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School Psychologists' and Counselors' Perspectives on Evidence-Based Practices for Children
with Autism Spectrum Disorders

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Philosophy in Education

by

Sami Klebanoff

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ABSTRACT OF THE DISSERTATION

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by

Sami Klebanoff

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Professor Jeffrey J Wood, Chair

There are many interventions that have been tested in university settings for school-aged children with autism spectrum disorders (ASD) that show evidence for efficacy. However, because they have largely not yet been implemented in school and community settings, very few youth with ASD currently have access to them. Because children with autism spend much of their time in school and receive many school-based services, schools are a key setting for the dissemination of evidence-based practices for ASD. While many implementation studies have been conducted including paraprofessionals and teachers as interventionists, very little research has examined school psychologists or counselors as interventionists in evidence-based practice school dissemination efforts for ASD. In this exploratory mixed-methods study, potential barriers to and

means of including school psychologists/counselors in evidence-based practice implementation research in schools are examined. Through the use of interviews and the Evidence-Based Practice Attitudes Scale-50 (Aarons, Cafri, Lugo, & Sawitsky, 2012), the study explored school psychologists' and counselors' perspectives on current use of interventions and evidence-based practices, needs of youth with autism, training in evidence-based practices, attitudes towards evidence-based practices, and potential barriers to implementing evidence-based practices for youth with autism in schools. Both survey and interview results indicated that school psychologists and counselors view EBPs for ASD positively. In addition, the majority of participants expressed an interest in obtaining more training on EBPs for ASD and stated that they are currently using EBPs with students with ASD. Lack of training and time were cited as the primary barriers to greater EBP utilization with students with ASD in schools. Implications for future EBP dissemination efforts involving school psychologists and counselors are discussed.

The dissertation of Sami Klebanoff is approved.

Connie L Kasari

Jennie Katherine Grammer

Sheryl Harumi Kataoka Endo

Jeffrey J Wood, Committee Chair

University of California, Los Angeles

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CURRICULUM VITAE

Education

Master of Arts, Human Development and Psychology **June 2015**
University of California, Los Angeles
Graduate School of Education & Information Studies
GPA: 4.0

Bachelor of Arts, Psychology **May 2009**
Barnard College, Columbia University
Phi Beta Kappa, Magna Cum Laude
GPA: 3.97

Work Experience/Affiliations

Hathaway-Sycamores Child and Family Services Pasadena, CA
Research Assistant II *August 2016-February 2018*

Yavneh Hebrew Academy Los Angeles, CA
Psychological/Behavioral Consultant *August 2016-June 2017*

UCLA Therapy for Anxiety in Autism Spectrum Disorder Study Los Angeles, CA
Project Coordinator *May 2015-August 2016*
Principal Investigator: Dr. Jeffrey Wood

UCLA Schema, Emotion and Behavior-Focused Therapy for Children Study Los Angeles, CA
Graduate Student Researcher/Research Clinician *Fall 2012-Spring 2016*
Principal Investigator: Dr. Jeffrey Wood

UCLA Undergraduate Research Journal of Psychology Los Angeles, CA
Editor *Fall 2014-Spring 2014*

UCLA Learning Problems, Schooling Problems: Policy and Practice Seminar Los Angeles, CA
Special Reader *Spring 2013*
Instructor: Dr. Howard Adelman

Five Acres – The Boys’ and Girls’ Aid Society Altadena, CA
Research & Evaluation Assistant *Fall 2010-Summer 2012*

USC Behavioral Employment Intervention Program Study Los Angeles, CA
Research Assistant/Clinical Assistant *Summer 2008, Summer 2009-Fall 2010*
Principal Investigator: Dr. Stanley Huey, Jr.

Applied Behavioral Therapies, Inc. Woodland Hills, CA
Behavioral Interventionist *Summer 2009-Summer 2010*

Honors & Awards

- UCLA University Fellowship (\$12,500) 2015-2016
- UCLA William and Evelyn Hobson Fellowship (\$30,000/year) 2012-2015
- UCLA Graduate Summer Research Mentorship (\$6,000) 2014
- Elected Phi Beta Kappa 2009
- Graduated Magna Cum Laude 2009
- Graduated with Departmental Honors 2009

Conference Presentations

Klebanoff, S., Delgadillo, V., & Shennum, W. (2012). Heightened behavioral improvement is associated with less academic achievement in emotionally disturbed children. Poster presented at: WPA 2012. Proceedings of the 92nd Western Psychological Association Annual Convention; 2012 April 24-27; San Francisco, CA.

Foust, R., & **Klebanoff, S.,** et al. (2011). Attributional style is associated with positive residential treatment outcomes. Poster presented at: WPA 2011. Proceedings of the 91st Annual Convention; 2011 April 23-26; Los Angeles, CA.

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School Psychologists' and Counselors' Perspectives on Evidence-Based Practices for Children with Autism Spectrum Disorders in Schools

Autism Spectrum Disorders (ASD), characterized by deficits in social communication and restricted, repetitive behaviors, now impact as many as 1 in 59 children (Baio, 2018). A range of deficits in areas such as theory of mind (Yirmiya, Erel, Shaked, Salmonica-Levi, 1998), pragmatic language (Kjelgaard & Tager-Flusberg, 2001) and executive function (Hill, 2004) cause impairment in adaptive functioning throughout development (Howlin, Goode, Hutton, & Rutter, 2004). Individuals with ASD commonly have comorbid mental health disorders that increase functional impairment and decrease quality of life (e.g., Kerns et al., 2015; Simonoff et al., 2008). Deficits in emotion regulation often lead to the development of both internalizing disorders, such as anxiety, and externalizing disorders, such as disruptive behavior disorders (e.g., Gerstein et al., 2011; Wood & Gadow, 2010). As a result, individuals with ASD frequently struggle to function independently and experience poor quality of life outcomes (Howlin & Moss, 2012; Newman et al., 2011). It has been estimated that on average, only 25% of adults with ASD have one or more friends, 15% marry or have a long-term romantic relationship, 25-30% have a comorbid mental illness (e.g., anxiety, OCD, depression), 18% live independently, 44% enroll in postsecondary education and less than 50% work (Howlin & Moss, 2012; Newman et al., 2011).

In light of the significant impairment individuals with ASD experience, it is critical that they are able to gain access to the best quality treatments. However, the majority of individuals with autism do not have access to high quality evidence-based practices (EBPs) because they have not been disseminated to school and community settings. Very little is currently known about service provision for youth with ASD in schools and in particular, about school

psychologists and counselors as interventionists. The purpose of the current study is to shed light on school psychologists' and counselors' perspectives on service provision and EBPs in order to assess whether they could become viable EBP for ASD interventionists in schools. The study will explore school psychologists' and counselors' perspectives on current use of services and EBPs, needs of youth with autism, training in EBPs, attitudes towards EBPs and potential barriers to implementing EBPs for youth with ASD in schools. In the following section, an overview of advances in EBP development as well as patterns of school and community service provision will be provided in order to contextualize the need for dissemination efforts.

Evidence-based Practices for School-Aged Children with ASD

The significant impact of EBPs on ASD symptomatology outlined here illustrates the potential benefits of EBPs for ASD and underscores the importance of transporting them to the school and community settings where more children could access them. Although individuals with ASD experience symptoms throughout the lifespan, advances in early interventions, such as developmental intervention (White et al., 2011), have been shown to substantially improve prognosis and adaptive functioning for individuals with ASD. Fewer efforts have been made to develop and disseminate EBPs for school-aged youth (ages 6 to 18) with ASD than for young children with ASD. However, school-aged youth with ASD continue to struggle with social communication and executive functioning impairments, which can greatly impact their social and academic outcomes (Macintosh & Dissanayake, 2006). Approximately 10-30% of adolescents with ASD experience behavioral deterioration (Gillberg & Schaumann, 1982; Rutter, 1970) and many experience heightened psychosocial stress (Carrington, Templeton, & Papinczak, 2003; Loveland & Tunali-Kotoski, 2005; Shea & Mesibov, 2005). As youth with

ASD mature, they often develop greater awareness of their social impairments, which can cause stress or in some cases, concurrent internalizing disorders (Wood & Gadow, 2010).

While further high-quality research is needed on EBPs for school-aged children, there are several treatments that demonstrate evidence of efficacy in treating both core symptoms of ASD as well as co-occurring disorders associated with ASD, such as anxiety. The treatments reviewed here have the potential to ameliorate symptoms and improve quality of life for school-aged youth with ASD if they were widely available to them in schools and communities. Many of them are complex, multifaceted interventions that may be better implemented in one-to-one formats by highly skilled professionals, such as school psychologists.

There is strong evidence to support the efficacy of Cognitive Behavioral Therapy (CBT) for anxiety and core autism symptoms (Danial & Wood, 2013). CBT, an established EBP for a variety of disorders in typically developing youth that has been adapted for youth with ASD, uses a combination of behavioral and cognitive therapy techniques in order to improve social and coping skills. While some studies of traditional social skills training have shown limited generalizability to real-life settings, school-based and peer-mediated approaches have demonstrated evidence of efficacy (e.g., Cappadocia & Weiss, 2011; Kasari et al., 2016; Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012; Koenig et al., 2010; Lopata et al., 2012; Rao, Beidel, & Murray, 2008). Applied Behavior Analysis (ABA) is a commonly used category of interventions for school-aged children with ASD based on learning theory (Lovaas, 1987). While ABA exists in many iterations with varying effectiveness, one large-scale meta-analysis suggests that ABA leads to medium to large gains in language as well as intellectual, adaptive and social functioning (Virues-Ortega, 2010). Pivotal Response Training (Koegel, Koegel, Harrower, & Carter, 1999), a more naturalistic and child-directed form of behavior therapy, has shown some

evidence of efficacy, although more high-quality studies will need to be done. Two smaller scale randomized controlled trials (RCTs; Hardan et al., 2014; Nefdt, Koegel, Singer, & Gerber, 2009) and one larger RCT comparing Pivotal Response Treatment with Applied Behavior Analysis (Mohammadzaheri, Koegel, Rezaee, & Rafiee, 2014) suggest that PRT can facilitate improvements in some areas, such as language, but effects are limited.

Modeling interventions, which teach adaptive behavior and skills by demonstrating the behavior or skill for the target child, have been shown to be efficacious in improving areas such as communication and behavioral problems (Bellini & Akullian, 2007; Qi, Barton, Collier, & Lin, 2017). Use of visual schedules (Knight, Sartini, & Spriggs, 2015; Koyama & Wang, 2011; Lequia, Machalicek, & Rispoli, 2009) and teaching self-management skills (Aljadeff-Abergel et al., 2015; Carr, Moore, & Anderson, 2014) are also evidence-based techniques found to promote self-regulation in school-aged children with ASD. While not necessarily an intervention in and of itself, it has been shown that use of naturalistic teaching strategies, i.e. teaching skills in the real-life environment in which they are meant to be employed, is an effective way of helping children with ASD generalize skills to everyday settings (Lane, Lieberman-Betz, & Gast, 2016; Schreibman et al., 2015).

In sum, school-aged youth with ASD experience significant impairment. In order to address this need, greater efforts need to be made to both establish and disseminate evidence-based practices to this population.

Complementary and Alternative Medicine Treatments for ASD

A multitude of treatments have sprung up to address the needs of youth with ASD, some of which are currently untested. Both professionals and parents have limited knowledge about

the evidence-base or lack thereof supporting these treatments and have little basis on which to select or recommend interventions (Christon, Arnold, & Myers, 2015; Goin-Kochel, Mackintosh, & Myers, 2007). Perhaps as a result of this overwhelming number of choices and lack of knowledge, the average 6 to 10 year old with high-functioning ASD utilizes roughly seven services at a given time (Green et al., 2006; Thomas, Ellis, McLaurin, Daniels, & Morrissey, 2007). Roughly 50% are using behavioral interventions, 50% are using skills-based interventions, such as social skills training, and 50% are using psychiatric medication (Green et al., 2006; Thomas et al., 2007). A more recent nationwide study found that the most commonly used treatments were speech/language therapy, occupational therapy, intensive behavioral therapy, biomedical treatment, and psychotropic medications (Mire, Hughes, Manis, & Goin-Kochel, 2018). While some of these treatments may be evidence-based, the amount of treatments being utilized places an undue burden on families that could be reduced if evidence-based treatments were being used exclusively.

Complementary and Alternative Medicine (CAM) treatments are interventions that are not presently considered part of conventional medicine and are largely untested. Although there is very little evidence to support the efficacy of Complementary and Alternative Medicine (CAM) treatments, they are commonly used by youth with ASD (Christon, Mackintosh, & Myers, 2010). In one study, 50% of families were currently using a CAM treatment and 70% had tried a CAM treatment in the past (Christon et al., 2010). Commonly used CAM treatments include special diets (29%), vitamins (27%), animal therapy (24%), auditory integration training (16%), music therapy (16%), and chelation (11%) (Christon et al., 2010). Other commonly used treatments are speech and language therapy (88%) and occupational therapy (78%) (McLennan, Huculak, & Sheehan, 2008). It appears that there is a high demand for services and high levels of

service utilization in the autism community. However, because EBPs are not widely available and families are presented with an overwhelming array of choices, they are perhaps expending a great deal of resources on treatments that may not be efficacious.

Service Provision in Schools

Youth with ASD receive a variety of services in schools, some of which are evidence-based and some of which are lacking empirical support. The most common services for students with ASD in schools are speech/language therapy, occupational therapy, and social skills training (Bitterman, Daley, Misra, Carlson, & Markowitz, 2008; Hume, Bellini, & Pratt, 2005; Thomas, Morrissey, & McLaurin, 2007; White, Scahill, Koenig, & Volkmar, 2007; Towle, Vacanti-Shova, Higgins-D'Alessandro, Ausikaitis, & Reynolds, 2018; Wei, Wagner, Christiano, Shattuck, & Yu, 2014). However, recent research suggests that service provision in schools varies slightly across age groups (Spaulding, Lerner, & Gadow, 2016; Wei et al., 2014). In a study using 3 national datasets (Wei et al., 2014), the most commonly used services for preschoolers with ASD were speech/language (85%) and occupational therapy (65%), followed by behavior management (45%) and learning/study skills support (44%). Speech/language (85%) and occupational therapy (50%) were also the most used services for elementary-aged students with ASD. For secondary school students with ASD, speech/language therapy (67%) was the most commonly used service, followed by special transportation (54%) and adaptive physical education (51%). Another recent longitudinal study found that speech/language therapy and specialized instruction were the most common services students with ASD received in schools, although usage of these services and others varied depending on level of functioning (Towle et al., 2018). Other commonly used services included occupational therapy, social skills groups, physical therapy, classroom aides, and behavior plans. While the landscape of services is

becoming clearer, it is not clear whether or not students with ASD are receiving evidence-based versions of these services.

Information about services offered to children with ASD in public schools specifically is sparse. However, in one study examining ASD services in Georgia public schools, the most commonly used strategies for children with ASD were relationship-based teaching, sensory integration, cognitive behavioral therapy, assistive technology and Social Stories (Hess et al., 2008). In a study which surveyed a nationally representative sample of 3,000 educators and administrators serving preschool through secondary school-aged children, the most frequently used classroom supports for children with ASD were structured learning environments (55%), visual supports (51%), behavior intervention plans (45%), individualized curricula (44%), paraprofessional aides (44%), and positive behavior support (43%) (Sandford, 2009). While there is evidence for the efficacy of cognitive behavioral therapy and behavioral therapy for children with ASD, the other commonly used services are not evidence-based (Hess et al., 2008; Sandford, 2009). In fact, Hess and colleagues (2008) estimate that less than 10% of teaching approaches used in classrooms have empirical support.

In terms of ASD assessment and eligibility determinations in schools, practices vary widely in different regions of the U.S. Barton and colleagues (2015) found that ASD assessment practices differ substantially from state to state, but the majority of states derive their procedures from federal guidelines. While there is also variability across states in terms of the use of evidence-based assessment practices, the majority of school psychologists do not engage in evidence-based assessment (Aiello, Rubel, & Esler, 2017). However, most states do distinguish between medical diagnosis and educational eligibility (Barton et al., 2015). A medical diagnosis involves use of the DSM-V criteria for ASD (American Psychological Association, 2013) by a

qualified diagnostician, such as a psychologist or psychiatrist. An educational evaluation determines whether students are eligible for school services based on the effect of the students' impairments on their education. A student must meet criteria for an eligibility category, such as autism. For the most part, school psychologists are responsible for making eligibility determinations. However, very little has been published in school psychology journals on the quality of assessments for students with ASD, potentially leaving school psychologists with little direction as to which assessments to select (McKenney et al., 2015).

For children ages 3 to 17 with ASD, a nationwide study estimated average school costs to be \$8,610 higher per child per year (Lavelle et al., 2014). High annual costs have been found even for high-functioning school-aged youth with ASD (Knapp, Romeo, & Beecham, 2009). In a study comparing students with ASD to students with ADHD, conduct/oppositional defiant disorder and other psychiatric disorders in Pennsylvania, students with ASD had substantially higher school service expenditures than the other groups (averaging \$6,946 per year; Kang-Yi, Locke, Marcus, Hadley, & Mandell, 2015). Beuscher and colleagues (2014) estimate the direct and indirect lifetime costs of ASD to be \$2.4 million per person in the U.S. and £1.5 million (U.S. \$2.2 million) in the United Kingdom.

Although youth with ASD receive a multitude of community and school-based services, morbidity associated with ASD remains high throughout the lifespan. Whether the long-term prognosis of ASD could be substantively improved if youth with ASD received more evidence-based practices in schools remains unknown.

School and Community Dissemination of EBPs for ASD

Significant advances have been made in EBP development for ASD, but the majority of children and families can only benefit from these EBPs once they have been disseminated into school and community settings. Use of EBPs in place of untested treatments could potentially lead to a significant cost savings, improved prognosis for children with ASD and more equitable access to interventions for youth with ASD from various socio-economic backgrounds. In the following section, several key examples of extant dissemination studies will be reviewed in order to provide an overview of progress made thus far and highlight the importance of further investigation into alternative means of advancing dissemination efforts.

Extant dissemination efforts. Dissemination of EBPs to the community has long been underway for other clinical populations and preliminary efforts are being made to test the effectiveness of EBPs for ASD in school and community settings. While numerous effectiveness trials have examined interventions for preschool-aged children with ASD (e.g., Eapen, Črnčec, & Walter, 2013; Eikeseth, Klintwall, Jahr, & Karlsson, 2012; Eldevik, Hastings, Jahr, & Hughes, 2012; Kaale, Fagerland, Martinsen, & Smith, 2014), there are fewer studies examining dissemination of EBPs for school-aged children with ASD. Extant studies attest to the complexity and challenges involved in implementing EBPs in schools and the community.

Efforts to examine PRT's efficacy in both school and community settings are currently underway. In Southern California, over 70% of educational providers report using PRT or similar techniques (Stahmer, 2007). PRT is also a component in interventions used throughout the U.S., such as Strategies for Teaching based on Autism Research (STAR; Arick, Loos, Falco, & Krug, 2004). Although PRT is commonly used in classrooms, most teachers reported using only parts of PRT or using it in combination with other methodologies (Stahmer, 2007). In a recent study comparing research trained and clinically trained teachers' implementation of PRT

in classrooms, Suhrheinrich and colleagues (2013) found that research trained teachers met the fidelity of implementation criteria (80%) for all but two components of PRT (turn taking and multiple cues), while the clinically trained teachers, as a group, did not meet fidelity of implementation criteria for any of the treatment components (Suhrheinrich et al., 2013). The authors suggest that this may be because the clinically trained teachers were also simultaneously trained in various other intervention methodologies, although they indicate a need for further investigation into this finding (Suhrheinrich et al., 2013). It is important to note that it is not clear what impact PRT fidelity had on child outcomes because the link between fidelity and child outcomes was not examined in this study. Stahmer, Suhrheinrich, Reed and Schreibman's (2012) qualitative study on teacher-reported barriers to PRT fidelity, corroborated the finding that turn taking and multiple cues were difficult to implement in the classroom. Teachers also stated that it was frequently difficult to adapt techniques designed for one-to-one training for groups and that some aspects of PRT seemed inappropriate or too difficult to implement in a classroom setting (Stahmer et al., 2012). As a result of teacher feedback, a simplified version of PRT adapted for the classroom was developed using a research community partnership (Schreibman, Suhrheinrich, Stahmer, & Reed, 2012; Stahmer, Suhrheinrich, & Rieth, 2016). An initial pilot study suggests that teachers are able to use Classroom Pivotal Response Training (CPRT) successfully after a brief training period and that its use is related to increased student engagement (Stahmer et al., 2016).

In one of the only large-scale studies examining the effectiveness of a parent education PRT intervention in a community setting, Baker-Ericzén, Stahmer, and Burns (2007) found that children ages 24 to 113 months showed significant parent-reported improvements in adaptive behavior. The therapists providing parent education were either university trained or trained by a

university therapist (Baker-Ericzén et al., 2007). Although this study utilized a large (n=158) and demographically diverse sample, the interpretation of results is limited by the study's pre-post design and lack of independently evaluated outcome measures (Baker-Ericzén et al., 2007). Although current examinations into PRT in schools contribute significantly to knowledge regarding the process of disseminating PRT, there is a need for more rigorous investigation into associated child outcomes and the effectiveness of PRT in natural settings.

Several other evidence-based approaches are also undergoing the dissemination process. In a teacher-implemented randomized field trial comparing STAR and Structured Teaching interventions in autism support classrooms in Philadelphia, the authors found no main effect for program, but found significant interaction between program and treatment fidelity (Mandell et al., 2013). STAR was associated with greater student gains in low and high fidelity classrooms and Structured Teaching was associated with greater gains in moderate fidelity classrooms (Mandell et al., 2013). This finding, along with the finding that fidelity levels were fairly low, even with supports in place, speaks to the difficulty and complexity of implementing evidence-based strategies in classrooms (Mandell et al., 2013). In a subsequent study examining fidelity levels of the three components of STAR (Discrete Trial Training [DTT], PRT and Functional Routines), Stahmer and colleagues (2015) found that levels of fidelity were significantly higher for DTT than PRT or Functional Routines. The authors speculate that this may be because DTT is more structured, requires less clinical judgment, and is easier to implement in a classroom setting. However, another study examining the link between components of STAR and student outcomes found that fidelity to PRT, not DTT or functional routines, was related to increases in students' cognitive abilities (Pellecchia et al., 2015). STAR program developers and teachers from an autism school proficient in Structured Teaching provided similar amounts of training

and continuous support to teachers in both conditions (Mandell et al., 2013). Interestingly, even though fidelity was generally low, children experienced significant gains in IQ in both conditions (Mandell et al., 2013). This could be because in the under-resourced classrooms the study was conducted in, the additional training and consultation for teachers with low baseline levels of training on ASD was enough to produce student gains, irrespective of the specific strategies used. Conversely, it may be that teachers used their clinical judgment and experience to facilitate student gains or that fidelity was not being accurately captured. Further research will be needed to unravel the multifaceted relationship between fidelity and student outcomes.

One school-based study provides initial support for the efficacy of a parent-mediated SST intervention, the UCLA Program for the Education and Enrichment of Relational Skills (PEERS; Laugeson et al., 2009), in middle school classrooms (Laugeson, Ellingsen, Sanderson, Tucci, & Bates, 2014). Although the study did not use random assignment, it did utilize a treatment as usual (i.e., traditional social skills training) comparison group. Teachers received a treatment manual as well as 3 hours of initial training followed by weekly supervision with the principal investigator. The PEERS group made significantly greater improvements in teacher-reported social responsiveness, social communication, social motivation, social awareness, autistic mannerisms as well as frequency of self-reported get-togethers (Laugeson et al., 2014). Further research with less researcher involvement, random assignment and observational outcome measures will assist in determining whether PEERS can be successfully implemented in school settings.

In one study using school psychologists and other school staff as interventionists, the efficacy and feasibility of a comprehensive school-based intervention program targeting social skills for students with ASD was examined (Lopata et al., 2012). The program involved social skills

groups, therapeutic activities, face/emotion recognition instruction, behavior contracts, and parent training. School psychologists conducted parent training and facilitated social skills groups. Fidelity was high and measured by independent raters. Although conclusions are limited by the study's pre-post design, students improved their social skills knowledge and application as well as their face/emotion recognition skills. This study suggests that school psychologists are able to collaborate with researchers and implement a complex intervention with fidelity.

In a RCT of a recess intervention for children with ASD, *Remaking Recess*, a university researcher was able to successfully train paraprofessionals to increase peer engagement and improve children's perceptions of the recess experience (Kretzmann, Shih & Kasari, 2015). However, while many of the trained paraprofessionals demonstrated increases in responsiveness to the children with ASD on the playground, they did not increase their use of specific intervention strategies despite extensive training throughout the intervention period (Kretzmann et al., 2015). Although the subgroup of one-on-one aides demonstrated greater use of intervention strategies, this is still a disconcerting finding that raises questions about the training and inclusion of paraprofessionals as interventionists (Kretzmann et al., 2015).

Additional qualitative investigations of the implementation of *Remaking Recess* have helped to shed light on barriers to implementation of interventions in schools (Locke et al., 2015; Locke et al., 2017). The lead author trained paraprofessionals to conduct the intervention while simultaneously collecting field notes related to barriers to implementation (Locke et al., 2015). They found that while implementation fidelity was low, the results suggest that this is due to practical and logistical school barriers, rather than paraprofessionals' inability to successfully conduct the intervention (Locke et al., 2015). The chief barriers hindering implementation were school policies related to recess (e.g., taking away recess as a punishment), low prioritization of

the intervention, lack of support from administrators and teachers, as well as inadequate staffing and resources (Locke et al., 2015). While many if not all of these barriers are surmountable, doing so may require substantive shifts in both school culture as well as school policy (Locke et al., 2015). Locke and colleagues (2017) also attempted to further unravel the implementation process using semi-structured interviews with school personnel. They found that lack of collaboration/diffusion of responsibility, time, and lack of resources were the primary barriers to implementation of Remaking Recess. Participants stated that increased support from leadership and colleagues was the biggest facilitator of implementation.

In a more recent dissemination study examining implementation of the Remaking Recess intervention in public schools, schools were randomly assigned to either a training in Remaking Recess condition or a training in Remaking Recess with implementation support condition (Locke et al., 2018). Surprisingly, while training did increase implementation fidelity, it remained low in both conditions. Students with ASD in both groups reduced their solitary engagement and increased their joint engagement on the playground; however, students in the intervention plus implementation support condition made significantly higher increases in friendship nominations and social network inclusion. This suggests that even though fidelity was low, implementation support may help facilitate improved student outcomes. This is consistent with Mandell and colleagues' (2013) finding that low/moderate fidelity was still associated with student gains.

In a school-based randomized controlled effectiveness trial, school staff delivered an executive functioning intervention or a social skills intervention to 3rd and 5th graders with ASD (Kenworthy et al., 2014). The executive functioning intervention, Unstuck and On Target (UOT), targets inflexibility, insistence on sameness, and planning with cognitive behavioral

techniques. School staff were able to deliver both interventions with high fidelity and children in both groups demonstrated improvements in social skills. However, the students in the UOT group made substantively greater gains in problem-solving, planning, and flexibility.

In another school-based effectiveness trial, school staff delivered a more structured, intensive version of the Secret Agent Society (SAS) social skills interventions or a less structured, less intensive version of the intervention (Beaumont, Rotolone, & Sofronoff, 2015). The SAS program uses computer games and other engaging games/activities to help students with ASD better understand emotions and develop social skills. The goal of the study was to see if a less intensive version of SAS delivered by school staff at their own discretion could be efficacious. Although fidelity was high, it was measured by self-report without an independent reliability check. While both treatments facilitated gains in social skills, emotion regulation, and behavior, the structured intervention facilitated greater improvements.

Kasari and colleagues (2016) conducted a RCT comparing two forms of social skills training for elementary school-aged children with ASD in order to determine which one would be more effective in a school setting. The SKILLS intervention, a didactic approach involving a group of children with ASD, was compared with the ENGAGE intervention, a more naturalistic approach involving skill development within the context of an activity shared with typical peers. Both interventions were implemented by graduate student researchers and research assistants. Interestingly, there was no main effect of group on peer-rated social networks and results provided more support for the SKILLS intervention than the ENGAGE intervention. Gains made in similar didactic SST programs conducted in clinic settings have not consistently generalized to real-life settings (Cappadocia & Weiss, 2011; Rao et al., 2008). However, the results of this

study may suggest that didactic SST can facilitate improvements in social engagement for students with ASD when conducted in a school setting.

Using data from a RCT of an evidence-based consultation intervention, the Collaborative Model for Promoting Competence and Success (COMPASS), Ruble and colleagues (2013) examined the relationship between fidelity and outcomes for students with ASD. COMPASS is an intervention involving consultations with parents and teachers, educational goal setting, intervention planning, and teacher coaching. It is aimed at improving educational outcomes for students with ASD by targeting teacher practices. They found that fidelity to the COMPASS protocol was related to teacher behavior, which was in turn related to student educational outcomes as predicted. This study, unlike some others, paints a more straight-forward picture of the relationship between fidelity and child outcomes. In a more recent in-depth examination of the relationship between fidelity and COMPASS outcomes, Wong and colleagues (2018) found that teacher responsiveness to coaching, quality of teacher service delivery, and student responsiveness were the three elements that had the largest impact of student IEP outcomes.

Smith and colleagues (2017) have attempted to overcome some of the barriers encountered in prior school dissemination attempts by adopting a community-partnered participatory research approach. In the study, researchers partnered with under-resourced schools in three large urban school districts to implement RCTs of two different EBPs – Remaking Recess and Schedules, Tools, and Activities for Transition (STAT), an intervention aimed at easing daily transitions for students with ASD. The interventions were selected based on feedback from community stakeholders in order to increase buy-in, and researchers met regularly with partnership groups at each site. Data from the Remaking Recess intervention is not yet available, but results from the STAT RCT were reported (Iadarola et al., 2018). Although teacher fidelity was mixed and

students' academic engagement and independence did not improve significantly, buy-in among teachers was high and there were significant reductions in students' disruptive behaviors and teacher-nominated goals. The researchers acknowledge that there may be more work to do in terms of adapting the intervention based on teacher feedback, but initial results appear promising and speak to the strengths of a community-partnered approach.

In a school-based randomized trial aimed at improving social communication in kindergarteners and first graders with ASD, school staff were successfully trained to deliver the intervention (Kamps et al., 2015). The interventionists included speech/language pathologists, paraprofessionals, resource room teachers and counselors. Training included an in-service conducted by researchers, 2-4 school visits, and ongoing consultation and feedback. Fidelity was high overall (86%) and incidences of low fidelity improved with added support and coaching. Children in the intervention group demonstrated significantly more initiations to peers, communications, and prosocial skills. This study illustrates that school personnel can implement a social communication intervention for children with ASD with fidelity and that doing so can be associated with improved student outcomes.

Although some dissemination attempts have been successful, others have encountered barriers that are currently poorly understood. Investigations of the use of empirically supported interventions in classrooms and in the community have revealed that, in practice, evidence-based techniques are frequently modified significantly and/or combined with other intervention approaches (Brookman-Frazee, Taylor, & Garland, 2010; Kasari & Smith, 2013; Stahmer, 2007; Stahmer, Collings, & Palinkas, 2005). Community practitioners also tend to lack thoroughness in their delivery of evidence-based techniques (Brookman-Frazee et al., 2010). While some have found that modular, more flexible approaches to treatment delivery are more effective in

outpatient non-ASD clinical samples (Weisz et al., 2012), such observations warrant further examination.

Many have found that moving away from a unidirectional research to practice model and towards a more bidirectional process in which practice informs research has been beneficial in elucidating barriers to implementation (Smith et al., 2017; Stahmer et al., 2012; Suhrheinrich et al., 2013). Eliciting feedback from community practitioners appears to be a valuable means of obtaining information about barriers to implementation in real-life settings. Teacher insights regarding the use of PRT in classrooms (e.g., the difficulty of using overly-complex techniques and modifying one-to-one interventions for groups) may prove applicable to the dissemination of other evidence-based practices (Stahmer et al., 2012).

Implementation science. A growing body of research has begun to examine the process of implementing new innovations, including EBPs, in applied settings. Across various disciplines, such as healthcare and psychology, researchers have recognized that there are complex challenges involved in translating academic knowledge to real-life settings and have begun to examine the nature of the implementation process. Implementation scientists have outlined multi-phase models of EBP implementation (Aarons, Hurlburt, & Horwitz, 2011; Damschroder et al., 2007). These models propose four phases of EBP implementation: exploration, adoption, active implementation, and sustainment. Aarons and colleagues (2011) also emphasize the role of both outer (service context) and inner (organization and provider characteristics) elements that impact the EBP implementation process. For example, in the exploration phase, individual adopter characteristics, such as attitudes towards EBPs, can influence whether EBPs are explored, then adopted and ultimately implemented. The three primary characteristics of individual adopters of EBPs that influence EBP use are values, social networks and beliefs about

the need for change. Proctor and colleagues (2009) proposed that researchers begin to examine not only client outcomes, but the outcomes of the implementation process in and of itself. The key implementation outcomes are acceptability, adoption, appropriateness, costs, feasibility, fidelity, penetration and sustainability.

ASD researchers have become increasingly interested in using implementation science to help close the research to practice gap in ASD intervention (e.g., Brookman-Frazee, Drahotka, & Stadnick, 2012; Dingfelder & Mandell, 2011; Drahotka et al., 2014; Wood, McLeod, Klebanoff, & Brookman-Frazee, 2015). Dingfelder & Mandell (2011) propose that lack of fit between EBPs and applied settings may account for issues surrounding implementation. Several researchers in the field have begun to explore more flexible, comprehensive intervention protocols to help improve the fit between EBPs and school and community settings (e.g., Brookman-Frazee et al., 2012; Wood et al., 2015).

Other trends in ASD intervention implementation research are hybrid implementation models and community-based participatory research approaches. Traditionally, interventions are first tested in efficacy trials in controlled, university settings. If successful, they are tested in effectiveness trials in applied settings with extensive researcher involvement and finally, in implementation trials in applied settings with minimal researcher involvement. In hybrid implementation studies, elements of effectiveness and implementation trials are combined in order to bypass the effectiveness trial stage and speed the implementation process (Curran, Bauer, Mittman, Pyne, & Stetler, 2012; Shire et al., 2017). In community-based participatory research (CBPR) approaches, community stakeholders are deeply embedded in the implementation process and researchers and community members work together collaboratively to facilitate successful implementation (e.g., Friesen-Storms, Moser, Van Der Loo, Beurskens, &

Bours, 2014; Harrison & Graham, 2012; Smith, Iadarola, Mandell, Harwood, & Kasari, 2017). Ideally, this partnership it intended to enable a better fit between the intervention and service setting. The current study is an initial step towards including school psychologists and counselors in the EBP dissemination process and embarking on a CBPR implementation approach. While there have been numerous implementation attempts including teachers and paraprofessionals, there is very little research on school psychologists' and counselors' implementation of EBPs for ASD. As professionals with high levels of education, they may be well suited for implementing complex EBPs in schools. In the interest of ultimately disseminating EBPs for ASD to schools, it may be important to explore school psychologists and counselors as possible interventionists.

School Psychologists and Services for Children with ASD in Schools

Current knowledge about the services school psychologists provide for youth with ASD in schools is sparse. Although practices vary by state, school psychologists generally spend the majority of their time providing services for youth with ASD consulting and conducting assessments (Rasmussen, 2010; Small, 2013). While many school psychologists perceive interventions for youth with ASD to be potentially helpful, they spend less time conducting interventions (Messmer-Wilson, 2007; Small, 2013). In one study on school psychologists in Indiana, the interventions school psychologists employed were consulting with teachers on implementing classroom modifications, home- and school-based behavior modification plans, visual schedules, psychoeducation on autism, and social skills training (Messmer-Wilson, 2007). A number of other studies suggest that school psychologists frequently provide social skills training as an intervention for youth with ASD (Alongi, 2005; Austin, 2013; Combes, Chang, Austin, & Hayes, 2016; Day, 2012; Messmer-Wilson, 2007). A recent cross-national study examined educational psychologists' use of interventions for students with ASD in the UK and

Ireland (Robinson, Bond, & Oldfield, 2018). The most commonly used interventions were visual supports, social stories, reinforcement, modeling, antecedent-based interventions, prompting, and social skills training. Results indicated that the most important considerations for educational psychologists selecting interventions were individual student characteristics and school contextual factors, such as school personnel's ability, skills and knowledge of ASD. While youth with ASD commonly have further impairing comorbid disorders, such as anxiety and disruptive behavior disorders, extant studies have not examined whether school psychologists provide services aimed at co-occurring emotional and behavioral symptoms.

School psychologists' training on ASD. Extant studies on school psychologists' knowledge and training related to ASD suggest that training on ASD is largely inadequate. While most school psychologists have received informal training on ASD from workshops or conferences, many have had little or no formal training in the form of graduate coursework or internships (Messmer-Wilson, 2007; Rasmussen, 2010; Sansosti & Sansosti, 2013; Singer, 2008). Furthermore, in several studies school psychologists reported that their training in interventions for children with ASD was particularly lacking and felt insufficiently prepared to deliver interventions (Messmer-Wilson, 2007; Rasmussen, 2010; Sansosti & Sansosti, 2013). In one study, only 5% of participating school psychologists had formal coursework that addressed ASD specifically and only 15% felt their training on ASD was adequate (Singer, 2008). In another study, a little more than half of the participants had some kind of formal training (either coursework or internship) covering ASD, although it is unclear if this training focused specifically on ASD (Rasmussen, 2010). A study examining training of school psychologists in Indiana found that Indiana school psychologists reported very little formal graduate training and wanted more hands-on training related to ASD (Messmer-Wilson, 2007). In a study including

both school psychologists and trainers of school psychologists, only a small number of school psychology programs were found to offer coursework specifically focused on ASD (Sansosti & Sansosti, 2013). Furthermore, the authors found that there was very little training on interventions for ASD (Sansosti & Sansosti, 2013). While they found the training on assessments for ASD to be relatively more thorough, they were trained to administer assessments for the purpose of eligibility determination rather than for informing intervention (Sansosti & Sansosti, 2013). In a nationwide study examining evidence-based assessment practices among school psychologists for students with autism, Aiello and colleagues (2016) found that the majority of school psychologists (75%) did not use evidence-based assessment practices. Results demonstrated associations between years of experience, training, experience with students with ASD, geographic location, and use of evidence-based assessment practices. They found that school psychologists from southern and western regions of the US were more likely to use evidence-based assessment practices. Interestingly, participants who did not use evidence-based assessment practices did not report greater training needs than those who did use evidence-based assessment practices. In another recent study examining autism assessment practices among California school psychologists, Davis (2018) found that the majority of participants reported using the National Association of School Psychologists' best practice guidelines when determining ASD eligibility. Roughly half of participants used the Autism Diagnostic Observational Schedule (ADOS: Lord et al., 2000), the gold standard diagnostic assessment for ASD. Participants indicated that more training is needed related to changes in the DSM-5 and eligibility requirements as well as formulating recommendations for students with ASD. This suggests that use of evidence-based assessment may be more common in California than in other parts of the U.S.

There have not been many studies conducted on school counselors' knowledge of ASD. In one qualitative study examining school counselors' experiences working with students with ASD, Griffin (2015) found that school counselors believe that they need more training on the nature of ASD, the needs of students with ASD, and EBPs for students with ASD. Although further research is needed in order to shed light on the training needs of school psychologists and counselors in regards to ASD, extant studies suggest that more exhaustive training is necessary, particularly on interventions for youth with ASD.

School psychologists' knowledge of ASD. Findings on the level of knowledge school psychologists have about ASD have been mixed, partially due to differing measures and definitions of knowledge of ASD. A study examining the existence of common misconceptions about ASD in Indiana school psychologists found that school psychologists were able to correctly differentiate facts versus myths regarding ASD (Messmer-Wilson, 2007). In another study looking at knowledge of diagnostic tools and interventions, the Childhood Autism Rating Scale (CARS: Schopler, Reichler, & Renner, 2002) was the best known diagnostic tool and applied behavioral analysis (ABA) was the best known intervention (Meagher, 2007). While the CARS is a validated instrument and ABA is an EBP for ASD, the CARS is not the gold-standard assessment for diagnosing ASD and there are many other EBPs available for ASD. A study focusing on predictors of school psychologists' knowledge of Asperger's disorder found that amount of experience working with children with Asperger's did predict scores on a questionnaire assessing knowledge of Asperger's (Gerbe, 2008). Experience with children with Asperger's, articles read on Asperger's and number of workshops attended did not predict ability to accurately diagnose Asperger's on a case vignette task (Gerbe, 2008). However, school psychologists did demonstrate sufficient knowledge of Asperger's on the Knowledge of

Asperger's Scale (KASP: Murphy, 2005; Gerbe, 2008). In another study examining predictors of ASD knowledge, perceptions of skill and need for training on ASD, reliability on the ADOS was found to be a predictor of ASD knowledge (Ries, 2012). Number of diagnoses made per year, years of experience, and training were predictors of school psychologists' perceptions of their level of skill and experience (Ries, 2012). School psychologists with more years of experience and greater ASD knowledge were significantly more likely to report less need for training (Ries, 2012). While 86.6% of participants identified as skilled, more than half reported the need for added training in autism diagnosis (Ries, 2012). Overall, it appears that while formal training is lacking, school psychologists are able to gain a fair amount of knowledge of ASD through experience and informal training.

School psychologists' knowledge, training and attitudes towards EBPs. In the field of clinical psychology, numerous studies have examined therapist knowledge, training and attitudes related to EBPs as they are increasingly being disseminated to community settings. Therapist knowledge and attitudes surrounding EBPs can be a key element in the implementation process, which can either help or hinder dissemination efforts (e.g., Lewis & Simons, 2011; Reding, Chorpita, Lau, & Innes-Gomberg, 2014). However, very few studies have examined school psychologists' knowledge and attitudes related to EBPs for ASD. It may be that an evidence-based practice in psychology approach (American Psychological Association Presidential Task Force, 2006; Kasari & Smith, 2016; McGrew, Ruble, & Smith, 2016), which accounts for client characteristics and culture as well as clinical skill in addition to scientific evidence for specific treatments, may be best suited to improving practices of school psychologists. The first step in understanding how best to improve school psychologists' treatment of children with ASD is to

better understand what we know and what we need to find out about school psychologists' attitudes towards and knowledge of EBPs.

The majority of extant studies looking at school psychologists and EBPs for ASD have focused on SST exclusively. In a study examining school psychologists' perceptions of SST for children with ASD, Attention Deficit Hyperactivity Disorder (ADHD) and Learning Disabilities (LD), school psychologists reported that SST was an ineffective treatment for all three populations and made fewer referrals for SST for children with ASD than for children with LD or ADHD (Alongi, 2005). There is evidence suggesting that school psychologists do have knowledge of non-traditional forms of SST, which have demonstrated greater generalizability (Day, 2012). In one study, school psychologists identified Pivotal Response Training/Direct Instruction as the most efficacious SST program and peer-mediated interventions in general as the best at facilitating generalization of skills (Day, 2012). The majority of participating school psychologists had either implemented, organized or recommended Social Stories and Pivotal Response Training interventions, two non-traditional forms of SST (Day, 2012). However, school psychologists reported moderate levels of confidence in delivering SST both directly and indirectly (Day, 2012). Similarly, Austin (2013) found that more than half of a national sample of school psychologists deliver SST to children with ASD. However, close to half of the participants stated that their graduate coursework did not cover SST for children with ASD (Austin, 2013). Austin (2013) also found that the amount of importance their school district attached to EBPs, levels of openness as measured by the Evidence Based Practices Assessment Scale, perceptions of quality of graduate training in EBPs, perceptions of quality of their training in SST for ASD, and having a caseload divided evenly among types of schools (i.e., early childhood, elementary school, middle school and high school) predicted their utilization of EBPs

for children with ASD. Sansosti and Sansosti (2013) found that school psychologists and school psychology trainers reported very little training on EBPs for ASD, with most of the existing training focused on behavioral interventions (Sansosti & Sansosti, 2013). Many important EBPs, such as peer-mediated SST and CBT, received very little attention in school psychology graduate programs (Sansosti & Sansosti, 2013). In a study examining use of evidence-based SST interventions for ASD among school psychologists, Combes and colleagues (2016) provided insight into training on SST and factors impacting evidence-based SST use. They found that half of participants did not receive training on SST for ASD in graduate school and close to 60% did not receive training on SST for ASD in their internship. The most frequently used evidence-based SST techniques were provision of specific and measurable treatment goals, generalization of skills, and discriminating between skill acquisition and performance deficits. The biggest predictor of evidence-based SST use was the importance school districts place on EBP utilization and the biggest barrier to EBP usage was lack of time. In a nationwide study examining general EBP use among school psychologists, Hicks and colleagues (2014) found that lack of time, lack of resources and financial constraints were the biggest barriers to EBP use. They also found that most school psychologists found their graduate program training on EBPs to be lacking.

While much of prior research has focused on training needs and knowledge of ASD among school psychologists, very little research has specifically examined use of EBPs. Although a small number of studies have examined school psychologists' perceptions of EBPs, they have largely focused on SST and have not provided an in-depth examination of school psychologists' attitudes toward implementing EBPs in schools. Furthermore, very little research has examined perceptions school psychologists have about possible barriers or challenges involved in implementing EBPs in schools. As past dissemination research illustrates, understanding and

addressing barriers to implementation is a critical piece of the dissemination process.

Community-partnered participatory research models of EBP implementation suggest that involving community stakeholders in the process of revealing and overcoming barriers is key to implementation success (Jones and Wells 2007; Mendel et al., 2008; Smith et al., 2017; Wells et al. 2004). Further investigation into school psychologists' and counselors' perceptions of barriers to EBP implementation may be an important step towards disseminating EBPs in schools and improving current EBP utilization.

Current Study

In order to assess whether school psychologists and counselors could be viable EBP interventionists for youth with ASD, the current study examined their perspectives through the use of surveys and phone interviews. While prior research has begun to examine EBP usage among school psychologists using surveys, a fuller understanding of the reasons school psychologists and counselors may or may not use EBPs as well as possible ways to overcome barriers to usage may best be gained through a mixed-methods approach. One-on-one interviews are a means of gaining in-depth insight into individual perspectives and experiences. Surveys complement the qualitative data from the interviews while also allowing for comparisons with similar populations. A mixed-methods approach was selected for the current study because it is well suited to exploring a topic about which little is known and obtaining insight into school psychologists' and counselors' perspectives. Qualitative and mixed-methods are commonly used in community-partnered participatory research studies in order to give community stakeholders a voice and explore their points of view more deeply (Peters, Adam, Alonge, Agyepong, & Tran, 2013).

Because little is currently known about the services provided by school psychologists and counselors, an exploratory aim of the study was to find out what techniques school psychologists and counselors use in conducting intervention and determining ASD eligibility for students with ASD. Three related sub-questions aimed to ascertain whether school psychologists and counselors are currently using EBPs, whether there are techniques that they are using that they believe to be better than EBPs and what the typical allocation of efforts is in terms of assessments, intervention and consultation. In order to get a sense of school psychologists' and counselors' perceptions of the services they are currently providing, the second aim of the study was to determine the extent to which school psychologists feel the needs of youth with ASD are being met in schools.

While extant research suggests that the training school psychologists have on interventions for youth with ASD is largely inadequate (e.g., Messmer-Wilson, 2007; Sansosti & Sansosti, 2013), very little research has specifically examined school psychologists' and counselors' perceptions of the training they have received on EBPs for ASD. Therefore, a third aim of the study was to determine the perceptions the school psychologists and counselors included in the current study have on the training they have received on EBPs for youth with ASD.

Previous dissemination studies have suggested that the attitudes community therapists have regarding EBPs impact their level of buy-in during the implementation process and ability to successfully implement the intervention (e.g., Lewis & Simons, 2011; Reding et al., 2014). Therefore, the fourth aim of the study was to determine school psychologists' and counselors' attitudes towards implementing EBPs for ASD in schools. The fifth and final exploratory aim of the study was to find out what school psychologists and counselors believe the barriers would be to implementing EBPs for youth with ASD in schools. Examining school psychologists' and

counselors' perceptions of possible barriers served the ultimate goal of the study, which was to inform future efforts to adapt EBPs for implementation in schools.

In sum, the current study aimed to address the following research questions:

1. What techniques do school psychologists use in determining ASD eligibility?
 - a. What strategies do they use for selecting interventions for students with ASD?
2. What techniques do school psychologists and counselors use in conducting intervention for children with ASD?
 - i. Are school psychologists and counselors using EBPs for ASD?
 - ii. Are there techniques that they are using that they believe to be better than EBPs for ASD?
 - iii. What is the typical allocation of efforts is in terms of assessments, intervention and consultation?
3. To what extent do school psychologists and counselors believe the needs of youth with ASD are being met by the services provided in schools?
4. What are school psychologists' and counselors' perceptions of the training they have received on EBPs for ASD?
5. What are school psychologists' and counselors' attitudes towards implementing EBPs for youth with ASD in schools?

6. What do school psychologists and counselors believe the barriers would be to implementing EBPs for youth with ASD in schools?

Method

Participants

The interview sample included 14 school psychologists and 3 school counselors working in both public and private schools throughout California. An ideal number of participants for qualitative interviews is between 12 and 20 (Guest, Bunce, and Johnson, 2006). Around 11 or 12 participants is generally enough to reach the point where additional participants do not add substantially new insights, referred to as saturation. Less than 20 participants can allow the researcher to closely examine each participant's data.

The total sample for the survey included 49 school psychologists and 3 school counselors working in California. Both specialist and doctoral level school psychologists were included in the study. All credentialed school counselors were eligible to participate. In order to be eligible to participate, participants needed to: (a) be credentialed school psychologists or school counselors; (b) be currently employed as school psychologists/counselors; (c) have provided intervention for youth with ASD within the last year. Participants were recruited through professional organization events and email listservs. The current study has been approved by UCLA's Institutional Review Board. Participants provided either written or digital consent prior to participation. Participants were entered to win a \$50 gift card.

Participants were 90% female and 10% male with an average of 12 years of experience working as school psychologists or counselors (see Table 1). The numbers of years participants had been working ranged from less than a year to 42 years. The average number of years

Table 1 (n=52)

Participant Demographics

Characteristics	Interview Participants	Survey Participants	All Participants
	N (%)	N (%)	N (%)
Gender			
Female	15 (88%)	32 (91%)	47 (90%)
Male	2 (12%)	3 (9%)	5 (10%)
Ethnicity			
Hispanic/Latino	4 (23%)	12 (34%)	16 (31%)
Caucasian	10 (59%)	17 (49%)	27 (52%)
African-American	0 (0%)	4 (11%)	4 (7%)
Middle Eastern	1 (6%)	0 (0%)	1 (2%)
Asian/Pacific Islander	0 (0%)	2 (6%)	2 (4%)
Mixed	2 (12%)	0 (0%)	2 (4%)
Education			
MA	13 (76%)	26 (74%)	39 (75%)
PhD/PsyD	2 (12%)	6 (17%)	8 (15%)
EdS	2 (12%)	3 (9%)	5 (10%)
School Setting			
Early Childhood	0 (0%)	2 (6%)	2 (4%)
Preschool	4 (24%)	9 (26%)	13 (25%)
Elementary	11 (65%)	22 (63%)	33 (63%)
Middle School	8 (47%)	15 (43%)	23 (44%)
High School	8 (47%)	18 (51%)	26 (50%)
Adult Ed./University	1 (6%)	2 (6%)	3 (5%)

Note. Participants worked in multiple school settings.

participants had been working with students with ASD was 11 and ranged from 1 to 30 years.

Participants were 52% Caucasian, 31% Hispanic/Latino, 7% African-American, 4%

Asian/Asian-American/Pacific Islander, 4% mixed race and 2% Middle Eastern. The majority of participants (75%) had Master’s degrees, 15% had PhD or PsyD degrees and 10% had Education Specialist degrees. The majority of participants worked in multiple school settings. Sixty-three percent (n=33) worked in elementary schools, 50% worked in high schools (n=26), 44% worked in middle schools (n=23), 25% worked in preschools (n=13), 5% worked in adult education or university settings (n=3), and 4% worked in early childhood settings (n=2). One of the participants who was interviewed worked in a private school and the remaining 51 participants worked in public schools (98%). Three out of 52 (6%) participants worked in charter schools.

Table 2 (n=49)

School District Demographics

School Characteristics	Interview Participants	Survey Participants	All Participants
	N (%)	N (%)	N (%)
Location			
Urban	9 (60%)	26 (81%)	35 (71%)
Suburban	4 (27%)	6 (19%)	10 (20%)
Rural/Town	2 (13%)	2 (6%)	4 (9%)
CA Region			
South	12 (80%)	26 (81%)	38 (77%)
Central	0 (0%)	3 (9%)	3 (6%)
North	3 (20%)	5 (16%)	8 (17%)
Free/Reduced-Price Lunch			
Low (<20%)	1 (7%)	2 (6%)	3 (6%)
Medium (20 to <60%)	7 (47%)	16 (50%)	23 (49%)
High (≥60%)	7 (47%)	14 (44%)	21 (45%)
Total (Average)	15 (53%)	32 (54%)	47 (54%)

The majority of participants worked in urban school districts (71%) in Southern California (77%) (see Table 2). Some participants also worked in suburban (20%) and rural districts (9%). A small number of participants worked in districts in Central (6%) and Northern (17%) California. A substantial number of participants worked in low resourced districts with a high proportion of free and reduced price lunch (45%). See Appendix D for a complete list of participants' school districts.

Procedure

Participants who expressed interest were contacted either via phone or email to determine eligibility and explain the purpose and nature of the study. If a participant was eligible and agreed to participate, a date and time was selected for the phone interview. Once a date and time were selected, participants were sent a confirmation email with information about the date, time and location. Participants were also emailed the consent form and a link to complete the EBPAS. The interviews lasted approximately one hour and were conducted by the researcher. All interviews were audio recorded to enable later transcription.

A structured approach was used during the interviews (Morgan, 1997). The researcher asked a series of pre-determined questions, while allowing for an open discussion (see Appendix B). The questions asked during the interview were aimed at answering each of the study's research questions and stimulating discussion. For example, participants were asked what intervention techniques they use with students with ASD and what they believe the barriers are to implementing EBPs for ASD in schools. Because definitions of EBPs may vary, the participants were provided with the definition of Evidence-based Practices in Psychology put forth by the American Psychological Association as well as a table summarizing relevant EBPs

(see Appendix C) at the beginning of the discussion in order to clarify the questions and promote consistency in the responses.

Measures

Evidence-Based Practice Attitude Scale - 50 (EBPAS; Aarons, Cafri, Lugo, Sawitzsky, 2012). The EBPAS is a 50-item Likert scale questionnaire assessing practitioners' attitudes towards evidence-based practices (see Appendix A). It consists of 12 scales assessing: 1) *Appeal* of EBPs, 2) probability of using EBPs given the *Requirements* involved in doing so, 3) *Openness* to EBPs, 4) *Divergence* between current practices and EBPs, 5) perceived *Limitations* of EBPs, 6) *Fit* between client and therapist needs and EBPs, 7) negative attitudes towards *Monitoring* and supervision, 8) beliefs about the *Balance* between art and science in therapy, 9) perceptions of EBPs as a *Burden*, 10) perceived increase in *Job Security* associated with EBPs, 11) perceived *Organizational Support* for learning and using EBPs, 12) positive attitudes towards supervision and *Feedback*. In order to calculate a total score, the items of the Divergence, Limitations, Monitoring, Balance, and Burden subscales were reverse coded because lower scores on these subscales indicate more positive attitudes towards EBPs. A mean for all subscales is calculated, ranging from 0 to 4. A higher total score indicates a more positive attitude toward EBPs. The EBPAS has demonstrated good internal consistency, with a Cronbach's alpha of .74 (Aarons, Glisson, Hoagwood, & Kelleher, 2010).

Analysis Plan

The interview data was analyzed using a modified grounded theory approach (Glaser & Strauss, 1967) in combination with constant comparison analysis (Jeon, 2004). In analyses guided by grounded theory, themes that emerge from the data are used to develop theory, rather

than test a pre-existing theory (Creswell, 2007; Glaser & Strauss, 1967). The grounded theory approach entails three sequential stages of coding: open coding, axial coding and selective coding. Constant comparison analysis involves comparing pieces of data with one another throughout the coding process in order to derive meaning from the data using deductive reasoning (Glaser, 1965; Jeon, 2004). In the current study, codes were derived from themes that emerged from the data as well as the study's research questions. Transcripts from the interviews were compared to establish common themes to focus on in the analyses.

The data were transcribed using the audio recordings collected during the interviews. Throughout the coding process, memo writing and Microsoft Excel were used to streamline and organize the process. Microsoft Excel provided a useful means of storing data and organizing categories. Memo writing was used to keep a record of codes and categories that develop during coding. It was also used to describe and clarify the development of themes while coding. Within the memos, a codebook was created, which included a record of all codes and categories, along with descriptions and examples of each one.

Open coding. First, open coding was used to divide the data into analyzable sections. Initial concepts, or collections of codes, were formed during open coding. In open coding, each sentence or phrase within the transcripts was coded and organized into categories and subcategories. Categories were formed, revised, collapsed and compared throughout this process (Creswell, 2007; Strauss & Corbin, 1990).

Initially, the data were divided according to the research questions. The transcripts were color coded, with a separate color used to denote each research question. Within each research question category, the data was then divided into subcategories. For example, within each

research question, the data could be divided into positive perceptions and negative perceptions. The data could then be further subcategorized by types of positive perceptions and negative perceptions. Memos as well as tables were used to organize and maintain a record of categories and subcategories during open coding.

Once the data were divided into categories and subcategories, the instances of each category were counted in order to determine the prominence of each subcategory. This information was used in subsequent coding stages to derive overall themes and form a narrative that helped to summarize the data.

Axial coding. Second, axial coding was utilized to delineate relationships between categories. It was also used to relate categories and subcategories. Both inductive and deductive reasoning was used to form connections between categories in this process. In the axial coding phase, the researcher selects several themes, or “core phenomena,” and locates sections of the transcription related to each core phenomenon. The researcher then seeks to identify the following categories related to the core phenomenon: causal conditions, action strategies, contextual and intervening conditions, and consequences. Causal conditions are the elements that lead to or cause the phenomenon. Strategic actions are the actions or behaviors prompted by the phenomenon. Contextual and intervening conditions are the background conditions that influence strategic actions. Consequences are the results obtained from strategic actions. All of these categories may or may not apply to any given core phenomenon. Themes derived from the process of identifying core phenomena and these associated categories were used to formulate the main theory (Creswell, 2007; Strauss & Corbin, 1990).

In the current study, core phenomena or themes within each research question were identified. There may be core phenomena that apply to more than one research question. In order to identify core phenomena, the transcripts of the interviews were compared. Major categories present in multiple transcripts were selected as core phenomena. Causal conditions, action strategies, contextual and intervening conditions, and consequences related to these core phenomena were then identified.

Selective coding. Third, selective coding involved forming hypotheses that serve to clarify connections between categories. The central theory or central phenomena that emerged from the data were solidified. The researcher focused on the data that related to these central phenomena and formed a model or narrative that helped convey the theory derived from the data to the reader (Creswell, 2007; Morrow & Smith, 1995; Strauss & Corbin, 1990).

In the current study, central phenomena could relate to more than one research question or only to a particular research question. Central phenomena were drawn from the core phenomena identified during the axial coding stage. A theoretical model was created for each central phenomenon that explained connections between categories and subcategories in relation to the phenomenon. Visual representations of the data were created in order to convey the interrelationships between categories for each central phenomenon.

Reliability and validity. Once the data was transcribed, the researcher listened to the audio recordings again while reading the transcripts to ensure there were no errors (Maxwell, 2012). In order to determine inter-rater reliability, 20% of the interview transcripts were selected randomly and coded by two additional undergraduate research assistants. The secondary coders were required to reach at least 75% reliability with the primary coder, a level generally considered

acceptable in exploratory qualitative research (Campbell et al., 2013; Fahy, 2001; Kurasaki, 2000). Coders reviewed the codebook thoroughly and were trained by the principal investigator. Seventy-five percent reliability was reached between both secondary coders and the primary coder. There was moderate agreement between raters ($K=.45$; Landis & Koch, 1977).

Results

Survey

In order to explore participants' attitudes towards EBPs, basic descriptive statistics were examined. Relationships between demographic variables and EBPAS scores were examined using correlation analyses. Finally, school psychologists' and counselors' EBPAS scores were compared with those of similar populations using one-sample t-tests.

Descriptive statistics. The means and standard deviations of the EBPAS subscales are shown in Table 3. Participants could rate items on a scale of 0-4 (0=not at all and 4=very great extent). The Divergence, Limitations, Monitoring, Balance, and Burden subscale scores were reverse coded because lower scores on these subscales indicate more positive attitudes towards EBPs. The overall mean was 2.80 ($SD=.31$). The Limitations subscale had the highest mean ($M = 3.72, SD = .63$) with scores ranging from 1 to 4. The Balance subscale had the lowest mean ($M = 1.55, SD = .75$) with scores ranging from 0 to 3.

Demographic variable analyses. The relationship between demographic variables and EBPAS total scores was examined by performing correlation analyses. The correlation between the number of years participants had been working as school psychologists or counselors was not significantly correlated with EBPAS total score ($r(51) = -.02, p = .89$). However, the correlations between the length of time working and the Balance ($r(51) = .31, p = .03$) and Feedback ($r(51) =$

-.30, $p = .03$) subscales were significant. The correlation between the number of years participants had been working with students with ASD was also not significantly correlated with EBPAS total score ($r(51) = .03, p = .81$). However, the correlation between the number of years participants had been working with students with ASD was significantly correlated with the Balance subscale ($r(51) = .38, p = .006$).

Table 3 (n=52)

EBPAS Descriptive Statistics

Subscale	Mean	SD	Min	Max
Openness	2.55	.77	1	4
Divergence	2.89	.87	1	4
Appeal	2.89	.80	1	4
Requirements	2.64	1.06	0	4
Fit	2.23	.72	1	3
Limitations	3.72	.63	1	4
Monitoring	2.79	1.06	1	4
Balance	1.55	.75	0	3
Burden	3.28	.86	1	4
Job Security	1.60	1.32	0	4
Organizational Support	2.45	1.37	0	4
Feedback	2.85	.93	1	4
Overall	2.80	.31	0	4

The relationship between participants' level of education and their EBPAS total score was explored. Participants were divided into two groups – Master's or Education Specialist degrees (n=43) and PhD or PsyD degrees (n=9). T-tests were performed in order to determine

whether there were significant differences between the two groups' EBPAS total scores. There was not a significant difference between the total scores of the two groups ($t(51) = -.037, p = .97$).

The relationship between ethnicity and EBPAS total scores was also examined. The two ethnic groups with the largest number of participants – Caucasian ($n=27$) and Hispanic/Latino ($n=16$) – were compared. No significant differences were found in either total score ($t(41) = .35, p = .73$) or subscale scores.

Comparison with similar populations. Participants' EBPAS scores were compared with the mean scores of both a nationwide sample of mental health service providers (Aarons et al., 2010) and a smaller sample of mental health service providers in San Diego County (Aarons et al., 2012). The nationwide study included 1,089 mental health service providers working in 100 different service settings in 26 states (Aarons et al., 2010). The San Diego study included 422 mental health service providers working in 65 service settings throughout San Diego County, California (Aarons et al., 2012). The non-reverse-coded Divergence, Limitations, Monitoring, Balance, and Burden subscale scores were used for this comparison. The nationwide study (Aarons et al., 2010) examined attitudes towards evidence-based practices among mental health service providers using the original EBPAS, which consists of 15 items and 4 subscales – Requirements, Appeal, Openness, and Divergence. We compared participants in the current study to those in the nationwide study on the Requirements, Appeal, Openness, and Divergence subscales and the overall mean. One-sample t-tests were used to compare the EBPAS means of current study participants with the means of mental health service providers surveyed by Aarons and colleagues (2010). Current study participants' overall mean was significantly higher than that of the nationwide sample of mental health providers ($t(51) = 10.94, p = .000$). Participants in

the current study's mean Requirements scores were significantly higher than those of the nationwide sample of mental health service providers ($t(51) = 2.09, p = .04$). Participants in the current study's mean Divergence scores were significantly lower than those of the nationwide sample of mental health service providers ($t(51) = -3.39, p = .001$).

The study examining mental health provider attitudes towards EBPs in San Diego (Aarons, Cafri, et al., 2012) utilized the EBPAS-50, the same version of the EBPAS used in the current study. Because the nationwide study utilized the original EBPAS with only 4 subscales, current study participants could not be compared to participants from the nationwide study on all subscales from the EBPAS-50. Therefore, current study participants were compared to the San Diego mental health service providers on the subscales not included in the original EBPAS. Participants from the current study were compared to the mental health providers in the Aarons, Cafri, and colleagues (2012) study on the Limitations, Fit, Monitoring, Balance, Burden, Job Security, Organizational Support and Feedback subscales of the EBPAS-50. Current study participants' Limitations, Fit, Balance, Burden, Job Security and Feedback subscale scores differed significantly from those of the mental health providers in the Aarons, Cafri, and colleagues (2012) study. Current study participants' Limitations ($t(51) = -11.99, p < .000$), Fit ($t(51) = -6.06, p < .000$), Burden ($t(51) = -2.61, p = .01$), and Feedback ($t(52) = -3.00, p = .004$) scores were significantly lower than those of the San Diego mental health providers. Balance ($t(51) = 7.71, p < .000$) and Job Security ($t(51) = -2.10, p = .04$) subscale scores in the current study were also significantly lower than those of San Diego providers.

Interviews

In order to shed light on the practices and perspectives of school psychologists and counselors related to EBPs for ASD, participants were asked a series of questions assessing their use of evidence-based practices in both diagnosis and treatment as well as their attitudes towards EBPs.

Question 1: When you come across a child suspected of having an autism spectrum disorder, what would you do?

When asked how they would approach a student who may have ASD, the most common responses were assessment (n=14), followed by talking to parents (n=12), and observation (n=11). The use of standardized assessments was mentioned frequently (n=14). Participants generally found standardized assessments, such as the Autism Diagnostic Observational Schedule (ADOS; Lord et al., 2000), to be helpful tools for determining ASD eligibility. For example, one participant stated, “I really like using the ADOS because it just tells me something new every time I use it even though I’ve used it many times now. It really points to that very specific information about how they respond to social cues that I’m looking for.”

Many participants considered speaking with the student’s parents to be an important part of the process of determining whether the student has an ASD. One participant mentioned, “you just talk gently to the parent to see if they have any concerns and what their concerns are and... maybe what were some things that were seen.” A few participants (n=3) also mentioned learning about the child’s developmental history from the parents. For example, one participant said, “the parent is a really important part of that process. I’m interviewing the parent and looking at the developmental history of the child.”

Participants (n=11) commonly mentioned using observations of the students to complement their assessments. The most common settings they observed students in were social settings, such as at the lunch table or on the playground. One participant stated, “I always start usually with an observation... like my own observation of them. Umm probably they are always in the classroom and then if there are social concerns which I’m guessing there are if they’re on the spectrum, I’ll also do like a recess observation or some kind of more like a natural observation.”

Question 1a: How would you select interventions for the child?

Participants were asked a follow up question about their strategies for selecting interventions for students with ASD. While collaboration between school professionals (n=9) and evaluating student needs (n=8) were mentioned frequently, the most common response was to list specific interventions commonly offered to students with ASD (n=12). For example, one participant stated, “Sometimes I do play therapy, art therapy, I think I said earlier, it really varies.”

Question 2: What techniques do you use in conducting intervention for children with ASD in schools?

Across all the interviews, 15 interventions were mentioned by two or more participants (see Table 4). The most frequently mentioned interventions were Applied Behavioral Analysis (n=11), Social Skills Training (n=10) and individual counseling (n=10).

Question 2a: Do you provide training on interventions for ASD to other school professionals?

Table 4

Intervention Techniques Used by School Psychologists and Counselors

Intervention	Description	Frequency	N	Evidence-Based?
Applied Behavioral Analysis (ABA)	Includes interventions targeting the antecedents (what comes before) and consequences (what comes after) of behavior.	38	11	Yes
Social Skills Training	Teaching children social skills using a variety of techniques, usually in groups.	25	10	Varies
Individual Counseling	One-on-one talk therapy involving a variety of therapeutic techniques.	20	10	No
Peer Training	Using typically developing peers to model or practice social skills.	13	7	Yes
Group Counseling	General talk therapy involving a variety of therapeutic techniques with more than one child.	13	6	No
Modeling	Demonstrating a desired behavior for a child.	10	6	Yes
Cognitive Behavioral Therapy (CBT)	A form of talk therapy that utilizes the connection between thoughts, emotions and behavior to improve functioning.	9	5	Yes
Visual Schedules	A tangible schedule with upcoming activities used to help children with ASD know what to expect.	7	5	Yes

Naturalistic Teaching Strategies	Teaching a variety of skills in a real-life situation, meaning not in a therapy room. This can be in a classroom, on the playground, during recess/lunch, at the park, etc.	7	5	Yes
Sensory room/breaks/diet	A designated space or set of activities used for children with ASD that helps regulate attention and arousal.	6	4	No
Counseling	General talk therapy involving a variety of therapeutic techniques.	5	4	No
Social Stories	Using visual or verbal stories of social situations to teach social skills.	10	3	No
Self-management/Self-monitoring	Teaching children how to monitor and reward their own behaviors.	5	3	Yes
Non-Public School	Referring a student with ASD to a non-public school where they can receive more intensive services.	5	2	No
TEACCH	Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) is a service, training, and research program for individuals of all ages and skill levels with ASD.	3	2	No

Note. Frequency refers to the total number of times an intervention was mentioned across all interviews. N refers to the number of participants who mentioned a particular intervention.

After several initial interview responses, follow-up questions regarding providing training to other school personnel and job responsibilities were added to the interview protocol to probe further into the roles of school psychologists and counselors. A subset of 11 participants was asked a follow up question about whether they provide training to other school personnel, such as resource specialists, administrators, teachers, or paraprofessionals. More participants

mentioned providing training (n=4) than not (n=3). One participant stated, “No, I mean, I will often, if our teacher is doing some training for our care professionals, I will often come and sit in on the training, and answer any questions, and maybe kind of assist with the teacher. But I don’t do anything formally right now.”

Question 2b: What is the typical allocation of your efforts for children with ASD in terms of assessments, intervention and consultation?

A subset of 14 participants was asked a follow up question about how much time they spend on assessments, intervention and consultation with other school personnel for students with ASD. Close to half of participants (n=6) stated that other school personnel, such as behavioral interventionists, teachers or paraprofessionals provide most or all intervention for students with ASD. For example, one participant stated, “Most of the work that I do is more consulting with the teacher.” Four participants mentioned having specialists, programs or behavior teams that take care of providing direct intervention for the students with ASD. One participant stated:

If they need anything, I mean I email the teachers if anything comes up, but we have umm a comprehensive autism program on campus where they have umm they have like behaviorally trained aides who will work with the students with autism. So they get a lot of good support from them. I’m not necessarily needed as much as I would be if that program wasn’t on our campus.

Five participants said that they spend the majority of their time with students with ASD on assessment and another 5 participants said that they spend most of their time on intervention and consultation. For example, one participant said, “I’m going to say that probably 80% of my

time is spent in assessment related activities. With 10% for consultation and 10% for umm intervention.” Another participant stated, “currently, I’m probably at 60% intervention consultation, 40% testing.” One other stated, “I feel like at the preschool it’s probably a lot like 75% is more collaboration. And then only maybe like a smaller portion is assessment like 10% of the time. Um, and then the other 5 might just be other responsibilities.”

Four participants stated that their time is evenly split between assessment and intervention for students with ASD. For example, one participant stated:

Yeah, in this, this district kind of yeah. Umm kind of evenly spread. I mean I’ve had, you know, a few tries with students this year with, students with autism, but then again since I have that weekly counseling that’s like intervention that yeah happens weekly and then umm we have an initial, I think we had an initial evaluation for someone who is on the spectrum. So, yeah pretty evenly, evenly spread.

Responses suggest that the allocation of efforts in terms of assessment, intervention and consultation varies greatly among schools and participants; furthermore, it may vary for each participant throughout their career depending on the resources of the school they are in at a given time. Four participants said that the amount of time they spend on assessments, interventions and consultation for students with autism varies for them year to year and school to school. One participant stated, “I mean it varies too because it depends on how many kids are on your campus, which varies year to year. It depends, you know, how many kids are on timeline that you’re suspecting or you’re, you know, you’re having a re-eval for a student who has autism.” Another participant stated, “it’s so different every week.” However, engaging in collaboration or consultation with other school personnel was mentioned by almost all participants (n=15). One

participant stated, “So more of collaboration as opposed to me myself doing training. It’s more collaboration.” Another said, “I really do work in collaboration and not, never alone with those children.”

Question 3: To what extent do you believe the needs of youth with ASD are being met by the services provided in schools?

When asked if they believe the needs of students with ASD are being met in schools, the most common response was that school services are meeting the needs of some students with ASD and not others (n=7). One participant stated:

One student we’re looking at right now, they offered him, he came to us in sixth grade/middle school, they offered him the lunch club in the elementary and it was not a real indication that he gained a significant social skill development in that environment. To go in there and to do that once a week for thirty minutes, it just really didn’t seem like it was enough. It’s actually a case that’s being looked at now and as far as how much they did do, and when I was reading through this independent evaluation, they were like the parents were not happy with what the kid got and they were not happy with how far he has come. And I don’t know the kid yet but I feel like that’s kind of the deal. Like I was saying, that I do think to work it and to really help them get the skills and put it in a long-term memory where they can really use them and generalize them, it takes more than just exposing them to it in a social group setting.

Several participants (n=4) mentioned that schools are having particular difficulty meeting the needs of high-functioning students with ASD. For example, one participant stated:

In the SDC [special day classes] classes, they have the aides' support, additional aide support. You know they have the, the autism program or they have, you know, multiple staff members in the room who can address their concerns like almost immediately it seems. But then the students who are the high functioning, they are kind of left to, I mean they do, they do well in general ed. classes, but, umm, I feel like a lot of it, well not a lot, but a handful of the general ed. teachers, umm, at times they kind of get overwhelmed or frustrated with the students on the spectrum because they're like "well we're general ed. teachers, what do you..." you know. "Well you're supposed to help service this kid."

Many participants (n=6) discussed the difficulty teachers have in meeting the needs of students with ASD. One participant said:

Because when you have a classroom of thirty, then if you don't fit the mold, it's really difficult for teachers to, I mean all teachers should be differentiating instruction and that's a good tier one. I mean, we should be meeting the needs of all of our students but the reality is that some teachers don't do a good job of that and so um, we work with the teachers and try to provide them with support in order to help our students with autism but unless they're able to keep up academically, it makes it really difficult.

Several participants (n=5) felt that the needs of students with ASD are being met adequately. One participant stated, "most public schools by law have to offer services to meet their needs. So I've never encountered a situation where they're not getting enough." However, others (n=5) cited limited resources as a reason why needs are not being met. For example, one participant said, "I think that we're just...we're just umm a system of limited resources."

Question 4: What are your attitudes towards implementing EBPs for youth with ASD in schools?

All participants stated that they hold positive attitudes towards EBPs, although many also discussed aspects of EBPs that they did not view favorably. The most common reason for viewing EBPs positively was that they are based on research (n=8). For example, one participant said, “well I think it’s important because the research supports that they work.” Other common reasons for positive views of EBPs were that they are helpful (n=5), important for students with ASD (n=5) and allow for objective, data-based progress monitoring (n=4). One participant stated:

I think the big pieces we want to make sure is that we’ve got a good baseline to find out where we are at and good data collection and then help them move forward to that. And I think it’s been helpful, you know, it also supports efficacy and the actual learning for the kids. You know, I do like the idea of like, you know where you’re going and you know how you can evaluate the outcomes for that. And which I think is really good.

While all participants expressed positive views of EBPs, many mentioned that they can be demanding and difficult to implement. Seven participants discussed difficulties with implementing EBPs with fidelity or monitoring fidelity. One participant said, “it’s definitely time-intensive because you can’t just stop your job, so continuing your job and then trying to be trained and then actually going into the implementation and sticking with it.” Another participant said:

Um, you know, so research is showing that this is evidence-based and the practice is actually helping with certain behaviors, you know who monitors when you’re actually implementing this. Who do you go back to and say, “Hey, I got the training. I’m gonna go ahead and implement it”? Who do you bounce that off of? Do you have a colleague

that's also trained then you can bounce it off a colleague, but if you don't, then I mean, where do you go back to? What base do you go back to and say, "Hey, this is what I'm seeing." You know, in terms of monitoring, and just...am I doing this right? You know, who do you bounce the information off of once you've been trained? So I think that would be kind of a minus, right?

These participants believe that a key issue with EBPs in school is the lack of a system in place to support and monitor implementation fidelity. They are suggesting that more time and ongoing support after training could help promote and maintain EBP usage in schools.

Other negatives attached to EBPs were that they can be impossible to implement in public schools (n=3), are time-consuming (n=3) and overly demanding for teachers (n=3). One participant said, "it's a very sticky situation being in a school because not everything can feasibly be done in the school." When discussing the difficulty teachers have in implementing EBPs for students with ASD, another participant said, "being so overwhelmed with so much to do, that you know they don't have the time to do the intervention." Many participants discussed the time and effort involved in using EBPs as a barrier. For example, when asked about downsides of EBPs, one participant stated:

Um, I don't know about any downsides, but more so just like barriers I think time-wise and um there's a lot of students, it's hard to, I mean that can be somebody's whole full-time job. So I think it could be tough to dedicate a good amount of time to it. And then obviously learning to use them. If people aren't familiar with it, it would just it would even take a lot of work to prep for that every week. So I think it's a really big barrier.

Table 5

School Psychologists' and Counselors' EBP Usage

Intervention	Description	Frequency	N	Evidence-Based?
Behavioral Therapy/Applied Behavioral Analysis (ABA)	Includes interventions targeting the antecedents (what comes before) and consequences (what comes after) of behavior.	20	12	Yes
Modeling	Demonstrating a desired behavior for a child.	22	12	Yes
Cognitive Behavioral Therapy (CBT)	A form of talk therapy that utilizes the connection between thoughts, emotions and behavior to improve functioning.	14	11	Yes
Visual Schedules	A tangible schedule with upcoming activities used to help children with ASD know what to expect.	16	11	Yes
Self-management/Self-monitoring	Teaching children how to monitor and reward their own behaviors.	10	10	Yes
Peer Training	Using typically developing peers to model or practice social skills.	15	10	Yes
Naturalistic Teaching Strategies	Teaching a variety of skills in a real-life situation, meaning not in a therapy room. This can be in a classroom, on the playground, during recess/lunch, at the park, etc.	11	9	Yes
Zones of Regulation	A program that teaches children self-regulation and emotional control.	6	5	No
Play Therapy	Using play to teach adaptive and social skills.	3	2	No

Note. Frequency refers to the total number of times an intervention was mentioned across all interviews. N refers to the number of participants who mentioned a particular intervention.

Question 5: Are you currently using or have you recently used EBPs for youth with ASD?

Prior to the interview, participants were presented with a table listing and describing examples of EBPs for youth with ASD. They were asked during the interview whether they use EBPs for youth with ASD. Sixteen out of 17 participants stated that they were using EBPs. The most commonly used EBPs were behavioral therapy (n=12), modeling (n=12), cognitive behavioral therapy (n=11), and visual schedules (n=11) (see Table 5).

Several participants (n=4) mentioned that the therapeutic alliance (i.e., the bond between therapist and client) was just as important as or more important than using EBPs. For example, one participant said:

No matter how awesome you are as a therapist and how many incredible techniques you know, the most important thing is to have a relationship with the student. So if they have that relationship with you, whether you worked on their trauma and they were able to work through whatever their trauma was, it's okay, it doesn't matter as much as if they trust you and they have a relationship. Now some of them, they'll be like, if I go to therapy, I'm like, you know I don't give a crap, I mean as long as I don't hate the therapist, I'm there to do my work, I'm not gonna wait 8 sessions to build a relationship and then I'm gonna start doing it, no, I'm here and my time is more valuable to me. But you know some of them they need to have that relationship, and once they have that relationship they feel, then, they just, that's like the most therapeutic thing in itself, having that connection with a human being.

Question 6: What are your perceptions of the training you have received on EBPs for ASD?

When asked about their perceptions of training on EBPs for ASD, the majority of participants said that they wanted more (n=11). One participant said, “I think this is a common theme amongst many of us, that we’re very very busy with assessments and with putting out fires and crises and, and a lot of things. In an ideal world we would have a lot more professional development.” Many stated that there are good training opportunities available if you have the time or money to access them (n=8). For example, one participant stated, “I’m not satisfied with the quantity, or the amount, but that’s more that I don’t have time to go. But the ones that I did attend, I thought were excellent.”

Many participants (n=5) discussed having a lot of training in ABA therapy. For example, one participant said:

Well I might be maybe a little bit different because I went to Cal State LA and got my masters at Cal State LA and also took all the ABA coursework at the same time. So from out of my Master’s program I basically took all the coursework for my BCBA [Board Certified Behavior Analyst] exam and that was in graduate school. And, then I worked for an ABA agency and got more training doing ABA, which are evidence-based practices, at an agency.

Several participants (n=5) mentioned that they have not had any or a limited amount of training on ASD or EBPs for ASD. One participant said, “I mean, no real training I’ve gone through have been specific to autism.”

Question 7: What do you believe the barriers would be to implementing EBPs for youth with ASD in schools?

When asked about the barriers to utilizing EBPs in schools, the two most common responses were training (n=14) and time (n=12). One participant said:

Right, so I think one of the just core problems is that, that the people that are, you know, providing these services aren't trained. I mean that, it's just a huge, huge issue. And it's not their fault. You know, um some of them, especially when they've been around a few years, they been, they've worked under good, you know, um behavior analysts.

They're...you would think they had been trained in it. You know, I mean they, some of them are pretty amazing. Um but just in general, at a foundational level um same with paraeducators that, you know, are one-on-ones for students. We can have students with extreme needs and, you know, they'll hire someone who's 18, 19, right out of high school and no formal training and put them with a student and, and provide no training. I mean they literally just, here's where you show up.....to start working. So to me, that's one of our huge, huge obstacles.

One participant also discussed logistical barriers to training:

I think for our district, it's, it's hard to get everybody trained at the same time. Our district is so large... and it's, it's just, it's a huge undertaking. You can't pull people off, you can't pull all the counselors off campus. You can't pull all the, you know, special ed. teachers off campus on one day. Um, and then contractually for union stuff they won't para, our para educators are hourly, so they don't want to pay them so they just don't.

The only time they get training is possibly on student-free days. But only like one day a year... so, so just logistically getting everybody trained and trained consistently is, and

we're such a large district, with 17 elementary schools, 8 middle, and 4 high schools, plus some additional things... so we're pretty big.

Many participants (n=12) cited the time involved in implementing and getting trained on EBPs as a barrier. For example, one participant stated:

I think the biggest barrier is probably, as a psychologist, is having time to go to a training to learn more about evidence-based practices and then having the time, if you do make it to a training going back to your site and being able to train others. That's to me the biggest barrier. There's just not enough time to do all the responsibilities that we have to do. And it's one thing to go to a training like I feel like I've been to trainings and like oh that's great I want to take this back and train so and so and do all these things. And then it's like well now I don't have time to teach anybody all the information that I've picked up. And even me with all the resources I have and all the books and all the social stories and all of the stuff that I have in my office, I have hardly any time to even leave my office.

Other barriers to EBP implementation that participants discussed frequently were the effort and time involved in data collection (n=7), financial barriers (n=7) and difficulties teachers have in taking on EBPs in addition to their other responsibilities (n=7).

Question 7a: What do you think might help overcome those barriers?

Participants were asked a follow-up question about what they think might help overcome barriers to implementing EBPs for ASD in schools. A few participants mentioned that more training (n=2) and more support from leadership/administration (n=2) could help. One participant stated, "I think providing training in school, making sure that um that all programs

are, are really speaking to that because it's so, it's so common in schools." Another participant suggested, "I think just getting more buy-in from like district-level people would be helpful and trying to allocate something to it."

Overall themes. The most frequently occurring theme was collaboration/consultation (n=15). Almost all participants cited collaborating and/or consulting with other school professionals as a part of their job and a component of their approach to students with ASD. Participants frequently discussed collaborating with teachers and paraprofessionals when providing care for students with ASD. The second most frequently occurring theme was the use of assessments in determining ASD eligibility (n=14). Most participants (n=14) reported using standardized assessments such as the ADOS or the Gilliam Autism Rating Scale (GARS; Gilliam, 1995). The third most frequently occurring theme was the difficulty involved in receiving training on EBPs as a barrier to implementing EBPs for ASD in schools (n=13). Several participants discussed logistical difficulties involved in getting school personnel trained and further difficulties implementing and maintaining training knowledge. Notably, all but one participant claimed to be using EBPs with students with ASD.

Interestingly, teachers' limited ability to intervene or implement EBPs for students with ASD came up in response to multiple questions (questions 3, 4 and 7) and was mentioned by 10 participants. In response to the question about whether the needs of students with ASD are being met in schools, several participants (n=9) mentioned that general education teachers are having a difficult time meeting the needs of students with ASD. In particular, the lack of training on ASD among general education teachers makes them ill-equipped to meet the needs of these students. A few participants (n=3) mentioned that a downside of EBPs is that they are overly demanding for teachers who are already overburdened. In addition, several participants (n=8) discussed

teachers' inability to implement EBPs as a barrier to EBP implementation in schools. One participant stated, "I think we're asking a population who is overworked and underfunded – teachers... asking them to do one more thing, even if it's a sound thing that you know gets results, it's challenging."

School psychologists and counselors comparison. While there was a great deal of overlap between school psychologists' and counselors' responses, school counselors demonstrated slightly different perspectives, levels of knowledge and attitudes. The most frequently mentioned theme was that the extent to which schools meet the needs of students with ASD varies from school to school and from student to student (n=5). One participant said, "You know what, honestly, it varies by school. Some schools have a lot of resources; some schools are very limited." When asked about their strategy for selecting interventions for students with ASD, school counselors frequently listed specific interventions they tend to use with students with ASD in lieu of a strategy or method (n=4). For example, a participant stated, "Sometimes I do play therapy, art therapy, I think I said earlier, it really varies." The two interventions they discussed most often were social skills training (n=4) and modeling (n=4). Two out of the three school counselors mentioned that they use cognitive behavioral therapy. All three stated that they do primarily talk therapy and do not do assessments. One of the school counselors was the only participant to state that she does not use EBPs. In addition, the nature of school counselors' responses suggest that they are not quite as informed about EBPs as school psychologists. For example, one school counselor stated when asked if she uses ABA therapy:

I do but not as much because that's where I actually reach out to the parent and ask them what have the kids done. Because I'm not the parent and I'm not there to really reprimand such behavioral, like I can't really tell them to sit down when the kid starts to

act up. But in the end, it's more like, why is the kid acting up? It's more the underlying issue.

The participant's responses suggest that she is using general talk therapy to treat behavioral issues, rather than ABA therapy. It is not clear whether or not the participant has a full understanding of what ABA therapy entails.

Two of the three school counselors said that students with ASD are not their top priority. One participant stated, "if I had more kids that I'd have to provide service that were on the spectrum, I'd have to make it a priority to get more training in this." While the school counselors seemed open to EBPs and view them positively, they also find them burdensome and time-consuming. For example, one stated:

And the program was good, it was a good program, it worked, it was just a lot of extra work and often times they just want, you're wanted to, 'hey, you know, also do this, do your job and do this,' and it really impacted your workload. But I mean it works, it's a good thing.

However, two out of the three school counselors stated that they would like more training on students with autism. When asked about perceptions of their training on EBPs for ASD, one participant said, "No, I need a lot more. I mean, no real trainings I've gone through have been specific to autism."

Discussion

This study explored school psychologists' and counselors' perceptions of EBPs for students with ASD utilizing a mixed-methods approach. Using a combination of surveys and phone interviews, the study examined school psychologists' and counselors' use of interventions

and evidence-based practices, diagnostic methods, attitudes towards EBPs, beliefs about school service provision for students with ASD and training on ASD, and perspectives on barriers to EBP utilization in schools. Prior research has demonstrated difficulties in translating EBPs for ASD to school settings and has had mixed success using teachers and paraprofessionals as interventionists (e.g., Locke et al., 2015; Suhrheinrich et al., 2013). In an attempt to aid EBP implementation efforts in schools for students with ASD, the study aimed to shed light on current practices and explore school psychologists and counselors as potential EBP interventionists. While school psychologists and counselors in the current study did express some negative views of EBPs, all participants stated that they view EBPs positively. Survey results also showed that school psychologists and counselors hold more positive views of EBPs overall than community mental health providers. In addition, the majority of participants stated they would be interested in receiving more training on EBPs for ASD. These findings suggest that school psychologists and counselors could be viable and willing EBP interventionists for students with ASD in schools.

A primary aim of the study was to shed light on school psychologists' and counselors' attitudes towards EBPs as a first step towards determining their viability as interventionists in EBP dissemination studies. In the interest of moving towards a community-partnered participatory research approach, understanding school psychologists' and counselors' attitudes towards EBPs will help give them a voice in the implementation process and determine whether they would be open to a partnership with researchers. Both survey results and interview responses indicate positive attitudes towards EBPs. School psychologists' and counselors' overall mean on the EBPAS was significantly higher than that of the nationwide sample of mental health service providers. This suggests that school psychologists and counselors may

view EBPs more favorably than community therapists. While attitudes were somewhat less positive in a few areas, such as attitudes towards feedback and importance to job security, they were positive overall. In addition, all interview participants stated that they hold positive views of EBPs, which aligns with the positive attitudes towards EBPs evidenced in the survey findings. The major reasons why participants viewed EBPs positively were that they are based on research, are helpful for students with ASD and allow for objective, data-based progress monitoring. This is consistent with prior research showing that despite lack of sufficient knowledge of and training on EBPs, school psychologists do believe that they are important and have value (Shernoff, Kratochwill, & Stoiber, 2003). Given that studies have demonstrated that attitudes towards EBPs and motivation to use EBPs are key factors impacting successful EBP implementation (e.g., Rousseau & Gunia, 2016; Stahmer & Aarons, 2009), school psychologists' and counselors' favorable attitudes towards EBPs suggest that partnering with them in dissemination efforts may increase the odds of success. While more research will need to be done in order to determine whether school psychologists and counselors are viable EBP for ASD interventionists, the finding that their attitudes towards EBPs are positive serves the overarching study aim of informing future community partnered EBP implementation efforts.

Another key finding in the current study is that school psychologists and counselors are using evidence-based assessment techniques as well as evidence-based interventions with students with ASD in schools. When asked how they would approach a student suspected of having ASD, the most common responses were assessment, talking to parents, and observation. Almost all participants reported using standardized assessments and many reported using the ADOS, the gold standard assessment for ASD diagnosis. Various best practice guidelines have been put forth for ASD diagnosis, but most include standardized assessment, review of records,

developmental history evaluation, assessment of core ASD impairments, parent and teacher interview, observation of the child, and assessment of cognitive and adaptive functioning (e.g., Campbell, Ruble, & Hammond, 2014; Department of Developmental Services, 2002; Esler & Ruble, 2015; Filipek et al., 1999; Johnson et al., 2007; Ozonoff et al., 2005; Volkmar et al., 1999). Participant responses suggest that they are for the most part including these elements in their eligibility determinations. There is little research on diagnostic practices of school psychologists, but one recent nationwide study indicated that school psychologists are largely not using evidence-based assessment practices (Aiello et al., 2017). However, Aiello and colleagues (2017) found that school psychologists in the western region of the U.S. were more likely to engage in evidence-based assessment. Davis and colleagues (2018) found that school psychologists in California largely do engage in best practices and about half use the ADOS. An earlier study also found that school psychologists in California tend to follow best practice guidelines for determining ASD eligibility as well as commonly use and hold positive views of the ADOS (Akshoomoff, Corsello, & Schmidt, 2006). Therefore, current study results are consistent with research suggesting that evidence-based assessment practices are common among California school psychologists, although they may not be reflective of nationwide assessment practices.

In addition, participants' interview responses suggest that they are using EBPs for ASD in schools. Nearly all participants claimed to be using EBPs for students with ASD. The interventions mentioned most often were Applied Behavioral Analysis (ABA), Social Skills Training (SST), individual counseling, modeling, cognitive behavioral therapy, and visual schedules. The finding that ABA was the most frequently cited intervention for students with ASD is consistent with research showing that ABA is the best known EBP for ASD among

school psychologists (Meagher, 2007). Although ABA is generally considered an EBP, not all forms of ABA are evidence based and some studies show little difference between ABA and usual care (e.g., Howard, Sparkman, Cohen, Green, & Stanislaw, 2005; Reichow, Hume, Barton, & Boyd, 2018; Spreckley & Boyd, 2009). While earlier studies have suggested limitations in the generalizability of skills gained from SST (e.g., Cappadocia & Weiss, 2011; Rao et al., 2008), more recent studies have shown promising results of school-based SST (Kamps et al., 2015; Kasari et al., 2016; Laugeson et al., 2014). Some forms of one-on-one counseling, such as cognitive behavioral therapy, may be evidence-based, but general individual counseling is not an evidence-based practice. A little more than half the interventions mentioned by more than one participant were evidence-based. While there is certainly room for improvement, this is somewhat better than what some prior research has indicated (e.g., Dymond, Gilson, & Myran, 2007; Hess, Morrier, Heflin, & Ivey, 2008; Towle et al., 2018; Wei et al., 2014). Interestingly, several participants stated that the therapeutic alliance they form with the student is just as or more important than using evidence-based techniques. Participants' beliefs about the therapeutic alliance are supported by a large body of research demonstrating that the therapeutic alliance does impact treatment outcome in both adult and child psychotherapy (e.g., Horvath & Bedi, 2002; McLeod, 2011; Norcross, 2002). It is also relevant to a growing awareness that there is more to good clinical care than simply using scientifically supported treatments (Kasari & Smith, 2016; McGrew et al., 2016). It is possible that researchers may get more buy-in from school psychologists and counselors if they move towards an evidence-based practice in psychology (EBPP) approach (APA, 2005; McGrew et al., 2016) in which client characteristics and clinical expertise are considered just as essential to quality care as evidence-based interventions.

While the amount of time participants reported providing intervention for students with ASD varied widely, the majority of participants see collaboration and consultation as a key part of their role and approach to assessing and treating students with ASD. Given that there can be high levels of tension among school professionals related to service provision for students with ASD (Iadarola et al., 2015), school psychologists' and counselors' ability to successfully collaborate with others may be a strength that researchers can make use of in EBP dissemination efforts. A large proportion of participants occupy more of a consultant role rather than providing direct service. Given this, disseminating evidence-based consultation models (e.g., Ruble, McGrew, Toland, Dalrymple, & Jung, 2013; Theodore, 2016; Wong, Ruble, McGrew, & Yue, 2017) in addition to evidence-based interventions may be beneficial for this population. Because evidence-based consultation models aim to improve the quality of services teachers and school psychologists already provide, they potentially have the power to impact a large amount of students with ASD. Further research will be needed to examine the consultation practices of school psychologists and counselors and explore potential means of disseminating evidence-based consultation approaches.

Issues surrounding training of both school psychologists and counselors themselves, as well as other school personnel, was a primary theme. The majority of participants stated that they wanted more training on ASD and EBPs for ASD. While several participants have had a solid grounding in ABA, many stated that the training they have received on EBPs was not specific to ASD. This is consistent with research showing that school psychologists and school personnel in general lack training on ASD (Barnhill, Sumutka, Polloway, & Lee, 2014; Corona, Christodulu, & Rinaldi, 2017; Hess et al., 2008; Messmer-Wilson, 2007; Rasmussen, 2010; Sansosti & Sansosti, 2013). Many participants feel that their jobs are very demanding and it is difficult to

find the time to seek out and go to a training. However, most participants do appear to have a strong desire to receive more training on ASD should they have the time and financial resources to do so. Previous research has shown that school staff are motivated to receive training on ASD given the rising prevalence of students with ASD in schools (Iadarola et al., 2015). This motivation for training on ASD could be capitalized on by researchers looking to collaborate with school psychologists and counselors in EBP dissemination studies.

Lack of training was also frequently cited as a barrier to greater EBP utilization. Participants stated that many school personnel, such as teachers and paraprofessionals, are not adequately trained on EBPs for ASD and that there are many logistical obstacles that prevent personnel from being trained properly. This is in line with prior research finding that parents and school professionals report lack of training on ASD among school staff to be a key barrier to improving service provision for students with ASD in schools (Iadarola et al., 2015). Many participants stated that their jobs are very demanding and that finding the time to get trained and then implement an EBP is a hurdle. They also believe that teachers lack the training and time to attend to the individual needs of students with ASD in their classrooms, which is consistent with research finding little training on ASD among teachers (e.g., Barnhill et al., 2014). A few participants also discussed the difficulty in actually implementing the knowledge gained from professional development workshops. One participant mentioned that without support, it can be challenging to put an EBP learned in a stand-alone workshop into practice. This echoes Locke and colleagues' (2017) finding that school staff would like more in depth training, ongoing support and opportunities for hands-on practice when attempting to implement EBPs for ASD. Previous research has demonstrated that stand-alone professional development workshops without ongoing coaching and support are generally ineffective (e.g., Brock, Huber, Carter,

Juarez, & Warren, 2014; Hall, Grundon, Pope, & Romero, 2010; Hill et al., 2013). This suggests that future dissemination efforts should take into consideration not only the additional need for training, but the need for training that involves ongoing coaching and support for school personnel. However, the survey results indicated that school psychologists and counselors view feedback less positively than mental health providers, which could complicate training efforts. While this finding does need to be investigated further, it may be a factor to consider when developing training protocols for school psychologists and counselors.

Aside from training, the biggest barrier to EBP utilization in schools according to school psychologists and counselors was time. Many participants stated that their jobs are very demanding and that finding the time to get trained and then implement an EBP is a hurdle. Prior research on school psychologists' use of evidence-based SST for ASD and EBPs more broadly has also found time to be the biggest reported barrier to EBP utilization (Combes et al., 2016; Hicks, Shahidullah, Carlson, & Palejwala, 2014). Several participants also cited the effort and time involved in data collection, financial barriers, and difficulties teachers have in taking on EBPs in addition to their other responsibilities as barriers to EBP utilization. One area that school psychologists and counselors rated lower on the EBPAS than mental health providers was the fit between EBPs and their needs and their clients' needs. It could be that school psychologists and counselors perceived less of a fit between their needs and EBPs because of the difficulty they have finding enough time for EBPs given their many competing responsibilities. However, a few participants believe that more training and more support from leadership could help surmount the barriers to EBP implementation in schools. This is consistent with research showing that EBP implementation in schools is more successful when support from leadership and professional colleagues is in place (Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010; Locke et al., 2017). It

is possible that with greater support from leadership more time could be allotted to ongoing training and EBP implementation, which would help overcome these significant barriers.

Implementation science research also suggests that a community partnered participatory research approach as well as a hybrid model of implementation may assist in overcoming barriers to EBP implementation involving school psychologists and counselors. CPPR will allow school psychologists' and counselors' perspectives, needs and preferences to be accounted for in the implementation process which facilitates buy-in and ensures EBPs fit their needs and the school context. Hybrid implementation models allow for faster translation of research to practice by combining effectiveness trials and full implementation trials (Shire et al., 2017; Curran et al., 2012). The ultimate aim of the current study is to inform a CPPR, hybrid implementation approach to implementing EBPs for ASD in partnership with school psychologists and counselors.

Limitations and Future Directions

The current study is limited primarily by its sample of participants. While attitudes towards EBPs were positive, the sample was self-selecting. Participants were told that the study was examining EBP use among school psychologists and counselors. It is possible that school psychologists and counselors who already use EBPs and view them favorably elected to participate. Participants were also only from one geographical area, California, and findings may not generalize to other areas of the United States. It may be that school psychologists and counselors in California hold more positive views of EBPs and utilize them more than in other states. Lastly, there were only three school counselors included in the study. More in depth comparisons could have been made between school psychologists' and counselors' practices and attitudes had a larger sample of school counselors been included in the study.

Despite these limitations, this study has provided in-depth insights into the practices of school psychologists and counselors who work with students with ASD. The results also provide preliminary insight into school psychologists and counselors attitudes towards EBPs. The overall positive attitudes towards EBPs held by school psychologists and counselors as demonstrated in both the survey and interview results may indicate a willingness to collaborate with universities in disseminating EBPs for students with ASD.

This study is intended as the beginning of a line of research exploring school psychologists and counselors as providers of EBPs in implementation studies. In light of recent trends towards a community-partnered participatory research approach to EBP implementation (e.g., Iadarola et al., 2018; Suhrheinrich et al., 2013; Smith et al., 2017), the current study aimed to gain insights into school psychologists' and counselors' perspectives in order to begin working towards involving them collaboratively in the implementation process for EBPs for ASD in schools. Developing an understanding of school psychologists' and counselors' attitudes and perspectives will allow for the development of interventions that are a better fit for their needs and school settings. While our results show that students with ASD are receiving some evidence-based interventions, they also indicate that many students' needs are not currently being met and that more EBP usage could help fill that gap. Including school psychologists and counselors as interventionists could potentially open up a new avenue for bringing university-based interventions to school settings where more children with ASD can benefit from them. Greater utilization of EBPs in school settings will allow more students with ASD to access them and hopefully, improve their prognosis and functioning. Many EBP implementation efforts are currently stalled because researchers have encountered barriers that are not well understood. By providing insight into school psychologists' and counselors' perceptions of barriers and

exploring the feasibility of including them as interventionists, the goal is to get closer to overcoming barriers and ultimately, increase access to EBPs for students with ASD.

Appendix A: Evidence-Based Practice Attitude Scale-50

**EBPAS-50 (©Gregory A. Aarons, Ph.D.)
Evidence-Based Practice Attitude Scale-50 Item**

Reference:

Aarons, G.A., Cafri, G., Lugo, L., & Sawitzky, A. (2010). Expanding the Domains of Attitudes Towards Evidence-Based Practice: The Evidence Based Practice Attitude Scale-50 (EBPAS-50). *Administration and Policy in Mental Health.*

Contact: gaarons@ucsd.edu

The following questions ask about your feelings about using new types of therapy, interventions, or treatments. Manualized therapy refers to any intervention that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured/predetermined way. Evidence-based practice refers to any intervention that is supported by empirical research.

For questions 1-8: Circle the number indicating the extent to which you agree with each item using the following scale:

0	1	2	3	4
Not at all	Slight extent	Moderate extent	Great extent	Very great extent

1. I like to use new types of therapy/interventions to help my clients 0 1 2 3 4
2. I am willing to try new types of therapy/interventions even if I have to follow a treatment manual 0 1 2 3 4
3. I know better than academic researchers how to care for my clients.... 0 1 2 3 4
4. I am willing to use new and different types of therapy/interventions developed by researchers 0 1 2 3 4
5. Research based treatments/interventions are not clinically useful 0 1 2 3 4
6. Clinical experience is more important than using manualized therapy/treatment 0 1 2 3 4
7. I would not use manualized therapy/interventions 0 1 2 3 4
8. I would try a new therapy/intervention even if it were very different from what I am used to doing 0 1 2 3 4

For questions 9-15: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

9. it was intuitively appealing? 0 1 2 3 4

10. it “made sense” to you? 0 1 2 3 4

11. it was required by your supervisor? 0 1 2 3 4

12. it was required by your agency? 0 1 2 3 4

13. it was required by your state? 0 1 2 3 4

14. it was being used by colleagues who were happy with it? 0 1 2 3 4

15. you felt you had enough training to use it correctly? 0 1 2 3 4

If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

16. your clients wanted it 0 1 2 3 4

17. you knew more about how your clients liked it 0 1 2 3 4

18. you knew it was right for your clients 0 1 2 3 4

19. you had a say in which evidence-based practice was used 0 1 2 3 4

20. you had a say in how you would use the evidence-based practice 0 1 2 3 4

21. it fit with your clinical approach 0 1 2 3 4

22. it fit with your treatment philosophy 0 1 2 3 4

For questions 23-50: Circle the number indicating the extent to which you agree with each item:

23. Evidence-based practice detracts from truly connecting with your clients.... 0 1 2 3 4

24. Evidence-based practice makes it harder to develop a strong working alliance 0 1 2 3 4
25. Evidence-based practice is too simplistic 0 1 2 3 4
26. Evidence-based practice is not useful for clients with multiple problems 0 1 2 3 4
27. Evidence-based practice is not useful for families with multiple problems 0 1 2 3 4
28. Evidence-based practice is not individualized treatment 0 1 2 3 4
29. Evidence-based practice is too narrowly focused 0 1 2 3 4
30. I prefer to work on my own without oversight 0 1 2 3 4
31. I do not want anyone looking over my shoulder while I provide services 0 1 2 3 4
32. My work does not need to be monitored. 0 1 2 3 4
33. I do not need to be monitored 0 1 2 3 4
34. I am satisfied with my skills as a therapist/case manager 0 1 2 3 4
35. A positive outcome in therapy is an art more than a science 0 1 2 3 4
36. Therapy is both an art and a science 0 1 2 3 4
37. My overall competence as a therapist is more important than a particular approach ...0 1 2 3 4
38. I don't have time to learn anything new 0 1 2 3 4
39. I can't meet my other obligations 0 1 2 3 4
40. I don't know how to fit evidence-based practice into my administrative work 0 1 2 3 4
41. Evidence-based practice will cause too much paperwork 0 1 2 3 4
42. Learning an evidence-based practice will help me keep my job 0 1 2 3 4
43. Learning an evidence-based practice will help me get a new job 0 1 2 3 4
44. Learning an evidence-based practice will make it easier to find work 0 1 2 3 4
45. I would learn an evidence-based practice if continuing education credits were provided.... 0 1 2 3 4

46. I would learn an evidence-based practice if training were provided 0 1 2 3 4
47. I would learn an evidence-based practice if ongoing support was provided 0 1 2 3 4
48. I enjoy getting feedback on my job performance 0 1 2 3 4
49. Getting feedback helps me to be a better therapist/case manager 0 1 2 3 4
50. Getting supervision helps me to be a better therapist/case manager 0 1 2 3 4

Appendix B: Interview Protocol

Introduction and Guidelines

- Thank you very much for participating in this study. As explained previously, the purpose of the study is to gain insight into your perspective on the services you provide for children with autism. Please feel free to share your opinions openly and honestly.
- You have been provided with a consent form to sign stating that you have agreed to participate in this study and consent to audio recording. It states that we will ensure that our discussion remains confidential. Please take some time to look it over and let me know if you have any questions. Do you have any questions about the consent form?
- Our discussion today will be audio recorded and transcribed.
- I will ask a series of questions and listen while you respond. You may feel free to add other information that you feel is relevant.

Questions

1. When you come across a child suspected of having autism spectrum disorder, what would you do?
 - a. How would you go about diagnosing the child?
 - b. What diagnostic assessments do you use?
 - c. How would you select interventions for the child?
2. What techniques do you use in conducting intervention for children with ASD in schools?
 - a. Do you provide training on interventions for ASD to other school professionals?

- b. What is the typical allocation of your efforts for children with ASD in terms of assessments, intervention and consultation?
3. To what extent do you believe the needs of youth with ASD are being met by the services provided in schools?
 - a. Probe: Why do you think that is?

Next, I'd like to provide a little background so we're all on the same page for the next few questions.

- Defining EBPP: Evidence-based practice in psychology (EBPP) has been defined by the American Psychological Association (APA) as “the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences” (APA, 2005). EBPs for school-aged youth with ASD include behavioral therapy, modeling, naturalistic teaching strategies, cognitive behavioral therapy for anxiety and core autism symptoms, peer-mediated social skills training, pivotal response training, schedules and self-management. *(Provide participants with table of EBPs)*

Please take a minute to look this over and let me know if you have any questions.

4. What are your attitudes towards implementing EBPs for youth with ASD in schools?
 - a. Probe: do you feel positively or negatively about implementing EBPs for youth with ASD?
5. Are you currently using or have you recently used EBPs for youth with ASD?
 - i. Probe (if not): Why do you think you are not using EBPs?

- ii. Probe (if yes): What kinds of EBPs have you used and did you believe they were effective?
 - b. Are there techniques that you use that you believe to be better than EBPs?
- 6. What are your perceptions of the training you have received on EBPs for ASD?
 - a. Probe: What do you think could be done to improve training on EBPs for ASD?
- 7. What do you believe the barriers would be to implementing EBPs for youth with ASD in schools?
 - a. Probe: What kinds of organizational barriers do you think there would be?
 - b. Probe: What kinds of logistical and financial barriers do you think there would be?

Appendix C: EBPs for School-Aged Children with ASD Table

Intervention Type	Description
Behavioral Therapy	Modifies behavior by modifying antecedents and consequences of a behavior.
Modeling	Teaches adaptive behavior and skills by demonstrating the behavior or skill for the target child.
Naturalistic Teaching Strategies	Teaching skills in naturalistic, real-life settings to promote generalization of skills.
Peer Training	Utilizes similarly aged peers to model and teach social skills.
Pivotal Response Treatment	Targets pivotal areas of functioning – responsivity to multiple cues, motivation and self-management – in order to facilitate collateral improvements in other areas.
Schedules	Uses visual schedules to promote self-regulation and ease transitions.
Self-Management	Promotes independence by teaching the child to monitor and reinforce his or her own behavior.
Cognitive-Behavioral Therapy	Targets maladaptive thinking and behavior using a combination of behavioral and cognitive principles.

Appendix D: School District Information

Public School District Information (n=50)

School District	N (%)	Free/ Reduced Price Lunch (%)	Setting	City/Town	CA Region
Alum Rock Union School District	1 (2%)	85%	Urban	San Jose	N
Alvord Unified School District	1 (2%)	76%	Suburban	Riverside	S
Antelope Elementary School District	1 (2%)	49%	Rural	Red Bluff	C
Bellflower Unified School District	1 (2%)	67%	Urban	Bellflower	S
Cajon Valley Union School District	1 (2%)	71%	Urban	El Cajon	S
Calexico Unified School District	1 (2%)	83%	Rural	Calexico	S
Clovis Unified School District	1 (2%)	40%	Urban	Clovis	C
Corning Union High School District	1 (2%)	70%	Rural	Corning	C
Covina Valley Unified School District	1 (2%)	69%	Suburban	Covina	S
Cupertino Union School District	1 (2%)	4%	Suburban	Cupertino	N
Elk Grove Unified School District	1 (2%)	53%	Urban	Elk Grove	C
Garden Grove Unified School District	1 (2%)	68%	Urban	Garden Grove	S
Huntington Beach Union High School District	1 (2%)	68%	Urban	Huntington Beach	S
High Tech High Charter Schools	1 (2%)	Charter	Urban	San Diego	S
Irvine Unified School District	1 (2%)	14%	Urban	Irvine	S
KIPP Bay Area Schools	1 (2%)	Charter	Urban	Bay Area	N
Kirkwood Elementary School District	1 (2%)	54%	Rural	Corning	C
Lake Elsinore Unified School District	1 (2%)	64%	Suburban	Lake Elsinore	S
Lancaster School District	1 (2%)	82%	Urban	Lancaster	S
Las Virgenes Unified School District	1 (2%)	8%	Suburban	Calabasas	S
Los Angeles Unified School District	6 (12%)	58%	Urban	Los Angeles	S
Long Beach Unified School District	3 (6%)	69%	Urban	Long Beach	S
Livermore School District	1 (2%)	23%	Suburban	Los Angeles	N
Oceanside Unified School District	1 (2%)	58%	Urban	Oceanside	S
Orcutt Union Elementary School District	1 (2%)	37%	Rural	Orcutt	S
Pasadena Unified School District	1 (2%)	60%	Urban	Pasadena	S
Rialto Unified School District	2 (4%)	83%	Suburban	Rialto	S
San Bernardino County School District	1 (2%)	87%	Urban	San Bernardino	S
San Diego Unified School District	1 (2%)	60%	Urban	San Diego	S
San Jose Unified	1 (2%)	45%	Urban	San Jose	N
Santa Barbara Unified School District	1 (2%)	49%	Urban	Santa Barbara	s

Santa Monica-Malibu Unified School District	1 (2%)	25%	Urban	Santa Monica/Malibu	s
Sonoma Valley Unified School District	1 (2%)	57%	Rural	Sonoma	n
Sweetwater Union High School	2 (4%)	52%	Urban	Chula Vista	s
Torrance Unified School District	7 (14%)	26%	Urban	Torrance	s
West Contra Costa Unified School District	1 (2%)	70%	Suburban	Richmond	n
Whittier City School District	1 (2%)	79%	Suburban	Whittier	s
Windsor Unified School District	1 (2%)	36%	Rural	Windsor	n

Note. Some participants worked in more than one district. Free/reduced price lunch data not available for charter schools.

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