provider (4)
 - Other (5) _____
-

Page Break _____



Q30 How many full years have you worked as a \${Q34/ChoiceGroup/SelectedChoices} ?

Q31

What grade level(s) do you currently teach?

early childhood (1)

kindergarten (2)

1st Grade (3)

2nd Grade (4)

3rd Grade (5)

4th Grade (6)

5th Grade (7)

6th Grade (8)

7th Grade (9)

8th Grade (10)

9th Grade (11)

10th Grade (13)

11th Grade (14)

12th Grade (15)

Page Break

Display This Question:

If What is your current position? != general education teacher

And What is your current position? != Other

Q33

I currently work with students identified under the following IDEA disability categories:

- autism (1)
 - deaf-blindness (4)
 - deafness (5)
 - emotional disturbance (6)
 - hearing impairment (7)
 - intellectual disability (8)
 - multiple disabilities (9)
 - orthopedic impairment (10)
 - other health impairment (11)
 - specific learning disability (12)
 - speech or language impairment (13)
 - traumatic brain injury (14)
 - visual impairment (including blindness) (15)
-

Display This Question:

If What is your current position? = special education teacher

Or What is your current position? = paraprofessional

Q32 How would you classify the support needs of the students that you teach?

- complex and significant support needs (1)
- minimal support needs (2)
- a mix (complex and significant support needs & minimal support needs) (3)

Page Break