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Structured Play Groups for Children with Autism Spectrum Disorder: A Critical Review

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Abstract

Delays in social and communication skills are associated with autism spectrum disorder (ASD). Structured play groups (SPGs) was deemed an evidence-based practice (EBP) for children with ASD. A critical review of research published within the past 16 years and accessible in four databases was conducted with a total of 3,153 articles identified of which 15 were determined to have met inclusion criteria. A total of 163 participants from 3 to 12 years of age were reported on within the articles evaluated. Of the 15 articles, 12 implemented a single-subject design and 14 of the 15 interventions were implemented within the natural settings of the participants. Findings provide a fuller understanding of the efficacy of SPGs for children with ASD. Additionally, this review demonstrates positive results in a variety of settings, as well as an in-depth evaluation of the inclusion and training of the typically developing peers.

Keywords: Autism spectrum disorder, structured play groups, evidence-based practice, children, education

Structured Play Groups for Children with Autism Spectrum Disorder: A Critical Review

The most important feature of the Individuals with Disability Education Act (2004) is to ensure that all children with disabilities receive free and appropriate education that meets their individual needs (Wright, 2006). For educators making decisions on education programming, EBPs are high quality scientifically based research that implement appropriate designs (i.e., random control trials, multiple baseline single-subject designs) and produces desired outcomes (Cook et al., 2013; Kvernbekk, 2017). Identifying these EBPs establishes “what works” and ensures evidence-informed practices are applied in the classroom to meet the needs of each student with a disability, including those with ASD (Cook et al., 2013). ASD is diagnosed when an individual demonstrates persistent deficits in social communication and social interaction

across multiple contexts, as well as restricted repetitive patterns of behavior (American Psychological Association [APA], 2013). For an individual to be diagnosed with ASD, the above attributes must cause significant impairment in social, occupational, or other important areas of current functioning and need to be present in the early development period (i.e., 12 to 24 months; APA, 2013; Murdock & Hobbs, 2011). Without early intervention where children with ASD can practice with their typically developing peers under the supervision of a trained educator these persistent behaviors may result in social isolation and a loss of opportunities to take part in social-emotional reciprocity and verbal and non-verbal communication within the child's educational experience (Deckers et al., 2016).

Improving teaching effectiveness is the most direct way to enhance the academic performance for students with disabilities (Hanushek & Rivkin, 2010). An EBP that has demonstrated a robust amount of positive results for children with ASD is peer-mediated instruction (Chan et al., 2009; Watkins et al., 2015). Peer-mediated instruction offers students with ASD the opportunity to learn through modeled behavior by a trained peer (Mahoney, 2019). Despite the positive results, inconsistencies in how the intervention have been structured (i.e., initiation by peer, proximity, prompting and reinforcing; Watkins et al., 2015) have been reported. These inconsistencies could have led to the creation of SPGs which is a subset of peer-mediated instruction that was established as an EBP for children with ASD (National Professional Development Center on Autism Spectrum Disorder [NPDC], 2015). SPGs are characterized by mass amounts of opportunities in small groups and include at least one typically developed (TD) trained peer within the play-based setting where an educator provides prompting or scaffolding over a broad range of skills when needed to meet the desired learning outcomes (Kok et al., 2002; NPDC, 2015). The determination of SPGs as an EBP was based on the findings of Wong et al. (2014), who reported four studies and demonstrated positive outcomes for improving skills, such as social skills, communication skills, play skills, and academic performance (Legoff & Sherman, 2006; Loftin et al., 2008; Owns et al., 2008; Wolfberg & Shuler, 1993). These results provide rationale for educators to advocate for their students with ASD to remain in the integrated classroom as SPGs are specifically successful when TD peers are utilized as models and educators can scaffold instruction when needed.

Due to concerns over achievement levels for students with disabilities, including those with ASD, major changes in the United States of America's education policy (e.g., Every Student Succeeds Act; IDEA, 2004) has led to increased expectations and improved teaching practices (Gordan, 2012; Hess & Edens, 2017). These expectations highlight the need for teachers to be trained on how to implement a variety of EBPs within multiple settings (Cook et al., 2013). Current organizations, such as the NPDC, Autism Focused Intervention Resources and Modules, and the National Center on Intensive Intervention provide training modules where educators can better understand how to implement EBPs to meet the needs of their students. Even with this training, selecting the appropriate EBPs for students with ASD may be difficult for educators, due to a lack of exposure and opportunities to practice (Fink Chorzempa, 2019). Therefore, the authors were interested in looking deeper into SPGs to develop a fuller understanding of how SPGs are being implemented (e.g., number of participants, setting, research methodology) the final outcomes that have been reported, along with the duration of the study, length of training for TD participants, and the independent and dependent variables. Additionally, because SPGs is a newer EBP, we were interested to see how many studies were using the SPG model, but were

identifying with another type of EBP (e.g., peer-mediated instruction). To accomplish this deeper understanding our team identified research articles spanning from the signing of IDEA (2004) to the present. Finally, we hope to provide current and future educators with an in-depth analysis of SPGs in the hope that this intervention will be used across different contexts within the school day for students with ASD.

Method

Eligibility Criteria

The following eligibility criteria were selected and required for this critical review: (a) published in a peer-reviewed English language journal between the years 2004 to 2020, (b) incorporated at least one TD participant within the intervention phase who directly participated with the child with ASD (i.e., autism, Asperger's syndrome, and pervasive-development disorder-not otherwise specified) in a SPG setting, (c) identified an education practitioner (e.g., researcher, teacher) as a key member who delivered the intervention which included scaffolding instruction or prompting behaviors when needed, (d) included participants between the ages of birth to 21 years, and (e) utilized an experimental/quasi-experimental or single-subject design.

Information Sources and Search Strategy

The following four databases were used for this investigation: PubMed, CINAHL, PsycINFO, and ERIC. Databases were chosen based on their large selection of journals focused on the behavioral and health sciences, as well as their inclusion of leading journals reporting on ASD. The determination of keywords for this review was based on the following steps. First, three categories (i.e., disability term, type of playgroup, age) of search terms were identified. Next, the researchers reached out through email to an occupational therapist, speech pathologist, and three university professors with research backgrounds in ASD and SPGs for additional keywords. Following these steps, the following key terms were applied within the literature search (a) disability term (ASD, autism, Asperger's syndrome, Rett syndrome, childhood disintegrative disorder, developmental disability, social pragmatic disorder), (b) type of playgroup (structured play groups, integrated play groups, play therapy, structured play, guided participation, social skill training, parallel play, associative play, cooperative play, joint attention, transdisciplinary play, peer engagement), and (c) age (children, adolescents, youth).

Study Records and Selection Process

After all search terms and databased were utilized, and all duplicate articles were deleted. A total of 3,153 articles were initially identified. These articles were then uploaded to an excel file in the Google team drive for the primary researcher and two graduate assistant researchers to review. The primary researcher and research assistants met prior to initial screening and agreed to identify any article whose title included a key word(s) from the search strategy. The research team then reviewed all abstracts based on the identified articles from the initial title screening. When the above qualifiers within the title and abstract were met the primary research and graduate research assistants reviewed the method section to determine if inclusion criteria was met. In the case of a disagreement, the primary researcher and graduate research assistants met and reviewed the inclusion criteria and came to a final decision. All articles were dismissed if neither the title nor abstract identified the participants engaging in SPGs nor utilizing a type of play for a desired outcome.

Outcomes and prioritization. Within the analysis of each study there were two objectives. The first objective included identifying the author, date of publication, number of participants, research methodology, setting, and the outcomes reported. The secondary objective was to gain a fuller understanding of what events occurred within each study. To do this the researchers reported the activities within each phase of the study, how the TD peers were trained and what the independent and dependent variables were for each study. These primary variables were chosen to examine a number of key factors, such as: (a) what research methodology was utilized, (c) where did the study take place, (d) how TD are peers being included, and (e) how does these results contribute to the overall knowledge of SPGs and children with ASD.

Results

Participants

Collectively, 15 studies which included a total of 163 (i.e., 30 females [17%], 133 males [83%]) participants with ASD spanning from ages 3 to 12 years met the inclusion criteria for final review. Recruitment of participants varied as 3 of the 15 studies recruited participants directly from clinics. All other participants were directly recruited from local education agencies where the study was conducted.

Research Design and Settings

Twelve of the 15 studies implemented a type of single-subject design. Single subject design is a powerful type of research that has a number of advantages which include; (a) the ability to demonstrate a functional relationship without removing the treatment (i.e., multiple baseline design; Richard, Taylor, & Ramasamy, 2014); (b) the ability to demonstrate a functional relationship between the treatment and the behavior by showing a return to the baseline level of a behavior after withdrawing the treatment (i.e., withdrawal design; Kazdin, 2011); and (c) the ability to never remove the treatment after baseline (i.e., changing criteria design). Additionally, 14 of the 15 studies incorporated a natural setting (e.g., classroom, recess area, day care center, community-based gymnasium). Only one study (Barber et al., 2016) recorded data within a clinical setting and stated their reasoning for this decision as providing the opportunity to limit distractions and allow for uninterrupted recording of behaviors for all participants.

Procedures and Training of TD Peers

Each of the 15 studies reviewed procedures began with either a traditional baseline phase, pre-baseline phase, or a pre-observation and moved into an intervention phase. During the intervention phase all participants with ASD were introduced to a SPG with a TD peer. Prior to the intervention phase, TD peers went through a variety of training experiences ranging from no formal training (MacCormack et al., 2015) to pre-game training (Morrier & Ziegler, 2018), to 7 consecutive days of training, all the way to 1-month of training (Hu et al. 2018). This variety of training represents the fact that there is no established time for training prior to TD peers working with children with ASD. It should be noted that despite the differences in training procedures none of the studies identified this as a limitation within their study.

Outcomes of Reviewed Studies

Results from the 15 studies indicate that SPG are an impactful in-the-moment intervention that can be implemented within multiple settings with both male and female students with ASD. Additionally, these outcomes demonstrated the importance of the utilization of TD peers and providing multiple interaction opportunities for social interactions and modeling, as well as the inclusion of a trained educator to scaffold instruction when needed. Within the 15 studies reviewed, there were several different outcomes that were measured. For instance, during the intervention phase, results support the use of SPGs for a larger population of children with ASD within both natural and controlled settings, as well as incorporating heterogeneous groups into multiple settings (e.g., classroom, recess time) using TD peers as direct assistance for the child with ASD (Legoff & Sherman, 2006; Loftin et al., 2007). Ganz and Flores (2007) reported the number of context related statements increased for all three of the participants with ASD, indicating that SPGs was an effective intervention. Furthermore, Lee et al. (2007) demonstrated the efficacy of carrying out peer training sessions to increase the number of social interaction opportunities provided by the TD peers for the children with ASD. While the results within the generalization phase were mixed, there is considerable support for the ease of implementation and low cost of the different SPGs used within this review. Finally, the outcomes indicate that SPGs implemented over a consistent period of time produce a positive social validation from onlookers who spent time in direct observation of the intervention (MacCormack et al., 2015). See Table 1 for further details on the articles identified within this review.

Table 1

Identified Articles, Including, Author, Participant Characteristics, Research Methodology, and Outcomes

Author (Date)	Participants Characteristics Research Design/Setting	Procedures, Training of Peers	Outcomes
Barber et al. (2016)	6 participants, 3 to 5 years of age. 3 with ASD (male), 3 TD. Multiple baseline design across participants. Clinical setting.	Baseline phase: Researcher recorded social initiations and responses over 15 min period. Intervention phase: 16 total sessions (2x a week) for 20 min over 8 weeks. Maintenance probe: Occurred 3 months post intervention phase. Baseline phase conditions for 15 min. Peer buddies participated in three 15 min sensitivity trainings for stay, play, and talk.	Results demonstrated inconsistencies in total number of social invitations across all participants. All three participants increased total number of social initiations and responses within the intervention phase. None of the treatment gains were demonstrated by any of the participants 3 months post- intervention. Further, results indicate that social interactions were improved due to an increased number of interaction with the TD peer.
Ganz & Flores (2008)	6 participants, 3 to 6 years of age. 3 with ASD (male), 3 TD. Changing criterion design. Classroom setting.	Baseline phase: Groups were placed into play groups. Intervention phase: Structured play groups occurred over a 4-week span, 30 min a day, 4 to 5 times a week. Generalization phase: Conditions same as intervention phase. Prior to each intervention phase, TD peers introduced to a new instruction card. Visual cues posted within treatment area.	A functional relation was demonstrated between the intervention and each of the participants when measuring scripted phrases and context-related comments. Results support continued integration of heterogeneous play groups using a visually-based intervention and play- related language across play themes.
Harper & Symon (2007)	6 participants, 8 to 10 years of age.	Baseline phase: Occurred during recess. Participant behaviors	Each participant's total number of peer interactions increased within the

	2 with ASD (male), 4 TD. Multiple baseline design across participants. Indoor classroom and outdoor recess area.	recorded for 10 min for 13 and 18 days. Intervention phase: TD peers attempt to gain attention, initiate, and maintain play. Generalization phase: Identical to baseline phase. TD peers provided cue cards to get attention of peers with ASD. Training of peers lasted 20 min over 7 consecutive school days.	intervention phase and continued through the generalization phase. Additionally, results demonstrated an increase in number of times participants followed rules of play and continued into the generalization phase. Finally, qualitative data demonstrated that both participants engaged in more appropriate behavior during the recess period.
Hu et al. (2018)	16 participants, 4 to 6 years of age. 3 with ASD (male), 13 TD. Withdrawal design combined with a non-concurrent multiple probe design. LEGO® therapy classroom.	Baseline phase: During morning free-play. Intervention phase: visual prompts were provided to guide participants with ASD. Sessions lasted for 40 min. Task 1: experimenter showed all participants Lego task models. Task 2: experimenter reviewed target prompts with TD peers. Task 3: experimenter explains the three roles of LEGO®. Task 4: experimenter assigns roles. Task 5: experimenter changes roles. TD peers trained in pairs of two for 1-month on rules of LEGO® therapy.	Results indicated a functional relationship between the peer-mediated LEGO® intervention and the social interactions of the children with ASD. Each of the three participants improved their total number of social interactions within both of the intervention phases while the number of peer prompts maintained at a stable level throughout the intervention phases. Finally, social validity results demonstrated that onlookers viewed the intervention as having a positive impact on the children's social skills.
Katz & Girolametto (2013)	9 participants, 4 to 5 years of age. 3 with ASD (2 males, 1 female),	Baseline phase: Participants randomly assigned for 2, 4, and 5 weeks of naturalistic play. Sessions lasted 20 min, TD peers present.	Results demonstrated that PMI had a positive impact on the communication skills. Each of the three participants increased the total number of extended

	6 TD. Multiple baseline design across participants. Childcare center.	Intervention phase: Four stages. Stage 1: Story book time. Stage 2: Social skills training program. Stage 3: Facilitated play with blocks and Playdough. Stage 4: Continued play with TD peer. Maintenance phase: Identical to baseline phase conditions. TD peers present in stages 2 through 4.	interactions during the play session and continued these with behaviors throughout the maintenance phase. Social validity results showed that the observing educators believed the intervention was viable and could be continued throughout the school year.
Kohler et al. (2007)	7 participants, 4 years of age. 1 with ASD (female), 6 TD. Multiple baseline design across participants. Preschool classroom.	Baseline phase: 10 min play session. Intervention phase: "Buddy Skills Package." Researcher demonstrated how to initiate and respond to others, participate in conversations, provide compliments, and assist in showing affection. Maintenance phase: Conditions similar to baseline phase (researcher remained to prompt behaviors). TD peers trained for 15 min on eight consecutive school days on the "Buddy Skills Package."	Results demonstrated an improvement in social reciprocity and length of social interactions within the intervention phase and throughout the generalization phase. Specifically, the participant with ASD demonstrated an increase in the number of social overtures directed towards her peers, without the support from the teacher. Results also demonstrated the total number of social overtures exchanged between the typically developing peers and the child with ASD remained high without support from the teacher.
Lee et al. (2007)	15 participants, 7 to 9 years of age. 3 with ASD (male), 12 TD. Multiple baseline design across participants. Special Ed classroom.	Pre-Baseline phase: 3-day period, participants placed in play area to observe levels of stereotypical behaviors. Baseline phase: Free play zone. Participants with ASD brought to room with TD peers.	Results demonstrated improved number of social interactions and social engagements from the baseline phase to the intervention phase and increased within the generalization phase for 2 of the 3 participants. Results also demonstrated a decrease in the total

		Intervention phase: Participants with ASD brought to structured play area and TD peers were instructed to attempt to play with the participant with ASD. Teacher provided verbal prompts. Generalization phase: Identical to pre-baseline phase conditions. TD peers participated in five training sessions (20 min each). Training session focused on how to get their friends to play with them.	number of stereotypical behaviors for all three of the participants during both the intervention and generalization phase. Additionally, social validity results demonstrated that the teachers viewed the SPGs intervention as being very important for all three of the participants.
<i>Legoff & Sherman (2006)</i>	234 participants 9 to 10 years of age. 117 with ASD (96 males, 21 females), 80 TD. 37 with ID Quasi-experimental design consisting of a pre/post measurement over 36 months. Special education classroom.	Pre-intervention data based on information reported in each participant's files. Intervention phase: LEGO® therapy, participants with ASD paired with TD peers for 36 months. Post-intervention: Participants tested on social competence and social interaction. No training of peers reported.	Results from the Lego therapy intervention demonstrated significant ($p < 0.001$) improvement in social competence as measured by the VABS (Sparro et al., 1984) and social interaction measured by the GARS (Gilliam, 1995) for all participants with ASD (i.e., autism, AS, PDD-NOS). Results also demonstrated that the LEGO® participants had improved by twice as much as the comparison group during post testing on the VABS (Sparro & Colleagues, 1984). Further, binomial regression determined that positive changes were more strongly related to LEGO therapy versus the comparison group ($r = .429$, $p < 0.01$).
<i>Loftin et al. (2008)</i>	6 children, 9 to 10 years age.	Baseline phase: Data collected over 5 min span during recess.	Results demonstrated an increase in the total number of social initiations from

	3 with ASD (male), 3 TD. Multiple baseline across participants. Lunch play time and recess period.	Intervention phase: Researcher taught participants with ASD how to socially initiate with a peer. Maintenance phase: Identical to baseline phase. TD peers trained for 5 to 10 minutes on natural reinforcement to social initiations from their peers with ASD.	baseline through the intervention and continued after reinforcements were removed for each of the three participants with ASD. Additionally, for two of the participants there was a positive change once the intervention began in both the number of social initiations and the total number of repetitive behaviors. Finally, social validity results demonstrate teachers and parents believed having the children with ASD self-monitor their own behavior was a good idea.
MacCormack et al. (2015)	17 participants, 7 to 12 years of age. 12 with ASD (male), 3 TD 1 CP. Qualitative analysis. Community-based center.	Pre-observation all observers were trained to consider the ethical complexities of observing individuals with disabilities, importance of viewing participants as competent individuals, and the ability to interpret subjective meaning. Interviews were semi-structured and conducted with staff, parents, and youth participants, as well as the coordinator at end of program. No formal training of participants with or without a disability occurred.	Results taken from interviews demonstrated that parents believed SPGs provided a sequence of interactions, resulting in a constant cycle of participation, exclusion, and reintegration for their children. Parents also viewed the SPGs as a program that was designed to help their children develop appropriate social skills and meaningful relationships. Results also demonstrated that when children with ASD engage in activities based on their interests, they are able to sustain their participation and benefit.
Mason et al. (2015)	3 participants, 6 to 8 years of age with ASD (male). 4 to 6 same age matched	Baseline phase: During participants with ASD recess. Intervention phase: Introduced peer network package within recess	Results indicated a statistically significant magnitude of change between baseline and interventions phase (i.e., $Tau = .99$) for each of the

	TD peers. Multiple baseline design across participants. School playground.	period. All participants with ASD were primed on the skill to focus on. Task sheets were used to provide participants with ASD a visual of correct behaviors. TD peers trained in peer network program (time not provided) training focused on prompting procedures utilized within this study.	three participants. Additionally, social validity results demonstrated that all three raters agreed that they had observed positive changes in social interactions between the children with ASD and their trained peers.
Morrier & Ziegler (2018)	10 participants with ASD (6 males, 4 females). 2 to 7 years of age. 25 TD peers 2 to 6 years of age. Quasi-Experimental Design. Outdoor playground at an early autism center.	Pre-Baseline phase: All teachers stopped any instruction during 45 min recess period. Baseline phase: Occurred during 15 min period of 45 min recess participants with ASD free-play. Pre-Buddy Game all participants with ASD were paired with TD peer. Intervention phase: Occurred with the second 15 min period of the 45 min recess and centered on singing and dancing between participant with ASD and TD peer. Generalization phase participants with ASD placed back in free play area. Training of TD peers occurred during pre-Buddy Game.	Results demonstrated that children with ASD showed a significant $p = .002$ more proximity towards their peers during the buddy game when compared to the baseline or generalization to free play phases. Results also demonstrated that both TD peers and children with ASD received significant $p < .001$ amounts of social bids within the buddy game when compared to the baseline and generalization to free play phases. Finally, children with ASD demonstrated a significant amount $p < .001$ of social bids to their TD peers within the same phases.

Najdowski et al. (2006)	3 participants (1 male, 2 females) 5 to 8 years of age with ASD. Age for Peers of children with TD not included. Multiple baseline single subject design. Classroom within applied behavior analysis agency.	Baseline phase: One or two, 45 min sessions per week. Participants placed into natural environment. Intervention phase 1: Teach participants with ASD to attend to partner's play interest. Intervention phase 2: Teach participants to respond appropriately to partner's play request. Generalization Phase: Natural environment with non-trained peers. Training of play partners included teaching appropriate responses to request from participants with ASD.	Multi exemplar training package taught 3 children with ASD how to identify play preference from a peer during play. These results highlight how behavior interventions can be utilized to teach children with ASD complex social skills. Additionally, the researchers conducted a generalization phase with untrained peers and reported positive results for 2 of the 3 participants.
Trembath et al. (2009)	9 participants, 3 with ASD 3 to 5 years of age. (male) 6 TD, 3 to 6 years of age. Multiple baseline design across participants. Inclusive preschool setting.	Baseline phase: 10 min sessions conducted during regular free play. Intervention phase: Peers played with participants during 10 min free play. Generalization phase: Recorded number of interactions with TD peer during 10 min morning tea. Peers were trained by the researcher on naturalistic teaching "show, wait, and tell" and also on speech generated device.	Results demonstrated that both interventions (peer-mediated naturalistic teaching and peer-mediated naturalistic teaching with a speech generating device) produced an immediate increase in communication behaviors for all three participants from within the intervention phase. It should be noted that when the interventions were compared the peer-mediated naturalistic teaching with a speech generating device resulted in more communication behaviors per minute for the participants.

Watkins et al. (2019)	8 participants, 4 children with ASD (3 males, 1 female) aged 4 to 6 years of age. TD peers based on age- appropriate verbal and social skills. Multiple baseline single subject design. Private community school.	Forty-three Sessions Baseline phase: 10 min free-play sessions. Intervention phase: Teacher directed participant with ASD and TD participant to interest-based play area. Generalization phase: phase: 6-week with novel TD peers. TD training not reported.	Interest package produced large amounts of increases in social interactions between the TD participants and participants with ASD. Social interactions also increased to novel peers within the generalization period. Results support previous research that has demonstrated that children with ASD respond to systematic play scenarios when TD children are included.
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Note: Italicized = Articles identified by Wong et al., 2015; ASD = Autism spectrum disorder; CP = Cerebral palsy, GARS = *Gilliam Autism Rating Scale*; PMI = Peer-mediated instruction; PRT = Pivotal response training; TD = Typically developing; *n* = Number; VABS = *Vineland Adaptive Behavior Scale*.

Discussion

The purpose of this study was to take a deeper look into SPGs to develop a fuller understanding of how they are being implemented, the final outcomes that have been reported, and the length of training for TD participants. As educators, having a greater understanding of where and how the reported studies were conducted will enable future researchers and educators a clearer understanding of how to effectively implement SPGs across multiple contexts to better assist children with ASD. Findings from this review expand (i.e., age range 3 to 12; total number of studies 4 to 15) upon previous reports conducted by Wong et al., (2015) on EBPs for children with ASD. Despite these gains in understanding, there is still research warranted to determine the efficacy of SPGs based on the level of severity of children with ASD, as many of these studies did not report this information.

Connecting Research to Autism Spectrum Disorder

Single-subject design is a practical, and empirically robust method of research that allows the researcher to determine if a meaningful outcome has occurred based on the intervention (Callahan & Barisa, 2005). Based on the results of this study, SPGs demonstrated the ability to change the identified behaviors within the intervention phase in each reviewed study. These results are interesting as a diagnosis of ASD even with the reported levels of severity does not provide the whole story of each participant. Additionally, even with a diagnosis of ASD it may be argued that due to the variety of characteristics (e.g., difficulty with social interaction, unusual interest in objects, need for sameness, or repeated actions or movements) within the population there is a level of heterogeneity that promotes the use of single-subject research as opposed to large group experimental design. Moreover, as children with ASD attending special education classrooms have a variety of goals, the use of single subject research design may be more practical for educators. Additionally, MacCormack (2015) implemented a qualitative design which allowed the researchers to observe the interactions between a pre-established community-based participant pool, while also conducting semi-structured interviews with participants with ASD, their parents, and program staff.

Types of Structured Play Groups

White et al. (2007) suggested that children with ASD be placed into a group format alongside their typically developing peers when the focus is on social and communication skill development. A key feature of SPGs is the inclusion of trained typically developing peers as models or direct support (i.e., peer teaching) who along with the assistance of an educator provide structured opportunities for children with ASD to improve communication and reduce social skill difficulties (Ganz et al., 2011; Odom et al, 2010). Each of the 15 studies reviewed demonstrated a structured teaching approach that utilized observation, training, scaffolding of instruction, and multiple opportunities for success. These results point to the promise of integrating a reverse inclusion style classroom where TD peers are brought into the special education classroom to work with their peers with ASD.

In reviewing the interventions applied within the 15 studies, the authors were interested in how the researchers manipulated the environment to focus on the needs of the participants with ASD. For example, Stay, Play, and Talk had previously demonstrated efficacy in increasing social initiation opportunities for children with ASD (English et al., 1996; Goldstein et al., 1997).

While both studies (i.e., Barber et al., 2016; Kohler et al., 2007) that implemented Stay, Play, and Talk demonstrated immediate changes in the number of social interactions within the intervention phase, only Kohler et al. (2007) demonstrated that social initiations were continued throughout the intervention phase and into the maintenance phase. These results suggest that when children with ASD are given ample opportunities to practice a skill, enhanced learning can occur. Conversely, as the intervention is based on the leadership of the TD peer to follow the model of staying in the area, playing with the child with ASD, and prompting the child with ASD to engage in conversation, generalizations may be difficult to assume outside of this structured environment.

LEGO® therapy is designed to maximize social opportunities through a highly structured, predictable, and systematic activity (Legoff, 2004). When used with fidelity LEGO therapy has demonstrated positive results for a number of behaviors, such as social interactions, play, communication, and restricted behaviors for children with ASD (Legoff, 2004, Legoff & Sherman, 2006). LEGO therapy includes at least one child with ASD and one TD child, with each child being assigned a role (e.g., engineer, supplier, builder). Roles for members can be switched, allowing the child with ASD to work on both receptive and expressive communication. Apart from the structure, LEGO therapy allows children with and without disabilities to interact in an activity that many children enjoy and can be a motivating factor for all participants to interact and work together.

Integrating Typically Developing Peers

Children, including those with ASD, have the opportunity to learn important skills from the observation of others. Bandura and Walters (1976) stated that for a behavior change to occur, the learner must be able to identify important components of an observed skill and differentiate between effective and ineffective behaviors based on that observation. A major strength of SPGs lies in the opportunity for multiple observations, interactions, and modeling with the oversight of a trained educator to facilitate instruction and scaffold the environment to provide the most direct learning experience for the child with ASD. Within two of the studies (Ganz & Flores, 2008; Harper & Symon, 2007) visual cues were placed within the setting as reminders of appropriate behavior expected for all participants. This system of instruction allows the researcher or educator to provide the child with ASD the least restrictive environment (peer to peer interaction) and then support the desired learning outcomes through additional support (visual cues) and prompting from the instructor when needed. Moreover, Mason et al. (2015) reported that the occurrence and type of social interactions changed within the intervention phase for both the TD peer and child with ASD. These results provide further support for children with ASD to continue to receive ample opportunities in structured environments to learn new behaviors through consistent interactions with TD peers.

Implications for Researchers and Practitioners

Providing students with ASD the best opportunity to benefit within the classroom may require a structured teaching approach (Lovannone et al., 2003). This review offers insight on the type of activities SPGs that can be developed for and placed (i.e., settings) within the children's regular day schedule, such as Lego therapy, outdoor activities within recess, and story time. Additionally, this review demonstrates different systematic approaches to recruiting and training typically developing peers to take part in the SPGs. Low performance in social skills and

communication skills are areas of concern for students with ASD (APA, 2013). Results from this critical review demonstrate that SPGs may be a powerful instructional practice that general education and special education teachers could use to help improve core characteristics associated with a diagnosis of ASD. Moving forward, researchers should expand outside of the regular classroom and implement SPGs within other settings that could incorporate learning health related activities. Doing this will likely provide important data that can provide further evidence in support of SPGs and the opportunity for SPGs to broadly be applied within the school setting, thus providing educators with a multiple contexts to design and implement SPGs for children with ASD.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Washington, DC: Author.
- Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Prentice-hall.
- Barber, A. B., Saffo, R. W., Gilpin, A. T., Craft, L. D., & Goldstein, H. (2016). Peers as clinicians: Examining the impact of Stay Play Talk on social communication in young preschoolers with autism. *Journal of Communication Disorders*, 59(4), 1-15. doi.org/10.1016/j.jcomdis.2015.06.009
- Bass, J. D., & Mulick, J. A. (2007). Social play skill enhancement of children with autism using peers and siblings as therapists. *Psychology in the Schools*, 44(7), 727-735. doi.org/10.1002/pits.20261
- Bauminger, N., & Kasari, C. (2000). Loneliness and friendship in high-functioning children with autism. *Child Development*, 71(2), 447-456. doi.org/10.1111/1467-8624.00156
- Burns, M. K., & Ysseldyke, J. E. (2009). Reported prevalence of evidence-based instructional practices in special education. *The Journal of Special Education*, 43(1), 3-11. doi.org/10.1177/0022466908315563
- Callahan, C. D., & Barisa, M. T. (2005). Statistical process control and rehabilitation outcome: The single-subject design reconsidered. *Rehabilitation Psychology*, 50(1), 24-33. doi.org/10.1037/0090-5550.50.1.24
- Chan, J. M., Lang, R., Rispoli, M., O'Reilly, M., Sigafoos, J., & Cole, H. (2009). Use of peer-mediated interventions in the treatment of autism spectrum disorders: A systematic review. *Research in Autism Spectrum Disorders*, 3(4), 876-889. doi.org/10.1016/j.rasd.2009.04.003
- Chang, Y. C., & Locke, J. (2016). A systematic review of peer-mediated interventions for children with autism spectrum disorder. *Research in Autism Spectrum Disorders*, 27(1), 1-10. doi.org/10.1016/j.rasd.2016.03.010
- Cook, B. G., & Odom, S. L. (2013). Evidence-based practices and implementation science in special education. *Exceptional children*, 79(2), 135-144. doi.org/10.1177/001440291307900201
- Deckers, A., Muris, P., Roelofs, J., & Arntz, A. (2016). A group-administered social skills training for 8-to 12-year-old, high-functioning children with autism spectrum disorders: An evaluation of its effectiveness in a naturalistic outpatient treatment setting. *Journal of Autism and Developmental Disorders*, 46(11), 3493-3504. doi.org/10.1007/s10803-016-2887-1

- Dillon, S. R., Adams, D., Goudy, L., Bittner, M., & McNamara, S. (2017). Evaluating Exercise as evidence-based practice for individuals with autism spectrum disorder. *Frontiers in Public Health*, 4(290) 1-9. doi.org/10.3389/fpubh.2016.00290
- English, K., Goldstein, H., Kaczmarek, L., & Shafer, K. (1996). Buddy skills training for preschoolers. *Teaching Exceptional Children*, 28(3), 62–66. doi.org/10.1177/004005999602800313
- Hess, F. M., & Eden, M. (2017). *The Every Student Succeeds Act (ESSA): What it means for schools, systems, and states*. Harvard Education Press.
- Fink Chorzempa, B., Smith, M. D., & Sileo, J. M. (2019). Practice-based evidence: A model for helping educators make evidence-based decisions. *Teacher Education and Special Education*, 42(1), 82-92. doi.org/10.1177/0888406418767254
- Ganz, J. B., Earles-Vollrath, T. L., & Cook, K. E. (2011). A visually based intervention for children with autism spectrum disorder. *Teaching Exceptional Children*, 43(6), 8-19. doi.org/10.1177/004005991104300601
- Ganz, J. B., & Flores, M. M. (2008). Effects of the use of visual strategies in play groups for children with autism spectrum disorders and their peers. *Journal of Autism and Developmental Disorders*, 38(5), 926-940. doi.org/10.1007/s10803-007-0463-4
- Goldstein, H., English, K., Shafer, K., & Kaczmarek, L. (1997). Interaction among preschoolers with and without disabilities: Effects of across-the-day peer intervention. *Journal of Speech and Hearing Research*, 40(1), 33–48. doi.org/10.1044/jslhr.4001.33
- Gordon, T. (2013). *Individuals with Disabilities Education Act: Handbook for Special Education Teachers and Parents*. CreateSpace.
- Hanushek, E. A., & Rivkin, S. G. (2010). Generalizations about using value-added measures of teacher quality. *American Economic Review*, 100(2), 267-71.
- Harper, C. B., Symon, J. B., & Frea, W. D. (2008). Recess is time-in: Using peers to improve social skills of children with autism. *Journal of Autism and Developmental Disorders*, 38(5), 815-826.
- Hu, X., Zheng, Q., & Lee, G. T. (2018). Using peer-mediated LEGO® play intervention to improve social interactions for Chinese children with autism in an inclusive setting. *Journal of Autism and Developmental Disorders*, 48(7), 2444-2457. doi.org/10.1007/s10803-018-3502-4
- Katz, E., & Girolametto, L. (2013). Peer-mediated intervention for preschoolers with ASD implemented in early childhood education settings. *Topics in Early Childhood Special Education*, 33(3), 133-143. doi.org/10.1177/0271121413484972
- Kazdin, A. E. (2011). *Single-case research designs: Methods for clinical and applied settings*. Oxford University Press.
- Koegel, R. L., & Koegel, L. K. (2006). *Pivotal response treatments for autism: Communication, social, & academic development*. Paul H Brookes Publishing.
- Kohler, F. W., Greteman, C., Raschke, D., & Highnam, C. (2007). Using a buddy skills package to increase the social interactions between a preschooler with autism and her peers. *Topics in Early Childhood Special Education*, 27(3), 155-163. doi.org/10.1177/02711214070270030601
- Kok, A. J., Kong, T. Y., & Bernard-Opitz, V. (2002). A comparison of the effects of structured play and facilitated play approaches on preschoolers with autism: A case study. *Autism*, 6(2), 181-196. doi.org/10.1177/1362361302006002005

- Lee, S., Odom, S. L., & Loftin, R. (2007). Social engagement with peers and stereotypic behavior of children with autism. *Journal of Positive Behavior Interventions*, 9(2), 67-79. doi.org/10.1177/10983007070090020401
- LeGoff, D. B. (2004). Use of LEGO© as a therapeutic medium for improving social competence. *Journal of Autism and Developmental Disorders*, 34(5), 557-571. doi.org/10.1007/s10803-004-2550-0
- Legoff, D. B., & Sherman, M. (2006). Long-term outcome of social skills intervention based on interactive LEGO© play. *Autism*, 10(4), 317-329. doi.org/10.1177/1362361306064403
- Leko, M. M., Roberts, C., Peyton, D., & Pua, D. (2019). Selecting Evidence-Based Practices: What Works for Me. *Intervention in School and Clinic*, 54(5), 286-294. doi.org/10.1177/1053451218819190
- Loftin, R. L., Odom, S. L., & Lantz, J. F. (2008). Social interaction and repetitive motor behaviors. *Journal of Autism and Developmental Disorders*, 38(6), 1124-1135. doi.org/10.1007/s10803-007-0499-5
- Iovannone, R., Dunlap, G., Huber, H., & Kincaid, D. (2003). Effective educational practices for students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 18(3), 150-165. doi.org/10.1177/10883576030180030301
- MacCormack, J. W., Matheson, I. A., & Hutchinson, N. L. (2015). An exploration of a community-based LEGO social-skills program for youth with autism spectrum disorder. *Exceptionality Education International*, 25(3), 13-32.
- Mason, R., Kamps, D., Turcotte, A., Cox, S., Feldmiller, S., & Miller, T. (2015). Peer mediation to increase communication and interaction at recess for students with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 8(3), 334-344. doi.org/10.1016/j.rasd.2013.12.014
- Mesibov, G. B., Shea, V., Schopler, E., Adams, L., Merkler, E., Burgess, S., & Van Bourgondien, M. E. (2004). Structured teaching. In *The TEACCH Approach to Autism Spectrum Disorders* (pp. 33-49). Springer.
- Morrier, M. J., & Ziegler, S. M. (2018). I wanna play too: Factors related to changes in social behavior for children with and without autism spectrum disorder after implementation of a structured outdoor play curriculum. *Journal of autism and developmental disorders*, 48(7), 2530-2541. doi.org/10.1007/s10803-018-3523-z
- Murdock, L. C., & Hobbs, J. Q. (2011). Picture me playing: Increasing pretend play dialogue of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 41(7), 870-878. doi.org/10.1007/s10803-010-1108-6
- National Professional Development Center on Autism Spectrum Disorder, Frank Porter Child Development Institute. (2015). *Evidence-based practices*. Retrieved from <http://autismpdc.fpg.unc.edu/evidence-based-practices>
- Najdowski, A. C., St. Clair, M., Fullen, J. A., Child, A., Persicke, A., & Tarbox, J. (2018). Teaching children with autism to identify and respond appropriately to the preferences of others during play. *Journal of applied behavior analysis*, 51(4), 890-898. doi.org/10.1002/jaba.494
- National Research Council. (2001). *Educating Children with Autism*. National Academies Press.
- Odom, S. L., Brown, W. H., Frey, T., Karasu, N., Lee Smith-Canter, L., & Strain, P. S. (2010). Evidence-based practices for young children with autism: Contributions for single-

- subject design research. *Focus on Autism and Other Developmental Disabilities*, 18(3), 166-175. doi.org/10.1177/10883576030180030401
- Paparella, T., & Freeman, S. F. (2015). Methods to improve joint attention in young children with autism: A review. *Pediatric Health, Medicine and Therapeutics*, 6, 65-78.
- Reichow, B., & Volkmar, F. R. (2010). Social skills interventions for individuals with autism: Evaluation for evidence-based practices within a best evidence synthesis framework. *Journal of Autism and Developmental Disorders*, 40(2), 149-166. doi.org/10.1007/s10803-009-0842-0
- Richards, S., Taylor, R., & Ramasamy, R. (2014). *Single Subject Research: Applications in Education and Clinical Settings*. Wadsworth, Cengage Learning.
- Thomas, J. R., Silverman, S., & Nelson, J. (2015). *Research Methods in Physical Activity*, 7Ed. Human Kinetics.
- Trembath, D., Balandin, S., Togher, L., & Stancliffe, R. J. (2009). Peer-mediated teaching and augmentative and alternative communication for preschool-aged children with autism. *Journal of Intellectual and Developmental Disability*, 34(2), 173-186. doi.org/10.1080/13668250902845210
- Ulke-Kurkcuoglu, B. (2015). A comparison of least-to-most prompting and video modeling for teaching pretend play skills to children with autism spectrum disorder. *Educational Sciences: Theory and Practice*, 15(2), 499-517. doi.org/10.12738/estp.2015.2.2541
- United States Department of Education. (2008). No Child Left Behind. Washington, DC: Author. Retrieved December 12, 2008, from www.ed.gov/nclb/landing.jhtml
- Watkins, L., O'Reilly, M., Kuhn, M., Gevarter, C., Lancioni, G. E., Sigafoos, J., & Lang, R. (2015). A review of peer-mediated social interaction interventions for students with autism in inclusive settings. *Journal of Autism and Developmental Disorders*, 45(4), 1070-1083. doi.org/10.1007/s10803-014-2264-x
- Watkins, L., O'Reilly, M., Kuhn, M., & Ledbetter-Cho, K. (2019). An interest-based intervention package to increase peer social interaction in young children with autism spectrum disorder. *Journal of applied behavior analysis*, 52(1), 132-149. doi.org/10.1002/jaba.514
- White, S. W., Keonig, K., & Scahill, L. (2007). Social skills development in children with autism spectrum disorders: A review of the intervention research. *Journal of Autism and Developmental Disorders*, 37(10), 1858-1868. doi.org/10.1007/s10803-006-0320-x
- Wolfberg, P. J., & Schuler, A. L. (1993). Integrated play groups: A model for promoting the social and cognitive dimensions of play in children with autism. *Journal of Autism and Developmental Disorders*, 23(3), 467-489. doi.org/10.1007/BF01046051
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., & Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders*, 45(7), 1951-1966. doi.org/10.1007/s10803-014-2351-z
- Wright, P. W., & Wright, E. P. D. (2006). *Wrightslaw: Special education law* 2nd edition.

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Assessing the Implementation of Differentiated Instruction Using Technology within Pre-Service Teacher Education Programs

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Abstract

The purpose of this study was to assess the implementation of differentiated instruction using technology within pre-service teacher education programs. Pre-service teachers were presented with a survey prior to entering the professional development workshop on differentiating instruction through technology. Through the pre-survey data, the researchers were interested in determining the participants' familiarity with and application of differentiated instruction through technology from undergraduate courses taken prior to the professional development workshop (PD workshop). The authors provided data which suggest that choice boards are not utilized as consistently as PowerPoint presentations, Word Processing, or online computer quizzes.

Keywords: Differentiated Instruction, Technology, Choice Boards, Professional Development, Pre-service Teachers

Assessing the Implementation of Differentiated Instruction Using Technology within Pre-Service Teacher Education Programs

Tomlinson (1999, 2017) described differentiation as being implemented through the means of content, process, and product. Sousa and Tomlinson (2018) described implementing differentiation in this way but also encouraging pre-service teachers to look at the learners' academic level, interests, and learning styles. Cooperating teachers model the implementation of differentiated instruction to ensure that all learners, regardless of their abilities, are engaged through technology as needed. Learners demonstrate their understanding of material taught through differentiated assignments, assessments, and evaluations (Sousa & Tomlinson, 2018). In an interview, Carol Tomlinson shared, "Differentiation, as I envision it, does not seek to label and segregate learners, but rather to serve them effectively in heterogeneous classrooms that are responsive to their varied needs" (Wu, 2013, p.127).

There is a need for assessing the implementation of differentiated instruction through technology which supports maximum student growth for a broad range of learners (Biancarosa & Griffiths, 2012; De Bruyckere, Kirschner, & Hulshof, 2016; Sousa & Tomlinson, 2018; Tomlinson & McTighe, 2006). Pre-service teachers are encouraged to engage learners through opportunities where instruction is given through different modes and varying levels while utilizing technology (Stanford, Crowe, & Flice, 2010). Pre-service teachers can differentiate to meet the needs of a diverse population through specific groupings. Teachers that utilize differentiation recognize that not all learners comprehend information in the same way. When pre-service teachers offer

choices, the teacher and the student can determine which learning style works best for each individual student. Incorporating technology enables the teacher to meet individual needs efficiently and effectively (Stanford, Crowe, & Flice, 2010). This places the teacher as a facilitator, rather than an instructor. Differentiation also empowers learners to become more accountable for their learning when they are actively engaged (Bitter, O'Day, Gubbins, & Socias, 2009).

During differentiation, the learners are actively involved in the learning process while the teacher organizes the educational environment. However, how can we expect pre-service teachers to implement differentiation into their classrooms through technology if they were not explicitly and constructively taught to this capacity in their teacher education programs (Ranier & Guyton, 2001)? Today's learners are digital learners. In anonymous online surveys, Rosen and his colleagues (2011) found that the iGeneration (those born 1999-present) spends much of their time throughout their day utilizing technology. Pre-service teachers need to meet the needs of digital learners by differentiating instruction through technology (Rosen, 2011; Smith & Throne, 2007; Sousa & Tomlinson, 2018; Stanford, Crow, & Flice, 2010). Pre-service teachers need to be comfortable when implementing differentiation through technology. They need to be familiar with the content, process, format and technology (De Bruyckere, Kirschner, & Hulshof, 2016; Sousa & Tomlinson, 2018). In order to establish effective and efficient usage and implementation, a comfort level must be considered for the learners as well as the effectiveness of the process (Minaabad, 2017). It is also pertinent to differentiate the types of technology utilized in the classroom by allowing learners to be creative and take control of their learning (Sousa & Tomlinson, 2018). This article provides an overview of technology currently being utilized by pre-service teachers in the classroom and suggestions for implementing choices to empower learners.

Purpose/Research Questions

The purpose of this study was to assess the implementation of differentiated instruction using technology within pre-service teacher education programs. The following research questions were addressed in this study:

1. What are the most highly utilized means of technology when implementing differentiated instruction?
2. What are the most highly utilized means of technology within each of the flexible groupings (individual, partner, small group, whole class) when implementing differentiated instruction?

Methods

Description of Participants and Setting

Pre-service teachers enrolled in an Early Childhood Special Education program at a public rural university in the northeast United States who attended professional development workshop (PD workshop) days during their junior year were invited to participate in the study. One hundred pre-service teachers signed the informed consent form to participate in the study. The PD workshop days were conducted during their junior and senior year.

Research Design

A survey entitled, Differentiated Instruction Through Technology (DITT), was created for the current study by the researchers. Based on a review of literature and a pilot workshop, the researchers identified important areas for implementing differentiation through technology. A 6-item survey designed by the researchers measured pre-service teachers' implementation of differentiated instruction using technology. The survey used a multiple-answer multiple choice format, where participants selected all forms of technology that applied to each question. The selection of the technology listed in the survey was obtained through discussions of commonly utilized technology in pre-service teacher education courses. To test and validate this survey, 63 pre-service teachers in their fourth year enrolled in an Early Childhood Special Education program at a public rural university in the northeast United States completed the survey. Based on suggestions from Liu and Picard (2014), the pilot study provided the researchers with a comprehensive review of potential responses. The survey questions were revised based on the findings from the pilot study to eliminate confusion with terminology. The revised survey was reviewed by colleagues before administering to the participants.

Research Procedure

Purposive sampling was utilized since the audience were the individuals who were attending the seventy-five-minute professional development workshop (PD workshop) and were recruited as potential participants (Creswell, 2013). Potential participants for this study were those who attended the PD workshop on differentiated instruction through technology given by the researchers. Participant letters, informed consent forms, and the link from the pre-survey were provided prior to the PD workshop. Pre-survey data were anonymous and were not individualized per participant. The researchers looked for the overall implementation of differentiated instruction through technology.

In the beginning of the PD workshop, the researchers asked probing questions to assess the audience's prior knowledge of both differentiated instruction and differentiation through technology. The researchers then presented a PowerPoint presentation on differentiated instruction and the importance of providing choice to empower learners (Sousa & Tomlinson, 2018; Tomlinson, 1999; Tomlinson, 2017) and Backwards Design (Tomlinson & McTighe, 2006; Wiggins & McTighe, 2011; Wiggins, McTighe, & NetLibrary, 2005). After the researchers' presented their PowerPoint presentation, the participants were given a blank choice board and were required to provide ideas and suggestions for how they would utilize differentiated instruction through technology with learners when providing assessment choices. The use of choice boards was twofold: provided a scaffolding for discussion and ensured that the pre-service teachers focused on considering options for assessing students' retention of information from their lessons as supported by Sousa and Tomlinson (2018). The researchers then had the participants share their suggestions with each other. The participants' suggestions were utilized as data to compare with the pre-surveys to determine common themes. The most commonly shared uses of technology by pre-service teachers were the use of: Kahoot!, Podcast, PowerPoint, Storyboard, Screencast-o-matic, Prezi, and Clickers. These were also the most commonly mentioned suggestions on their own choice board. Two sample choice boards (see Figure 1 and Figure 2) were given to the participants in order to further share examples and to enhance the discussion on suggestions for utilizing technology to differentiate instruction. To

conclude the presentation, the researchers discussed utilizing their school districts' evaluation procedures to determine the level of differentiating in their curriculum.

Application Tic Tac Toe		
Description: This activity will replace the traditional quizzes and exams. It provides for differentiated instruction, flexible grouping, and free choice as you choose which applications you want to complete when applying the information that you have read. You must adhere to the following rules: 1. You are only allowed to use each application twice (2X). 2. Complete one application for each of the following chapters: 3,5,7,8,10,11, and 13. 3. Other readings will be assessed based on quizzes. 4. This is an individualized activity; group work is not permitted (however, classmates are allowed to be in your videos if necessary). Each application is worth 10 points: 1. 2 points for all applications uploaded in the grading drop box and shared in the shared forum via D2L. 2. 2 points for utilizing the APA style sixth edition format and providing the citation. 3. 6 points will be applied via the following Bingo card (you choose your application and create the filename with the bold words given below: parent brochure, quiz, scenario, case study, etc.).		
Application Tic Tac Toe Choices		
Parent Brochure- provide up-to-date "information to go". Define appropriate terminology and explain it with saliency. Application # _____ <i>(Publisher, Word, InDesign, etc.)</i>	Quiz- create a quiz that promotes higher level thinking skills and not just knowledge level questions. Include an answer key as well. Application # _____ <i>(Word, Kahoot, Socrative, EDpuzzle, Quizizz)</i>	Scenario/Case Study- create a 1-page handout of a situation from the chapter and recommendations on how to remedy the situation. Application # _____ <i>(Word, Evernote, OneDrive, Sway, Voki etc.)</i>
Share an article- include the APA style citation and a paragraph that answers: Why do you think it is important? Is there anything for which more information could have been provided? Application # _____ <i>(Google Docs, Evernote, OneDrive, etc.)</i>	Free Choice- You must run your idea past the instructor for final approval prior to beginning your application activity. Application # _____ <i>(songs, poems, surveys, word search puzzles, etc.)</i>	Video 1- create a 3-minute video of a situation based on the information from the chapter and ask the audience, "What would you do?". Include a written statement of your solution. <i>(iMovie, Screencast-o-matic, Voki, etc.)</i> Application # _____
10 Considerations - <u>4</u> new ideas <u>3</u> items to share <u>2</u> ways to apply the information in the future <u>1</u> item to learn more about Application # _____ <i>(PPT, Prezi, Sway, etc)</i>	Video 2- Advertise at least 5 pieces of pertinent information from the chapter in a 3-minute video. Salesmanship will also be considered in your grade. Application # _____ <i>(iMovie, Screencast-o-matic, Voki, etc.)</i>	Synthesis- 1-page typed double-spaced paper or transcript on how this chapter will assist you in the future. Application # _____ <i>(Word, Evernote, OneDrive, etc.)</i>
Bonus Point (1 point): Tic Tac Toe, Three in a row! The first 3 individuals to get "A's" in a row receive a point. The submission time via D2L will be the determiner.		

Figure 1. Choice Board Sample One.

Tic Tac Toe

Description: This activity provides for differentiated instruction, flexible grouping, and free choice as you choose which applications you want to complete.

You must adhere to the following rules:

1. You are only allowed to use each application once.
2. You must complete the assigned tic-tac-toe on the correct chapter.

Each application is worth **25 points**:

1. **2 points** for all applications uploaded and shared via D2L Discussion Board.
2. **2 points** for utilizing the APA style sixth edition format for citations.
3. **16 points** will be applied via the following Bingo card (you choose your application).
4. **5 points** for viewing and replying to two other student's uploaded tic-tac-toe assignments. Responses must be well thought out and 1-2 paragraphs in length.

***Possibility of 2 bonus pts will be awarded for 3 assignments in a row that earn an A.

Application Tic Tac Toe Choices

Parent Brochure- provide up-to-date "information to go". Define appropriate terminology and explain it with saliency. Pictures, information, and charts on all sides of brochure. Be sure to include all APA citations. Application chap ____	Present an App- create a <i>Prezi</i> or <i>Voicethread</i> Presentation about an app that could be useful based on the information in the chapter. APA style citations within the presentation. Upload the link or PDF. Application chap ____	YouTube Video – provide the link to a <i>YouTube</i> video that pertains to the chapter. Include 2 paragraphs on how you could use the information from the video in your future classroom. Application chap ____
Quiz- create a quiz that promotes higher level thinking skills and not just knowledge level questions. <u>Using an online application (<i>kahoot, fubaroo, classkick, etc</i>)</u> Upload a link to the quiz and a word document with questions & an answer key. Application chap ____	Free Choice- You must run your idea past the instructor for final approval prior to beginning your application activity. Application chap ____	Share an article- include the APA style citation, a link to the article, a paragraph summarizing the article, and a paragraph that answers: Why do you think it is important? Is there anything for which more information could have been provided? Application chap ____
Study Guide - Create a flowchart study guide for the current chapter using www.draw.io website. APA style citations within the presentation. Upload the link or PDF. Application chap ____		Scenario/Case Study- create a 1-page handout of a situation from the chapter and list recommendations on how to assist the student (<i>handout must include links to software, Apps, assistive technology, etc. that you could access to help.</i>) Application chap ____

Figure 2. Choice Board Sample Two.

Data Sources

Pre-service teachers were presented with a 6-item survey (the first item was the informed consent and the last item asked for the participant's (non-identifiable) email if they wished to enter for a chance to win a gift card). The following are the four main survey questions (items 2-5) from the DITT:

1. In what ways do you differentiate instruction through technology for individual assignments in your classroom?
2. In what ways do you differentiate instruction through technology for partner work in your classroom?
3. In what ways do you differentiate instruction through technology for small group work in your classroom?
4. In what ways do you differentiate instruction through technology during whole class assignments in your classroom?

Each of the four multiple-answer multiple choice questions contained a list of choices. The pre-service teachers were asked to select all that applied in relation to Flexible Grouping (individual, partner, small group, whole class):

Table 1
List of Choices

1. Creation of video projects	2. Word processing
3. PowerPoint presentations	4. Prezi presentations
5. Microsoft Publisher	6. On-line or computerized quizzes
7. Choice boards	8. Audience polls, clickers
9. Interactive educational websites	10. Interactive education digital games

Results

Data Analysis

Data from the DITT were collected and analyzed after all of the PD workshops were completed for the 100 pre-service teachers. Researchers compared and analyzed the data using an online platform. Then, data were presented in table format to address the research questions and determine the most highly utilized technology and form of flexible grouping.

Table 2

In what ways do you differentiate instruction using technology for individual assignments, partner work, small group work, and whole class assignments in your classroom?

Choice of Technology	Overall Participant Usage			
	Individual	Partner	Small Group	Whole Class
Creation of video projects	33%	37%	43%	22%
Word processing	72%	52%	51%	47%
PowerPoint presentations	82%	78%	77%	66%
Prezi presentations	48%	46%	46%	36%
Microsoft Publisher	24%	20%	24%	20%
Online or computerized quizzes	71%	38%	33%	45%
Choice boards	24%	22%	23%	22%
Audience polls or clickers	38%	31%	31%	54%
Interactive educational websites	61%	57%	60%	56%
Interactive educational digital games	50%	54%	50%	45%

Individual. The data from Table 2 suggest that the pre-service teachers in this study utilized differentiated instruction through technology during individual work assignments more frequently with word processing assignments and online or computerized games. The least utilized form of technology for differentiation with individual work assignments was the use of Microsoft Publisher and choice boards.

Partner. The data suggest that pre-service teachers were differentiating instruction through technology during partner work more frequently with PowerPoint presentations and interactive educational websites. The least utilized form of technology while differentiating instruction for partner work was Microsoft Publisher and choice boards.

Small group. The small group work data indicate that the most utilized technology during differentiation was PowerPoint presentations and interactive educational websites. The least utilized technology to differentiate during small group work were choice boards and Microsoft Publisher.

Whole Class. The data indicate that the most commonly utilized forms of differentiating instruction through technology during whole class assignments were PowerPoint presentations and interactive educational websites. The least utilized forms of technology during whole class assignments were choice boards, creation of video projects, and Microsoft Publisher.

Discussion

The purpose of this study was to assess the need for implementing differentiated instruction using technology within pre-service teacher education programs. The following research questions were addressed in this study:

Research Question 1

What are the most highly utilized means of technology when implementing differentiated instruction?

PowerPoint presentations (76%) and interactive educational websites (58%) comprised the most highly utilized means of technology when implementing differentiated instruction for pre-service teachers. Choice boards were in the bottom 25% for individual work assignments, partner work, small group work, and whole class assignments. Definitions were not given on the DITT for each form of technology choice. It was assumed by the researchers that the pre-service teachers were familiar with all 10 forms of technology listed in the survey. Another consideration is that the choice boards could also be a novel idea for the pre-service teachers in which more information and exposure would provide a higher level of comfort when implementing them.

Research Question 2

What are the most highly utilized means of technology within each of the flexible groupings (individual, partner, small group, whole class) when implementing differentiated instruction?

Pre-service teachers reported that PowerPoint (82%), word processing (72%), and online or computerized quizzes (71%) were the most highly utilized means of technology when assigning individual work. PowerPoint (78%) was also in the top three reported highly utilized means of technology when assigning partner work. Interactive educational websites (57%) and interactive educational digital games (54%) were the next highest utilized means of technology for partner work. When assigning small groups, pre-service teachers reported that PowerPoint (77%), interactive educational websites (60%), and interactive educational digital games (50%) comprised the most highly utilized means of technology. PowerPoint (66%) remained in the top three reported highly utilized means of technology when assigning whole class assignments. Interactive educational websites (56%) and audience polls or clickers (54%) were the next highly utilized means of technology for whole class assignments.

Implications for Practice

Teachers empower learners when providing differentiation through choices that also incorporate technology (Sousa & Tomlinson, 2018; Stanford, Crowe, & Flice, 2010). Using the choice boards is one way to empower learners even when it may mean that pre-service teachers have to do a little more planning and organizing. The data suggest that there is a low incidence of choice board implementation by pre-service teachers. Choice boards as an option are not as well known for effective and efficient practice and implementation. Lampert (2010) looked at how the learning of teaching occurred in pre-service education programs and suggested teaching constructively so that they have a model. For true learning to occur the learner must actively participate in the process. The authors suggest seeking out interactive online training and webinars which focus on this practice and encouraging teacher education programs to explicitly

teach this as an option. Implementing choice boards using technology within coursework for pre-service teachers would provide an excellent model that the future teachers could adapt for their classrooms; therefore, curricular mapping in pre-service teacher programs may be warranted (Rainer & Guyton, 2001).

The following are additional implications for pre-service teachers to consider. Pre-service teachers who focus first on the class as a whole can continue to utilize PowerPoints, interactive educational websites, and audience polls or clickers (as the data suggest were the most highly utilized) while considering them as part of a choice board. Pre-service teachers who utilize partner or small group flexible grouping, can continue to focus on PowerPoint, interactive educational websites, and interactive educational digital games while also considering these as options on a choice board. Pre-service teachers who focus on independent work for which learners demonstrate their learning, can also incorporate a choice board which includes the following options (as the data suggest were the most highly utilized): PowerPoint, word processing, and online or computerized quizzes. As long as there is an assessment choice, the teacher does not need to also provide a choice for a specific type of flexible grouping. The choice board selections are sufficient options to empower learners to take responsibility for their learning and become engaged.

Recommendations for Future Research

When implementing differentiation through technology, it is pertinent to get to know your technology (De Bruyckere, Kirschner, & Hulshof, 2016). A comfort level must be established for effective and efficient usage and implementation. Pre-service teacher programs need to explicitly teach differentiated instruction through technology to ensure that their pre-service teachers have experience and exposure to ensure that a comfort level is established prior to implementation in the classroom. It is also pertinent to differentiate the types of technology utilized in the classroom (Sousa & Tomlinson, 2018). Encourage and empower learners who need to explore other avenues for sharing their retention of academic content. While providing these opportunities, be sure to encourage the utilization of social skills through collaboration and dissemination of projects (Rosen, 2011; Sousa & Tomlinson, 2018). Learners need to interact face-to-face especially when utilizing technology.

Limitations

A limitation of the study (as with all survey research), was due to the predetermined list of options where only three of the participants took the time to enter open-ended responses. The limitation may have impacted the results, had more participants noticed and taken the time to respond to the open-ended responses. The self-reported data should be used with caution as the researchers did not have the opportunity to observe the participants implementing differentiated instruction through technology. Our sample was limited to pre-service teachers only. The pre-service teachers may not have experienced choice boards or had them modeled within their pre-service teacher programs. Focus groups or interviews would have been beneficial given the opportunity to discuss what means of technology were highly utilized in their classrooms that may not have been listed on the DITT.

Conclusion

Differentiating instruction through technology benefits both learners and teachers in the classroom and through evidence-based planning. Together, pre-service teachers and cooperating teachers can plan effective and efficient units and lessons. Learners are empowered to share and demonstrate what they learned while pre-service teachers are able to assess learners more efficiently. The authors recommend that pre-service teachers consider choice boards (with at least three to four choices in the beginning). The current applications which they are utilizing with their cooperating teachers are sufficient so simply providing options to their learners in the form of a choice board would increase student empowerment and willingness to participate.

References

- Biancarosa, G., & Griffiths, G., (2012). Technology tools to support reading in the digital age. *The Future of Children*, 22(2), 139-160.
- Bitter, C., O'Day, J., Gubbins, P., & Socias, M. (2009). What works to improve student literacy achievement? An examination of instructional practices in a balanced literacy approach. *Journal of Education for Students Placed at Risk*, 14(1), 17-44. doi: 10.1080/10824660802715403
- Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- De Bruyckere, P., Kirschner, P.A., & Hulshof, C. D. (2016). Technology in education. *American Educator*, 40(1), 12-18.
- Fincham J. E. (2008). Response rates and responsiveness for surveys, standards, and the Journal. *American journal of pharmaceutical education*, 72(2), 43. doi:10.5688/aj720243
- In Lui, Y. & Picard R. G. (Eds.). (2014). *Policy and Marketing Strategies for Digital Media* (pp. 233-245). Routledge.
- Lampert, M. (2010). Learning teaching in, from, and for practice: What do we mean. *Journal of Teacher Education*, 61(1-2), 21-34.
- Minaabad, M.S. (2017). Study of the effect of dynamic assessment and graphic organizers on EFL learners' reading comprehension. *Journal of Language Teaching and Research*, 8, 548-555.
- Tomlinson, C. (1999). Mapping a route toward differentiated instruction. *Educational Leadership*, 57(1). 12-16.
- Tomlinson, C. (2017). *How to differentiate instruction in academically diverse classrooms* (3rd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction & understanding by design: Connecting content and kids*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Rainer, J. & Guyton, E. (2001). Structures of community and democratic practices in graduate teacher education, teacher change, and linkages facilitating change. *Action in Teacher Education*, 23, (2). 18-29.
- Rosen, L. (2011). Teaching the iGeneration. *Educational Leadership*, 68(5), 10-15.
- Smith, G. E., & Throne, S. (2007). *Differentiating instruction with technology in K-5 classrooms*. Eugene, Or: International Society for Technology in Education [ISTE].
- Stanford, P., Crowe, M.W., Flice, H. (2010). Differentiating with technology. *Teaching Exceptional Children Plus*, 6(4).

- Sousa, D. A., & Tomlinson, C. A. (2018). *Differentiation and the brain: How neuroscience supports the learner-friendly classroom*. (2nd ed.). IN: Solution Tree Press.
- Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction & understanding by design: Connecting content and kids*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Wiggins, G., & McTighe, J. (2011). *The understanding by design guide to creating high-quality units*. Alexandria, VA: ASCD.
- Wiggins, G., McTighe, J., & NetLibrary, Inc. (2005). *Understanding by design* (Expanded 2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.
- Wu, E. (2013). The path leading to differentiation: An interview with Carol Tomlinson. *Journal of Advanced Academics*, 24(2), 125-133.

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Collaborative Inclusive Programs: Influences of Administrators and Teacher Leaders

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Abstract

This qualitative research examined the factors that affect collaboration practices of two rural elementary schools. The interviews revealed that the teachers are key to inclusion and successful collaboration in their classrooms. School administrators are vital to implement and support the school-wide collaboration including coordinating schedules, supporting teacher-generated agendas for the meetings, arranging for professional development, and providing resources to enhance collaboration. Their voices presented in this paper demonstrate the complexity of collaboration in inclusive schools.

Keywords: collaboration, administrators, professional development

Collaborative Inclusive Programs: Influences of Administrators and Teacher Leaders

Collaboration is a commonly held practice in most elementary schools for meeting the needs of students with mild disabilities in the inclusive classroom. This collaboration is met by many challenges in the elementary school and for some rural schools there are even more challenges including less qualified teachers and fewer special education teachers (Johnson, Ohlson, & Shope, 2018). There are many aspects to consider with inclusion and teacher collaboration, one of those is the influence of the administrator, who plays a vital role in school improvement. According to DaFonte and Barton-Arwood (2017), the principal has to be a knowledgeable instructional leader with a vision to implement changes in the school. This research shares the voices of the teachers, teacher leaders, and administrators as they face the challenges of collaboration and inclusion in two elementary schools.

Literature Review

Collaboration

Teacher collaboration is necessary for successful inclusion of students with disabilities in the general education classroom in a meaningful manner. According to Nilsen (2017) there needed to be collaborative partnership for the most productive environment for students with mild disabilities. This inclusive environment supports the students' full participation in the classroom including appropriate personnel and other resources needed for beneficial general education settings for students with disabilities. Inclusive education must be the shared responsibilities for planning, instruction, and assessment for all students of general and special educators to make it advantageous, and teachers need to 'buy in' to the school-wide inclusion and collaboration model (Hamilton-Jones & Vail, 2014). Additionally, Pratt, Imbody, Wolf and Patterson (2017) denoted that for inclusion to be successful there has to be collaboration on multiple aspects between special education and general education teachers in the general education classroom. Jortveit and Kovac (2021) findings revealed the complex interactions of factors in collaboration programs in elementary schools, including the level of teacher participation. The inclusive program is designed "to provide a coherent educational program to support students' academic

achievement” (Ketterlin-Geller, Baumer& Lincoln, 2015, p52). For some schools the factors seem more diverse, often rural schools do not have the appropriate resources or teacher training to meet the needs of the students in the inclusive classroom (Johnson, Ohlson, & Shope, 2018).

Administration Roles

Teacher leaders and administrators play a vital role in implementing changes at the school-wide level. This leadership role requires a clear vision and understanding of the many people who are needed to collaborate to reach the mutual goals (Solis, Vaughn, Swanson & McCulley, 2012). Principals who had goals for their schools and were able to articulate those plans and vision were more successful in implementing change in their schools. The principal has to have an understanding of inclusion and collaboration that encompasses the entire school (Sun & Xin, 2020).

Articulation of the goal and vision is just one aspect; additionally, the administration has to have stakeholder involvement. This involvement includes building leadership capacity of teachers; encouraging team learning that is focused on the outcomes, and distribution of leadership responsibilities throughout the school improvement process (Hargreaves & O’Conner, 2018). Another aspect of productive inclusion and collaboration is the structure supported and implemented by the administration. Therefore, support from administrators to arrange collaboration time during the normal workday, provide space and resources, coordinate teamwork, motivate teachers, and promote in-service for staff development is essential for the inclusive program to be successful (Vangrieken, Meredith, Packer & Kyndt, 2017; Hargreaves, 2019). Murawski (2012) included additional factors for the collaborative environment; devoted time free from distraction, and a platform for the teachers and administrators to share the common goals and details of the plans to make the inclusion process a success for all students, with and without disabilities. The administrators are responsible for the organizational factors that facilitate collaboration.

The inclusive classroom and the collaboration process must have shared principles and the commitment of the teaching staff involved for it to be successful (Jortviet & Kovac, 2021). There are multiple aspects to consider when general education and special education teachers are responsible for educating the same group of students in one inclusive classroom. These challenges may be especially difficult with rural schools as they may lack appropriate resources of personnel and financial capital (Johnson, Ohlson & Shope, 2018).

Professional Development

A part of this leadership included recognizing the teachers need for professional development to implement the changes (Svendsen, 2016). The teaching staff, school psychologist, counselors, and the principal all needed to participate in this collaborative relationship in order to support the teacher’s participation (Clandinin, et al 2015). A Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act (U.S. Department of Education, 2010), discussed how important collaboration and professional development are to meet the needs of their schools.

School districts may use funds to develop and implement fair and meaningful teacher and principal evaluation systems, working in collaboration with teachers, principals, and other stakeholders; to foster and provide collaboration and development opportunities in

schools and build instructional teams of teachers, leaders, and other school staff, including paraprofessionals; to support educators in improving their instructional practice through effective, ongoing, job-embedded, professional development that is targeted to student and school needs; and to carry out other activities to improve the effectiveness of teachers, principals, and other school staff, and ensure the equitable distribution of effective teachers and principals.”(p 15)

Professional development takes many forms in different schools and the administration had to make sure the professional development is appropriate to the specific context and culture of their school, especially important in rural schools (Maher & Prescott, 2017).

In order for professional development to be accepted it should be built into the teachers normal work day and it should be on-going, embedded in the school context and focused on content needed for the teachers to support the students in their classrooms (Svendsen, 2020).

Additionally, according to Gaikhorst et al, (2019), high quality professional development should deepen a teachers’ knowledge, should be a part of the collaboration process, part of school reform/improvement, and sustained over time.

The research question addressed for this manuscript: What factors affect administrators and teacher leaders and their successful collaboration programs?

Methods

A qualitative research design allows for investigation of subjects and events within their natural environment (Merriam, 2002). The narratives within the interviews represent the teachers’ views of their professional life (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005). This manuscript is a combination of two qualitative research projects consisting of interviews with specific focus on administrative factors that affected the collaboration process.

Research Protocol

Each research project was approved through the Institutional Review Board of the author’s university. The research project ‘*School-wide inclusion and collaboration; what factors affect success?*’ is referred to as the Turtle School. The research project ‘*School wide Multi-tier System of Support factors that impact the success of collaboration,*’ refers to the Cougar School.

These two larger qualitative research projects consisted of interviews, focus groups, and observations that highlight the process of school improvement by implementing school-wide inclusion and collaboration through the voices of the teachers and administrators involved. Each research project involved teachers, paraprofessionals, and various administration as specific to the school.

Participants and setting

The participants for this manuscript were teaching in two rural elementary schools in the Midwestern part of the US. The Turtle School: The participants for the larger research project were eight general education teachers, two special education teachers, one special education coordinator, two special education instructional assistants, the director of special education, and the principal (15 total) participating in a two-year research project to study the inclusive and collaborative program at their elementary school. The participants for the aspect of this specific

study on administrative factors were one teacher, the special education coordinator for the school district, the principal, and the director of special education. Combined, these four participants had many years of experience in special education and general education and each had a strong positive experience with inclusion and collaboration.

The Turtle School enrolls preschool through grade five and was located in a small community in the Midwest. The elementary school enrolled approximately 625 students each of the two years of the study. The students with mild disabilities comprised approximately 19% of the total school population. The goal of implementing the inclusive and collaborative program was to meet the IEP specifications for children with special education needs while including them in the regular classroom.

The Cougar School: The participants for the larger research project were six general education teachers, one special education teacher, one literacy coach, the school social worker, and the principal (total of 10 participants). This school is much smaller in the number of students than the Turtle School and were implementing a new school-wide inclusion program as part of their MTSS and investing in professional development. The Cougar school had approximately 317 students with 12% of the students with IEPs. The principal, special education teacher, literacy coach, and two general education teachers with the most positive experiences of inclusion and collaboration were part of this data set.

Data sources and analysis

Each research study involved interview questions with individual participants. The interview questions for the Turtle School project are as follows:

- Describe how collaboration works in your school.
- Describe your collaboration planning time.
- What professional development have you participated in this year?
- How is your administration involved with the collaboration process?

The interview questions for the Cougar School project are following:

- Describe how your MTSS program worked this school year.
- Describe your team's collaboration Wednesdays.
- What administrators are involved in the MTSS/Collaboration Wednesday? Their roles?
- What professional development have you participated in this year?

For both schools, the interviews were audio-taped and transcribed into narrative texts. The questions asked during the individual interviews yielded comments about the inclusion program and collaboration practices within the school. Additionally, they discussed administrative aspects of the inclusive program that were successful, and the challenges of the program and the changes made in the inclusive program.

Drawing on Patton's (2002) theme development, the interviews were analyzed for insights into their understanding of program development to advance the successful implementation of inclusion and collaboration. The researcher used member checks as "an opportunity for members (participants) to check (approve) particular aspects of the interpretation of the data they provided" (Carlson, 2010, p 1105) to ensure accuracy of the participants' voices in the narratives

that they shared. The researcher provided the participants with copies of the audio-taped transcription and time to expand or clarify the text to best represent their perspectives. This process further contributed to the research data as it gave participants an opportunity to self-reflect on their experiences and contributions made to the program model. The process of member checking increases the trustworthiness of the data provided by the participants' narratives.

After the information from the data sources were categorized by topics, a content analysis was conducted to extract similar themes and ideas within each participant's interview (Patton, 2002). Triangulation was used to compare the emergent themes from the interview of multiple participants. This triangulation of data sources increased the match between the emergent themes. From this analysis, a picture emerged of the teachers' and administrators' views on how the inclusive program and collaboration were implemented in the school and how the administrators affected the success of collaboration.

Findings/Implications

The researcher used Patton's (2002) theme development across both sets of data in regard to administrator roles and collaboration and success for the inclusive programs. Three themes emerged from data, 1) Individual teachers' benefit of inclusion and collaboration, 2) Administrators provide school-wide vision and structure, and 3). Professional Development needs to be provided at all levels.

Individual teachers benefit from inclusion and collaboration. Individual teachers hold power to structure their classrooms as they feel appropriate, yet they feel limited in their efforts to effect change at the school level.

Fast forward to here, [another teacher] and I both got an overabundance of the LD kids in our rooms, because we didn't mind it and didn't feel put out and was glad to do the accommodations. We split the kids between two regular classrooms, had the LD teacher pretty much full-time. So, we went into our principal at the time, and I told her I would like to try it, and she had faith in the idea right from the start too. So, I have been doing it in my classroom with [another general education teacher] with whoever is assigned for that grade level, at least five years if not six or seven. (Turtle School, 5th grade teacher)

The special education coordinator at the Turtle School concurs with the teacher's remembrance of the events in her grade level. "Now we have done this {inclusion} for fifth graders for many years, I think this is either the fifth or sixth year, so that concept has been here. But not school wide".

At the Cougar School similar feelings are expressed about the success of grade level inclusion and collaboration. But they realize it is limited in scope.

Yes, I think it is working. It has just been nice for me as the new teacher to have those people who have had years of experience and experience in other fields, not just teaching. People like the guidance counselor and the resource teacher, to get ideas that I can

implement in my classroom as well. The veteran teachers have been helpful to me just starting out, to get direction and make sure I am on track. I see it as working with, in my case the other teacher to make plans to make sure we are on the same page as far as curriculum goes, to compare teaching methods. Like maybe she does something that she does that works better than I do or vice versa. To plan activities together, to give each other feedback and ideas.... I look forward to that. And getting to talk to her about what we are doing and what is working for her and for me. I think it helps me to be a better teacher, to teach things differently and to recognize if I am not teaching it well or things I can do better. (Cougar School, 4th grade teacher).

This teacher of fourth graders is very pleased with the collaboration with the other fourth grade teacher.

A first grade Cougar School teacher concurs, and states that collaboration is

“Talking about what is really going on in the classroom. Things that we really need to be changing and doing, issues that we have as teachers. Things that we come up with so I can say things like, ‘here is what I am doing can you help me with this?’ or they can say, ‘you have been here a long time you have all this stuff’, can I borrow this and this?”

These teachers agree that collaboration is sharing and finding out how to do different lessons and activities with all of the students in their classrooms. This veteran teacher with the Cougar School continues the sentiment that collaboration in her group works well but she is aware of other teams that don’t seem to work as well.

I guess there were many times when I think that collaboration worked well for us and our team. I know that some other teachers I have talked about it not working as well. I am always really surprised. We could use twice as much time to collaborate. We use our lunch time and the collaboration time.

She says the collaboration is needed and these teachers use other available time to share ideas. She feels their group could use more time to share ideas that work in the classroom. Even though the concept was implemented in those classrooms, teachers did not have the power or capability to affect the inclusion and collaboration program to a full-school program. The teachers were very supportive of inclusion being school-wide, realizing that they had already done the inclusion and collaboration within their rooms or grade levels.

Administrators provide school-wide vision and structure. The principal has the ability to provide resources and personnel to accommodate new programs or reform of the existing programs. At both schools, the new principals (less than two years) had previous success with inclusion and collaboration and brought in new ideas to be implemented in their schools. In practice, the principals’ positional power made it possible to engage the teachers in an exploration of an inclusion model and collaborating with other teachers. Without the leadership from the position of the principal and teacher leader, the collaborations may have never taken place in either school.

The administration has goals in place and at times to really listen to what the teachers need to make the programs work, evidenced by both principals.

I think it has actually been better. There were some concessions made on the administrative side. Principal and literacy coach came up with a great schedule. I think that the collaboration has worked really well between the literacy coach and me. I think that without us being in here six hours a week, throwing ideas back up, we also go upstairs, and we are able to further get into things and come up with better ideas and bring them back down to the table. I think that has been great. (Cougar School, Special Education Teacher).

The literacy coach for the Cougar school adds that it works well with all of the members involved. "Collaboration is teamwork. I think that we, literacy coach, teachers, principal, should come together to find solutions to problems in the most effective way possible. Everyone should feel free to share their thoughts and ideas."

Additionally, the Cougar School Principal stated, "The survey {of teachers at the school} suggested that the collaboration be in the morning and with the middle and high school students needing supervision of athletes on Wednesday afternoons, they are looking to move that to Wednesday morning for next year".

The teacher leaders and administrators see the big picture regarding how collaboration works within and throughout the whole school. They also see the value in all stakeholders sharing their voice and then the administration implementing as much as possible for the following year. Additionally, they acknowledge that the structure has to be in place for the collaboration to be successful.

For the issue of collaboration time, the principal at the Turtle School describes scheduling of instructional assistants (IA) roles,

One of the changes for instance was the collaboration. So, we restructured the whole morning of IA time for attendance and everything so that teachers are getting thirty minutes of collaboration with their team person. Teachers don't understand how hard it is to suddenly come up with collaboration time; they don't understand what it takes to rearrange IA schedules and whose going to now do this. I knew that if I didn't address their concerns and try to do everything I could to bring alongside the resources then I think some of them would have given up and they wouldn't do another year.

The principal had to adjust many aspects of the school-day schedule to accommodate the collaboration time daily for the teams to maximize the success of the inclusive program. Another factor of importance is to have buy-in for collaboration and inclusion from all stakeholders. In the Turtle School the special education teachers and assistants had presented the plan as their idea, the principal included them at as many levels of decision-making as possible. He recalls

We invited all those teachers to come to a meeting. That there was an option, that I wanted to give to them, that they could opt not to do it. We presented what their numbers would look like, we presented what we knew in our research about it, we presented why we came up with the plan, and to ask them to begin quizzing each other. All of the people that we picked had been team teaching with each other, so it wasn't a new element in that way. It came back that all of them wanted to do it. Not without some questions or some reservations, but because of the literacy program and the support that was given to that big change, I think that they trusted the fact that I would at least give them support.
(Turtle School, Principal)

At the Turtle School the leadership style of the principal, director of special education, and special education coordinator embraced buy-in from all stakeholders involved and offered the motivation to continue to evaluate the program through the multiple levels. At the Turtle School, the special education director saw the leadership qualities of the principal, the special education inclusion coordinator, and the special education teachers as powerful forces and support to enact the inclusive process. She recalls,

There was a lot of buzz, 'how is this going to work?', 'we are afraid'. I'll credit [special education coordinator] probably with calming people's fears and saying, Hey this can work, and also credit our special ed teachers as being people that aren't going to hang on to the way they always did it and are willing to be flexible and say hey maybe this is a good way to look at it, I'll credit [the principal] with making us all look at it.

The administration for both schools listened to the teachers through survey results and conversations, and then enacted a plan to involve all teachers at all grade levels. The administration has to make available the appropriate resources for inclusion and collaboration to be effective. Both school principals used effective leadership skills to include all stakeholders for the success of the collaboration and inclusion. As a result of these skills each school continued with their successful inclusion and collaboration programs after the researcher concluded the data collection.

Professional development provided at all levels. Professional development needs to be continual and pertinent to be effective. As with most school reforms professional development played an important part in the success of the changes for these two inclusive elementary schools. The professional development needs of the teaching staff were revealed as they went through the process together. The director of special education at the Turtle School felt a big need for in-service that included differentiated strategies for use in the inclusive classroom. The director of special education gave this suggestion, "I think there needs to be more staff development on inclusive techniques, differentiated learning. I would like to see more staff inservicing on how we differentiate for pre-K to 12th grade. I'd love to see that implemented more in all classrooms."

The principal at the Turtle School addressed the needs for the teachers in several areas of professional development,

“At the beginning of the year, I sent almost every one of the people involved [in inclusion], to an in- service on team teaching and inclusion. They came back and they did training with the other teachers on what that looked like.” He continued with how the goals were set for the professional development. “We continue to set goals and incorporate professional development. We were very focused on the purpose of each meeting; we defined and clarified that, as well as the role of each person participating. ... That seemed to work out pretty well.” (Turtle School, Principal)

The teachers requested professional development and the principal was able to arrange professional development that was specific to their needs.

At the Turtle School the special education coordinator stated.

I definitely like having the opportunity to coordinate some of this program. I’ve really enjoyed that I have opportunities this year to not only do in-services for the IA’s but also the teachers. I don’t know that I was necessarily excited; sometimes it is scarier to be in front of big people, than the little ones. But I’ve really enjoyed it.

The special education coordinator also contributed to in-service as she professionally develops the instructional assistants and teachers, but the greatest gain is that she professionally develops herself as she prepares and conducts the in-service.

Additionally, the principal models professional development in that he too continues to learn as the process is implemented. He has a great amount of trust and respect for the teachers in his school.

I continue to learn that I can rest on the wisdom and knowledge of the professionals that I have in my building. I have a great team and so I am lucky to sit back and know that the resource is huge right here. Also, for me I have done a lot more with the state level. I have been able to send teachers to gain information to bring back to us. That has been really great because the good thing is everything was here, and they are coming back and agreeing with what we are doing. I think that just that reminder that everyone needs to be fanned as a professional, that even though you are the principal, and you have to make some hard decisions that you are not the person that has all of the knowledge. Truthfully, I think I have learned how much I don’t know.

At the end of year one with the Turtle School, the teachers were requesting more in-service about collaboration and inclusion. The researcher and the special education coordinator developed a university course for the teachers and administrators to enroll in the following school year. The director of special education was enrolled in the course as a role model to her staff but to also enhance her own set of professional skills. She had this to say about the importance of professional development,

Well I’ve grown a lot, and I love this book that we have with the course. I have grown in terms of being able to really see how you can implement it. You can read about it in a book, and in the professional literature, but to actually see it implemented and the whole

meaning of the literacy program, the math program, and the clustering program, we have got the whole gamete. We still have things that we have to grow on, but I have just grown myself in just being able to actually see it being implemented, the practicalities of it. I like the course because we have high school teachers, a middle school principal, and elementary teachers in the course, so we have the mix of ideas and things that go on, so I think that is a wonderful experience.

The Turtle School special education coordinator expresses the benefits of professional development for the participants and the leaders.

I think in planning those professional developments I have had to delve deeper into those topics. So, I felt like in organizing the presentation for the staff that really helped me understand that in a deeper way. It forced me to look at it deeper and be ready for questions. The comprehension strategies have permeated this building. We still have a way to go. But I hear kids using the terminology and making connections. I know that they are in the process of using those.

The Cougar School took a slightly different approach to professional development.

At the beginning of the year the schools in the district did Professional Learning Community (PLC) training using the Dufour's model. So, we all had a clear definition of what a PLC looks like and what they should do. We came up with a format where teachers created their own agendas and took their own minutes. They met 3 times per month at grade level. Then once per month in site-based team. These teams are an off-shoot of our district improvement team. We wanted to empower more people in the process. (Cougar School, Principal)

At the end of year one, the Cougar School Principal planned for the upcoming year for Learning Communities to do more Professional Development for all teachers. "{The literacy coach} is going to do more professional development with these learning communities. She will do more professional development and then part time as interventionist with students." At the Cougar School the special education teacher agrees about PD for all "{Literacy Coach} and I work with the IAs. We taught them comprehension strategies."

Both small schools had limited resources, yet both knew the value of professional development. Even though the schools took slightly different avenues to achieve their goals, both schools continue to have successful professional development programs that meet the needs of teachers and the students in the inclusive classrooms.

Connections to previous literature

This study found teachers share sentiments for willingly collaborating with others. As one teacher said, "You can't collaborate unless someone is willing to collaborate, and you have to let your guard down a little bit. You have to be willing to say, I can't do this all." (Cougar School, 2nd grade teacher). These teachers noted this and shared their thoughts about how collaboration is buy-in for all teachers as noted by Hamilton-Jones and Vail (2014). These teachers concurred that collaboration is not an easy endeavor, but with most teachers and school, the positives outweigh the negatives (Nilsen, 2017). The Cougar School Principal stated

Overall, a pretty positive year. It started off early that people did not want to have the meetings. But it got better.... We will definitely be doing it again next year. We are looking at the schedule and the clearly defined goals for the meetings.

The second theme addressed how the principal and teacher leaders have power to enact collaboration and inclusion school wide. Yet there are several aspects that have to take place to make the school-wide program a success. Hargreaves (2019) contended that the principal has to be the leader, while also working collaboratively with teachers to diagnose the school's challenges and then to bring about a joint solution. The Turtle School did this when they addressed their concerns and then presented them to the whole school. The principals have to arrange the time and place and goals for successful collaboration (i.e. Vangrieken, et al 2017). The Cougar School 2nd grade teacher stated "I like collaboration time because it's a set time that I get to work with the teacher. And you may not get that time if it is not set." This statement from the current research supports the previous findings of Ketterlin-Geller, Baumer, and Lincoln (2015) that says assigned time was needed for collaboration to occur.

A third component presented in this study and supported by previous research was the concept of professional development for the teachers implementing the changes and continuing to develop the program of inclusion. The collaboration literature (i.e. Jortveit & Kovac, 2021) and concurred that professional development is key to designing and implementing the school improvement plan and in the inclusion and collaboration components of the new program (Clandinin, et al, 2015). This study exhibited that the principals provided the teachers and paraprofessional with professional development opportunities to develop the new programs. This idea of professional development supports the teachers involved in the school improvement plans. Both schools used their limited resources to advance their professional development for their faculty including the paraprofessionals (U.S. Department of Education, 2010).

Limitations

A limitation with this current study is that it includes only the voices of the teachers and leaders in two small rural elementary schools in the Midwest. The generalizations to larger schools in more urban or suburban areas or to secondary level buildings may be limited. Another issue is that the administrative factors highlighted in this research was presented by a small number of participants as a subset of questions about inclusion and collaboration. It would be beneficial to focus a research study specifically on the administrative aspects that make inclusion and collaboration successful. Although these two schools in this study were in small rural communities, a focused study incorporating specific factors related to rural school may be beneficial. Finally, there are many variations of leadership that could affect the success of collaboration programs.

Conclusions

Narrative inquiry promotes all voices being heard and the development of professional needs of teachers and administrators in inclusive programs. Politics play a role in education and some teachers think they have no voice and are compelled to teaching in autocratic, highly structured

environments that lead to fragmentation and exclusion rather than collaboration and inclusion. This manuscript shows that administrators and teachers can work collaboratively and creatively to empower themselves through professional inquiry and scholarly approaches to practices that work.

As Hargreaves (2019) summarizes, successful school leadership is designed to empower and engage teachers in the collaborative process. These schools' journey towards inclusion exhibits collaboration at multiple levels and continual professional development and school improvements. As they continue to work together their trust will grow and the teachers and students will benefit.

References

- Brantlinger, E., Jimenez, R., Klingner, J., Pugach, M., & Richardson, V. (2005). Qualitative studies in special education. *Exceptional Children*, 71(2), 195-207.
- Carlson, J.A. (2010). Avoiding traps in member checking. *The Qualitative Report* 15(5). 1102-1113
- Clandinin, D. J., Long, J., Schaefer, L., Downey, C. A., Steeves, P., Pinnegar, E., . . . Wnuk, S.(2015). Early career teacher attrition: Intentions of teachers beginning. *Teaching Education*, 26(1), 1–16. doi:10.1080/10476210.2014.996746
- DaFonte, M.A. & Barton-Arwood, S. M. (2017) Collaboration of general and special education teachers: Perspectives and strategies. *Intervention in School and Clinic*. 53(2), 99-109.
- Gaikhorst, I., März, V., du Pré, R., Geijsel, F (2019). Workplace conditions for successful teacher professional development: School principals' beliefs and practices. *European Journal of Education*. Vol. 54 Issue 4, p605-620. 16p.
- Hamilton-Jones, B. M. & Vail C. O. (2014). Preparing special educators for collaboration in the classroom: Pre-service teachers' beliefs and perspectives. *International Journal of Special Education*, 29,76-86.
- Hargreaves, A. (2019). Teacher Collaboration: 30 years of research on its nature, limitations, and effects. *Teachers and Teaching*. 25(5), 603-621
- Hargreaves, A., & O'Connor, M. T. (2018). Solidarity with solidarity: The case for collaborative professionalism. *Phi Delta Kappan*, 100(1), 20–24
- Johnson, J., Ohlson, M., & Shope, S. (2018). Dramatic changes in rural America and the implications for special education programming: A descriptive and comparative analysis. *Rural Special Education Quarterly*, 37(3), 140-149.
- Jortveit, M. & Kovač, V. (2021) Co-teaching that works: special and general educators' perspectives on collaboration, *Teaching Education*, DOI:0.1080/10476210.2021.1895105
- Ketterlin-Geller, L. R., Baumer, P. & Lincoln, K. L. (2015) Administrators as advocates for teachers' collaboration. *Intervention in School and Clinics*. 51(1), 51-57.
- Maher, D. & Prescott, A (2017) Professional development for rural and remote teachers using video conferencing. *Asia-Pacific Journal of Teacher Education*. VOL. 45, NO. 5, 520–538. <https://doi.org/10.1080/1359866X.2017.1296930>
- Merriam, S. B. (2002). *Qualitative research in practice: examples for discussion and analysis*. The Jossey-Bass higher and adult education series. San Francisco: Jossey-Bass
- Murawski, W.W. (2012). 10 tips for using co-planning time more efficiently. *Teaching Exceptional Children*. 44(4), 8-15

- Nilsen, S. (2017) Special education and general education – coordinated or separated? A study of curriculum planning for pupils with special educational needs. *International Journal of Inclusive Education*. 21(2), p205-217. 13p.
- Patton, M.Q. (2002). *Qualitative evaluation and research methods*. Newberry Park, CA: Sage
- Pratt, S., Imbody, S., Wolf, L., & Patterson, A (2017) Co-planning in Co-teaching: A Practical Solution. *Intervention in School & Clinic*. 52 (4), p243-249. 7p.
- Solis, M., Vaughn, S., Swanson, E.& Mcculley, L. (2012) Collaborative models of instruction: The empirical foundations of inclusion and co-teaching. *Psychology in the Schools*. Vol. 49 Issue 5, p498-510. 13p.
- Sun, A. & Xin, J. (2020). School principals' opinions about special education services. *Preventing School Failure: Alternative Education for Children and Youth* VOL. 64, NO. 2, 106–115 <https://doi.org/10.1080/1045988X.2019.1681354>
- Svendsen B. (2016) Teachers' experience from a school-based collaborative teacher professional development programme: reported impact on professional development. *Teacher Development* 20(3), p313-328, 16p
- Svendsen B. (2020). Inquiries into Teacher Professional Development- What Matters? *Education*. Vol. 140 Issue 3, p111-130. 20p.
- U.S. Department of Education (March 2010). *A Blueprint for reform: The reauthorization of elementary and secondary education act*. Washington, DC
- Vangrieken, K., Meredith, C., Packer, T., & Kyndt, E. (2017). Teacher communities as a context for professional development: A systematic review. *Teaching and Teacher Education*, 61, 47-59.

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Enhancing Conversational Skills among College Students with Intellectual Disabilities within Naturalistic Settings

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Abstract

The present study utilized a multiple baseline across participants design and targeted a crucial component of social interaction, conversational skills, through implementation of the teaching interactions procedure with college students with intellectual disabilities within naturalistic settings. For each participant, the mean frequency of both elaborating on responses and asking questions during conversations with peers increased during the intervention phase. Among all three participants, increases in mean frequency related to both elaborating on responses and asking questions during conversations with peers were also observed during generalization probes within campus dining halls. Results suggest that utilizing the teaching interactions procedure within naturalistic settings can enhance the development and generalization of conversational skills among young adults with intellectual disabilities. Implications for practice and future research are discussed.

Keywords: college, university, social skills, intellectual disability, conversational skills

Enhancing Conversational Skills among College Students with Intellectual Disabilities within Naturalistic Settings

The Higher Education Opportunity Act of 2008 (HEOA, 2008) has rapidly increased postsecondary educational opportunities for students with intellectual disabilities (ID). Federal funding available through HEOA (2008) has supported students with ID with continuing their education, pursuing postsecondary employment goals, and having the same “college experiences” as their typically developing peers (Carter et al., 2019; Gilson et al., 2020). Results associated with the completion of postsecondary educational programs among students with ID suggests that these experiences contribute to obtaining competitive employment opportunities within their local communities, as well as building and maintaining the social relationships with peers that contribute to a higher quality of life among young adults with and without diagnosed disabilities (Butler et al., 2016; Moore & Schelling, 2015).

Despite enhanced access to postsecondary education programs, students with ID continue to experience unemployment at a rate higher than their typically developing peers, as well as students eligible for special education services under IDEA through any other eligibility category (Butler et al., 2016; Siperstein et al., 2013). While a myriad of factors undoubtedly contributes to this discrepancy, the relationship between social skill competence and employment among individuals with ID warrants further investigation. Social skill deficits among individuals with ID become increasingly apparent as this population of students transition to adolescence and young adulthood. During these stages in life, individuals are expected to initiate and maintain interactions with peers independent of service provider mediation, as well as interact with a larger number of peers across a diverse array of social contexts and situations within school, community, and employment settings (Alwell & Cobb, 2009; Hall, 2017; Lyons et al., 2016).

In light of these changing social expectations, social skill deficits that interfere with peer interactions can adversely impact the quality of inclusive opportunities within school, community, and employment settings among adolescents and young adults with ID (Hall, 2017; Hughes et al., 2011). Current research suggests a relationship between social skill competence and opportunities to obtain employment, progress toward specific employment goals, and initiate and maintain friendships with co-workers (Hall, 2017; Park et al., 2020; Phillips et al., 2014). Since postsecondary employment is a common goal among students with ID and postsecondary education is now a common prerequisite to employment opportunities (Butler et al., 2016), it is clear that additional research should investigate strategies for addressing social skills necessary for facilitating the postsecondary goals of this population of students within college and university settings.

Social Skill Instruction and the Teaching Interactions Procedure

A common approach to teaching social skills rooted in applied behavior analysis (ABA) is referred to as the teaching interactions procedure. When using the teaching interactions procedure, educators begin by introducing the skill targeted for instruction and emphasizing the importance of addressing this skill for the learner (Hui Shyuan Ng et al., 2016). Specifically, these steps involve selecting socially significant behaviors to target during instruction, as well as enhancing curricular relevancy for learners by emphasizing how the social skills targeted for instruction will allow individuals to access reinforcement during social situations. After breaking complex social skills into smaller, more manageable sub-skills to target during instruction, teachers model both examples and non-examples of targeted social skills. This allows students to discriminate between appropriate and inappropriate versions of specific social skills, as well as when and where displaying specific social skills is considered socially appropriate (Hui Shyuan Ng et al., 2016). Once students have had opportunities to observe what the targeted social skills look like, as well as discriminate between contextual factors that determine whether or not these social skills will be reinforced within particular social situations, students are provided with multiple opportunities to engage in targeted social skills through role-play sessions (Gutman et al., 2012). These role-play sessions allow students to come into contact with naturally occurring reinforcement through social attention from both peers and adults within the school setting. Finally, students are provided feedback that involves praising socially acceptable aspects of social skills and highlighting areas for improvement (Hui Shyuan Ng et al., 2016).

Researchers have documented using the teaching interactions procedure to facilitate a variety of social skills among individuals with disabilities for over forty years (Minkin et al., 1976; Phillips et al., 1971). Recently, Peters et al. (2016) implemented the teaching interactions procedure within a school setting with four elementary-aged students with autism spectrum disorder (ASD) in an effort to enhance self-advocacy, play, and conversational skills including asking for help, joining activities with peers, and transitioning from one peer activity to another. Participants both acquired targeted social skills through implementation of the teaching interactions procedure and maintained skill acquisition over time. Kassardjian et al. (2013) and Hui Shyuan Ng et al. (2016) utilized adapted versions of the teaching interactions procedure with the intent to design customized intervention plans tailored to meet the needs of their participants. Specifically, Kassardjian et al. (2013) utilized a flexibly implemented version of the teaching interactions procedure to facilitate social skill instruction among children (ages four to 13) with ASD within naturalistic settings including places within participants' local communities, as well as playdates with peers not mediated by the researchers of the study. Each participant in the study acquired social skills related to initiating and maintaining conversations with peers, as well as generalized these skills to naturalistic settings. Hui Shyuan Ng et al. (2016) utilized an adapted version of the teaching interactions procedure to facilitate social skill development among four children and adolescents with ASD and ID. Through this procedure, three out of four students made significant progress toward social skills selected in accordance with their social skill needs related to conversational skills, classroom etiquette, and assisting peers in the classroom setting. Notably, newly acquired social skills maintained over time and generalized across school settings.

Although current research highlights the benefits of utilizing the teaching interactions procedure to support students with disabilities with acquiring and maintaining a variety of different social skills, two important areas warrant further investigation. First, current research has investigated using the teaching interactions procedure to facilitate social skills among children with ASD (see Dotson et al., 2010; Kassardjian et al., 2013; Leaf et al., 2009; Peters et al., 2016); meanwhile, minimal research has investigated using the teaching interactions procedure to teach social skills to adolescents and young adults with ID. Second, current research emphasizes the need to further investigate the effectiveness of the teaching interactions procedure when promoting social skill generalization (Hui Shyuan Ng et al., 2016; Kassardjian et al., 2013; Leaf et al., 2009; Peters et al., 2016). Individuals with ID often experience difficulties generalizing learned skills to novel situations and, since social skill generalization is not an inherent component of social skill instruction, educators who work with adolescents and young adults with ID must carefully plan for fostering skill generalization from instructional settings to real-life contexts and situations (Smith et al., 2016). In other words, while targeted social skill instruction is undoubtedly a crucial component of instruction for individuals with ID, this type of instruction should be the first step of a comprehensive plan to teach, practice, discriminate among, and generalize across practical, every day settings and situations. Given the importance of this topic, there is a need to better understand how utilizing the teaching interactions procedure facilitates social skill generalization, specifically to naturalistic settings adolescents and young adults frequently encounter during their daily lives.

The purpose of this study was to investigate the effectiveness of utilizing the teaching interactions procedure within naturalistic settings located within university contexts to facilitate

the conversational skills of college students with ID. Instruction related to specific target behaviors such as elaborating on responses and asking questions during conversations with peers was provided within campus and community settings participants encountered on a daily basis. Following the intervention phase of this research study, generalization probes were conducted within campus dining halls to assess whether or not participant conversational skills acquired during the intervention phase of this research study generalized to non-instructional settings participants encountered on a daily basis. In keeping with the purpose of this study, the following research question guided this study:

Research Question 1: What is the effect of implementing the teaching interactions procedure within naturalistic settings on elaborated responses and questions asked during conversations with peers among college students with intellectual disabilities?

Method

Participants

Participants included three university students who attended a four-year university postsecondary program designed for students with disabilities. Prior to turning 21 years of age, these participants met and received special education services within the purview of the Individuals with Disabilities Education Act (IDEA) inclusionary eligibility requirements under the eligibility category of Intellectual Disability (ID). These eligibility criteria included: (a) significantly sub-average general intellectual functioning; (b) deficits in adaptive behavior; and (c) adversely affected educational performance as a result of (a) and (b) as outlined in IDEA (IDEA 34 CFR § 300.8(c)(6)). In addition to the criteria above, participants met the following inclusionary criteria for the study: (a) 18 years of age or older, (b) emancipated (students who had not transferred their guardianship), and (c) enrolled in a postsecondary university program.

Judy, a female participant, was 21 years old at the time of the study. Judy was diagnosed with ID and cerebral palsy. Prior to enrolling in a postsecondary university program, Judy had participated in a postsecondary transition program, worked part-time, and taken college courses through a community college. Doug, a male participant, was 20 years old at the time of this study. Doug was diagnosed with ID and ASD. Prior to enrolling in a postsecondary university program, Doug worked part-time and volunteered within his local community. Roger, a male participant, was 28 years old at the time of this study. Roger was diagnosed with ID and Fragile X Syndrome. Prior to enrolling in a postsecondary university program, Roger worked part-time within his local community. During the baseline phase of this research study, one student had to withdraw for personal reasons and ultimately withdrew from the university. As a result, this individual was not able to progress through intervention and generalization phases of the study and data for this participant are not reported.

Setting

This research study took place at a university in the United States that included a postsecondary university program for students with disabilities. Specific settings included within this research study were grouped as follows: instructional settings, data collection setting, and generalization probe settings.

Instructional setting. The instructional setting included campus and community settings where social skill instruction was provided to participants. These campus and community settings were selected based on individual participant recreational interests, as well as settings participants encountered on a daily basis at the time of this study. Instructional settings included a campus academic building where each participant took classes, a pizza restaurant popular among university students, and a popular coffee shop located within a few blocks of campus.

Data collection setting: Coffee talk. The data collection setting included a morning coffee gathering, hereafter referred to as “Coffee Talk,” with the study participants and non-participants (described later) whereby they could obtain coffee and breakfast pastries for a 45-minute period Mondays, Wednesdays, and Fridays from 8:30 a.m. to 9:15 a.m. throughout the academic semester during the research study timeline. “Coffee Talk” was advertised through listserv distribution emails to undergraduate and graduate students attending the same university as participants, social media postings, and signs posted throughout the academic building on campus where “Coffee Talk” events were held. “Coffee Talk” was open to all undergraduate and graduate students attending the same university as the participants, with the intent to promote social interaction among students on campus. “Coffee Talk” events provided free coffee, hot chocolate, bagels, and muffins to attendees. Typically, approximately 20-30 students attended “Coffee Talk” events.

Generalization probe settings. Generalization probe settings were campus dining halls in the university at which participants were enrolled. These settings were selected for generalization probes because they provided ample opportunities for participants to interact with other students and because each participant encountered campus dining halls on a daily basis. As a result, they were determined to be relevant settings in which to measure the generalization of skills taught in the instructional settings.

Materials

The curricula used to provide instruction to participants included *Conversational Skills: On the Job and in the Community* and *Conversational Skills II: Extending Conversations*. Attainment Company published both curricula. Curricula were selected based on their emphasis on naturalistic social settings, as well as their emphasis on meeting the needs of young adults with ID. Topics for instructional sessions included: (a) elaborating upon responses during conversations with peers; (b) asking questions during conversations with peers; (c) introducing oneself to peers; (d) greeting peers; (e) initiating conversations with peers; and (f) active listening strategies related to facial expressions, body language, and expansive questions related to peer responses. During instructional sessions, the topics above were spiraled to ensure each topic was addressed repeatedly during the intervention phase of this research study.

Dependent Measures

The dependent variables included: (a) elaborating on responses during conversations with peers; and (b) asking questions during conversations with peers. These dependent variables were also used in a study conducted by Koegel et al. (2014) that investigated conversational skills among children and adolescents with ASD. Each dependent variable is described in detail below.

Elaborating on responses during conversations with peers. Defined as a verbalization that followed a verbalization of a conversational partner and consisted of two components. The first component was that the response answered the question being asked and, as a result, was relevant to the conversation between the participant and each one's peer. The second component was that the response moved beyond merely answering the question by including relevant, on-topic information related to the conversation. Within this study, data related to the frequency of elaborated responses during conversations with peers were collected throughout the 15-minute observation period. See Table 1 for examples and non-examples of elaborated responses.

Table 1
Examples and Non-Examples of Elaborated Responses

Question Asked by Peer	Non-Example of an Elaborated Response	Example of an Elaborated Response
What do you like best about college?	The recreation center.	The recreation center. There is always somebody new to talk to.
What is your favorite class this semester?	Geography.	Geography. It is cool to learn more about different places I want to visit.
What did you do over the weekend?	Visited with friends.	Visited with friends. My friend Jill had a birthday party at her house.

Asking questions during conversations with peers. Defined as an interrogative verbalization that evoked a verbalization from a conversational partner. If participants asked questions to their peers and their peers did not respond, we considered that their peers either did not hear the questions being asked or did not know questions were addressed to them specifically. Within this study, data related to the frequency of asking questions during conversations with peers were collected throughout the 15-minute observation period.

Experimental Design

A single-subject, multiple baseline across participants experimental design was selected for this research study. Multiple baseline designs are commonly used in single-subject literature pertaining to teaching social skills to students with disabilities (Gengoux, 2015; Koegel et al., 2012). A benefit of multiple baseline research across participants designs is that they do not rely on a reversal phase to demonstrate experimental control. Instead of including a reversal phase to quantify the effect of the independent variable, the participants in multiple baseline designs progress through baseline and intervention phases at different times through the implementation of staggered baseline phases (Horner et al., 2005). This approach accounts for factors such as history and maturation that could threaten the internal validity of a research study. In a multiple baseline design, experimental control is established when an intervention results in an anticipated change in behavior across participants only when the intervention is introduced to a participant following the baseline phase (Horner et al., 2005).

Procedure

Baseline phase. During the baseline phase of this research study, participants were observed during approximately three, 15-minute sessions each week during “Coffee Talk.” During these observations, frequency data were collected related to participants (a) elaborating on responses during conversations with peers and (b) asking questions during conversations with peers. The baseline phase for each participant continued until the participant had at least five data points within their baseline phase and the participant’s baseline was characterized as stable, meaning there was no noticeable trend in the data and only minimal variability among data points (Kazdin, 1978), based on visual inspection.

Data were collected electronically through Counter, a cellular phone application created by DaisyApps. Collecting data electronically using cellular phones allowed data collectors to assimilate into data collection settings. Undergraduate and graduate students enrolled at the same university as participants within this research study collected data. Prior to collecting data as part of this research study, data collectors received instruction pertaining to the data collection methods used in this research study and opportunities to practice data collection methods used in this research study. Data collection instruction consisted of a presentation made by the researcher that included definitions of dependent variables, examples and non-examples of each dependent variable, a tutorial on how to download, set-up, and utilize the data collection app, and videos of conversations during which they could practice collecting data as part of this research study. During practice opportunities, data collectors collected data during “Coffee Talk” events using the same methods as used in baseline, intervention, and generalization phases. Data collectors participated in at least three of these sessions and, in accordance with recommendations for single-subject research, each data collector was required to achieve at least a total Interrater Observer Agreement (IOA) of 80% prior to collecting data as part of this research study, described later (Kratochwill et al., 2010).

During all data collection sessions, data collectors sat in close proximity to participants, however, they did not actively engage in conversations with participants during data collection sessions. In order to assimilate into data collection settings without actively participating in conversations, data collectors (a) sat next to participants approximately five minutes prior to the beginning of data collection sessions, (b) conversed with participants prior to the beginning of data collection sessions, and (c) at the beginning of data collection sessions, participants took out electronic devices and appeared to be either texting on their cellular phones or completing school assignments on their laptops as they collected data. If participants attempted to engage data collectors in conversations during data collection sessions, data collectors redirected conversations to peers in close proximity to participants. This allowed data collectors to separate themselves from participant conversations in a socially acceptable manner. While participants knew their frequencies of both elaborated responses and questions asked were being collected as part of this study, they were unaware of who was collecting data and when data was being collected during “Coffee Talk.”

Intervention phase. Similar to the baseline phase, participants were observed during approximately three, 15-minute sessions each week while attending “Coffee Talk” during the intervention phase. During these observations, the frequency of both elaborated responses and

questions asked continued to be collected. During the intervention phase, participants engaged in one 90-minute session each week during which the teaching interactions procedure was used to facilitate social skill instruction within naturalistic settings. In order to maximize instructional relevance and engagement, participants selected the naturalistic setting in which instruction was provided. In accordance with the teaching interactions procedure, each instructional session consisted of six components. First, the researcher introduced the social skill targeted for instruction. This consisted of a general definition of the social skill, as well as specific examples of what the social skill could look like in social contexts participants frequently encountered at the time of this study (classrooms, dining halls, restaurants, coffee shops, etc.). Second, the researcher emphasized how the social skill targeted for instruction would allow participants to access reinforcement during social situations. This involved brainstorming social interaction goals with students (i.e., establishing friendships, attending extracurricular activities, joining university clubs and organizations, etc.), as well as how engaging in social skills targeted for instruction could facilitate student progress toward their social interaction goals. Third, the researcher and participants discussed specific opportunities for participants to engage in the targeted skill during social situations. This step required participants to develop action plans for engaging in targeted social skills in accordance with their social interaction goals between the time of the current instructional session and the next scheduled instructional session. Fourth, the researcher and participants modeled examples and non-examples of the targeted social skill. This involved the researcher and participants engaging in both intended and unintended displays of the target behavior, as well as reflecting on whether or not each behavior displayed was likely to result in reinforcement. Fifth, the researcher provided multiple opportunities for participants to engage in targeted social skills through role-play sessions. This step involved participants engaging in intended versions of targeted social skills while interacting with the researcher, as well as other individuals within the naturalistic setting selected for instruction (students, store employees, etc.). Sixth, the researcher provided performance feedback to participants. This step involved praising socially acceptable aspects of social skills, as well as highlighting areas for improvement. While each participant progressed through the intervention phase at different rates, the intervention phase for each participant was characterized by at least two, 90-minute instructional sessions, and at least five data points within their intervention phases. Please refer to Table 2 for an example of an outline used to guide instructional sessions.

Table 2

Example Outline of the Teaching Interactions Procedure Utilized During Instructional Sessions

Steps of the Teaching Interactions Procedure	Corresponding Components of Instructional Sessions (Elaborating on Responses)
Step #1: Introduce the skill targeted for instruction.	Broadly define 'elaborating on responses' as responses that (a) answer a question asked by a conversational and (b) include additional information that is likely to extend the conversation. Potential applications for this skill include conversations in campus dining halls and while walking with peers to and from class.
Step #2: Emphasize how the skill targeted for instruction will allow participants to access	Based on participant social interaction goal related to talking about football with his roommate, emphasize how

reinforcement during social situations.

elaborating on responses could lead to longer and more frequent conversations on this topic.

Step #3: Discuss specific opportunities for participants to engage in the targeted skill during social situations.

Identify Sunday afternoons, Monday evenings, and Thursday evenings (days and times when football games are typically played) as especially relevant opportunities to elaborate on responses during conversations related to football within campus dining halls and residence hall lounges.

Step #4: Model examples and non-examples of the targeted skill.

Potential examples include the following: Explaining why you support your favorite team and providing evidence to support your Super Bowl prediction. Potential non-examples include stating your favorite football team without explaining why you support this team and stating your Super Bowl prediction without explaining your rationale.

Step #5: Provide multiple opportunities for participants to engage in targeted skills through role-play sessions.

While watching a football game at a popular pizza location among students located near campus, participant (a) engages in conversations with fellow students and restaurant employees; and (b) elaborates on responses related to football during these conversations.

Step #6: Provide performance feedback that involves praising socially acceptable aspects of targeted skills, as well as highlighting areas for improvement.

Discuss specific successes related to elaborate responses (responses that extended conversations with peers), as well as opportunities for improvement (responses that did not extend conversations with peers).

Generalization phase. Generalization probe sessions were conducted to investigate the participants' abilities to apply newly acquired conversational skills within practical, everyday contexts and situations. Generalization probes were conducted in campus dining halls. Data collected during generalization probe sessions adhered to the same procedures used during baseline and intervention phases. Each participant participated in at least three, 15-minute observation sessions during the generalization phase of this research study.

Interobserver Agreement (IOA)

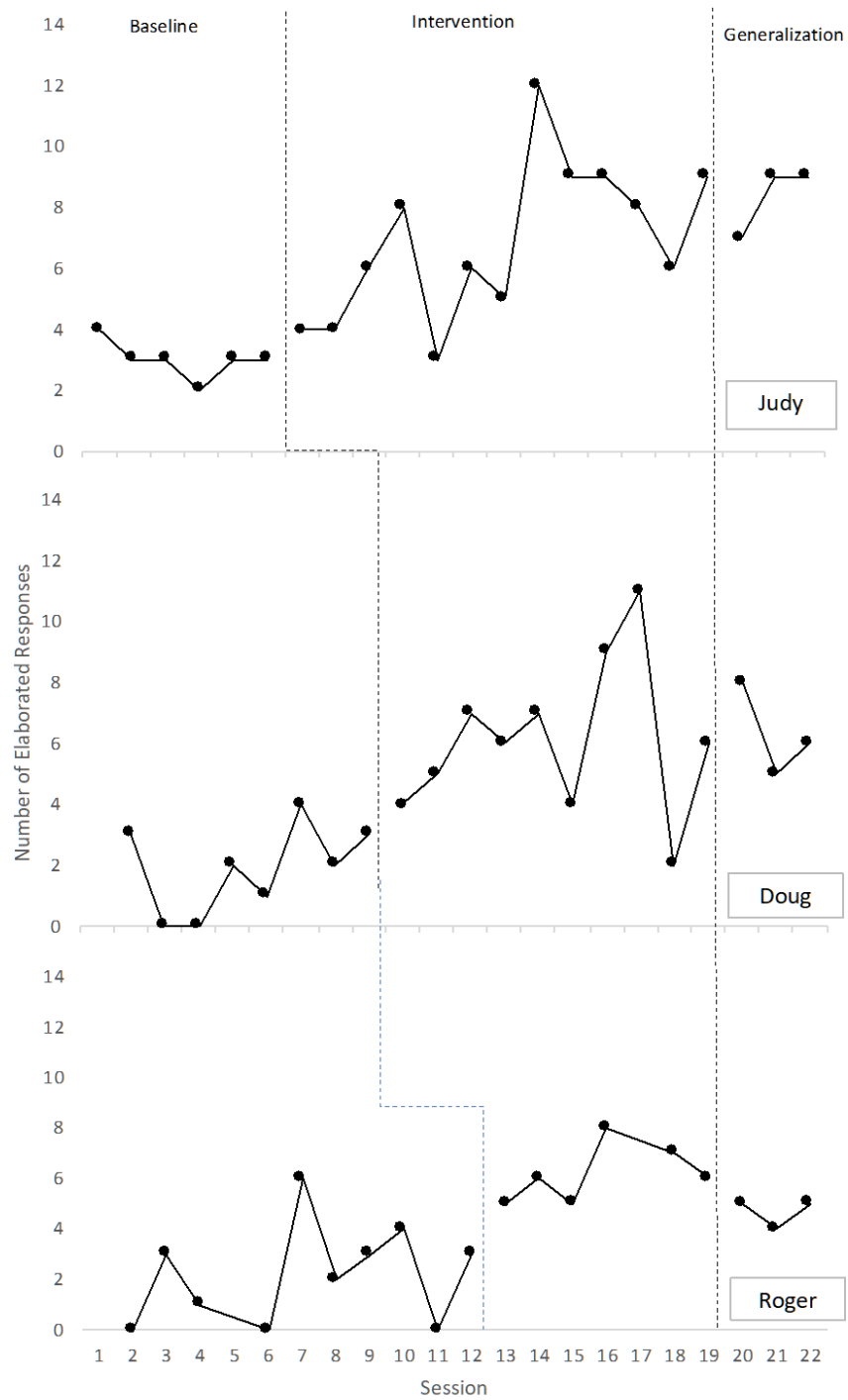
In accordance with recommendations for single-subject research, IOA data were collected during at least 25% of observation sessions with the goal of achieving at least an 80% criterion related to total IOA for this research study (Kratochwill et al., 2010). A total count IOA was used to quantify agreement between student data collectors and the researcher during these sessions of both elaborated responses and questions asked during conversations with peers. Inter-observer agreement was calculated on 24 out of 79 participant observation sessions (approximately 30% of all participant observation sessions). IOA related to elaborated responses was approximately 87.04%, and IOA related to asking questions was approximately 91.23%.

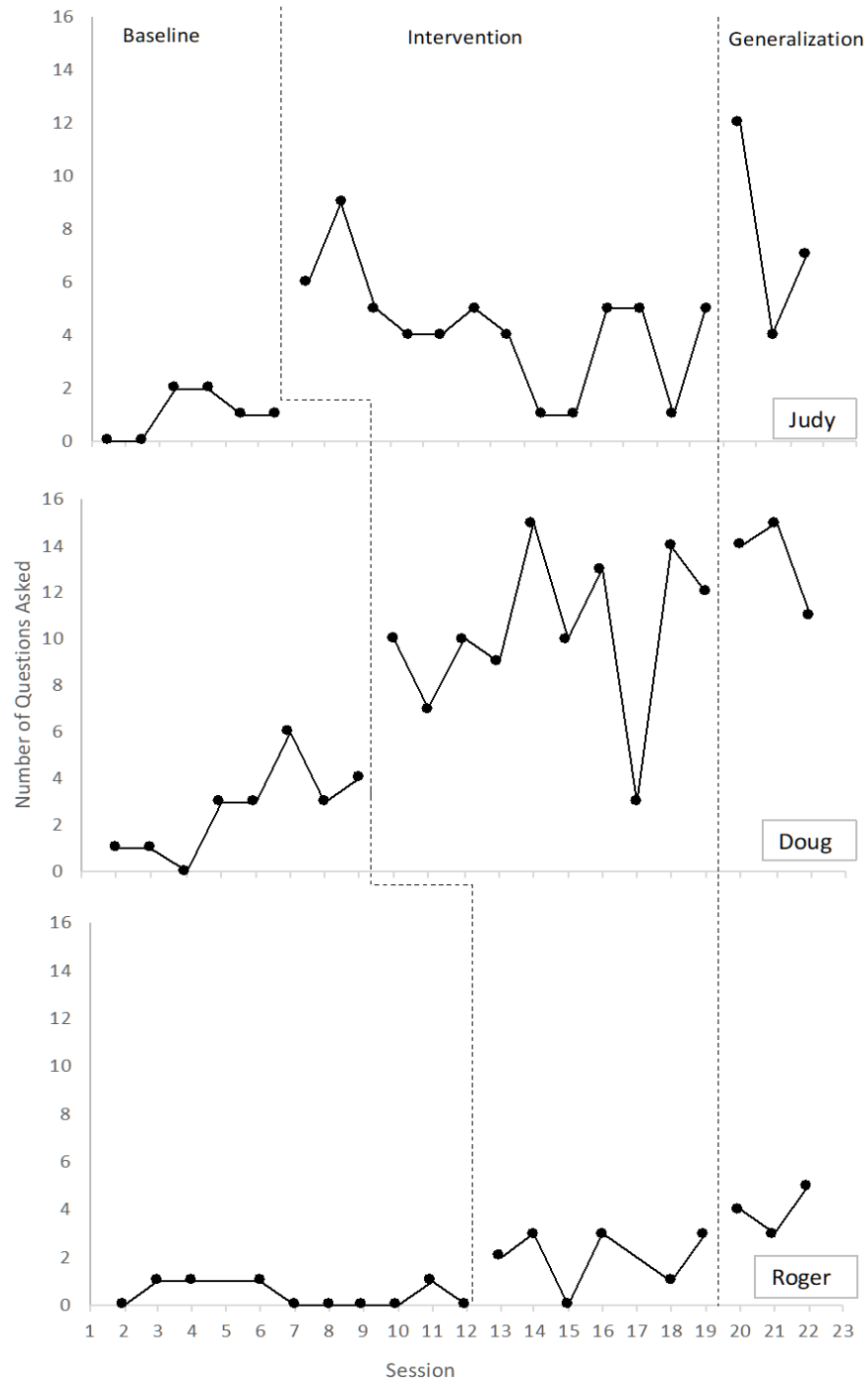
Social Validity

Throughout the course of this study, participants met approximately two times each week for 15-minute check-ins to reflect on progress, voice questions or concerns with skill application, and update social interaction goals with the researcher. During these check-ins, participants were asked yes/no questions that included (a) Are the social goals we are working towards meaningful to you? (b) Are the instructional sessions helping you work toward your goals? and (c) Are the settings in which we are completing our lessons similar to the settings you plan to use these skills outside of our instructional sessions? This information was used to assess participant perceptions of the relevancy of social skills targeted for instruction, as well as the similarity between instructional settings and social settings participants encountered at the time of the study.

Results

Using multiple baseline research design, data pertaining to each participant within this research study were analyzed separately. Descriptive statistics related to the mean frequency of both elaborated responses and questions asked is provided. In addition, the percentage of nonoverlapping data points (PND) related to both elaborated responses and questions asked was analyzed. Percentage of nonoverlapping data refers to the percentage of data points during the intervention phase that exceeded all data points from the baseline phase. In order to evaluate intervention effectiveness, this study used the following PND criteria in accordance with a meta-analysis of single-subject research conducted by Scruggs and Mastropieri (1998): Less than 50% = Ineffective, 50-69% = Questionable Effectiveness, 70-89% = Effective, 90-100% = Very Effective. Figures 1 and 2 display the results for the three participants who progressed through baseline, intervention, and generalization phases of this research study.





Judy

While Judy elaborated on responses with a mean frequency of 3.0 elaborated responses per data collection session and with a range of two to four elaborated responses during her baseline phase, results increased to a mean frequency of 6.85 elaborated responses per data collection session with a range of three to 12 elaborated responses during the intervention phase. This demonstrates a total increase in mean frequency of 3.85 elaborated responses per data collection session. An analysis of PND demonstrates that the intervention was effective (PND = 77%; Scruggs & Mastropieri, 1998). An increase in results is also evident related to Judy asking questions during conversations with peers. Judy asked questions with a mean frequency of 1.0 questions asked per data collection session with a range of zero to two questions asked during her baseline phase. Results increased to a mean frequency of 4.23 questions asked per data collection session with a range of one to nine questions asked during her intervention phase. This demonstrates a total increase in mean frequency of 3.23 questions asked per data collection session. An analysis of PND demonstrates that the intervention was effective (PND = 77%; (Scruggs & Mastropieri, 1998). During the generalization phase, Judy's mean frequency of elaborating on responses and asking questions to peers increased when compared to her intervention phase. During these sessions, Judy elaborated on responses during conversations with peers with a mean frequency of 8.33 elaborated responses per data collection session. This represents a total increase in mean frequency of 1.48 elaborated responses per data collection session compared to her intervention phase and 5.33 elaborated responses per data collection session compared to her baseline phase. During her generalization phase, Judy asked questions to peers during conversations with a mean frequency of 7.67 questions asked per data collection session. This represents a total increase in mean frequency of 3.44 questions asked per data collection session to her intervention phase and 6.67 questions asked per data collection session compared to her baseline phase.

Doug

Doug elaborated on responses with a mean frequency of 1.88 elaborated responses per data collection session and with a range of zero to four elaborated responses during his baseline phase. Results increased to a mean frequency of 6.10 elaborated responses per data collection session with a range of two to 11 elaborated responses during his intervention phase. This demonstrates a total increase in mean frequency of 4.22 elaborated responses per data collection session. An analysis of PND demonstrates that the intervention was effective (PND = 70%; Scruggs & Mastropieri, 1998). Doug asked questions during conversations with peers more frequently during his intervention phase compared to his baseline phase. While Doug asked questions with a mean frequency of 2.63 questions asked per data collection session and with a range of zero to six questions asked during his baseline phase, results increased to a mean frequency of 10.40 questions asked per data collection session with a range of three to 15 questions asked during his intervention phase. This demonstrates a total increase in mean frequency of 7.77 questions asked per data collection session. An analysis of PND demonstrates that the intervention was very effective (PND = 90%; Scruggs & Mastropieri, 1998). During the generalization phase, Doug's mean frequency of elaborating on responses and asking questions to peers increased when compared to his intervention phase. During these sessions, Doug elaborated on responses during conversations with peers with a mean frequency of 6.33 elaborated responses per data collection session. This represents a total increase in mean frequency of 0.23 elaborated responses per data collection session compared to his intervention phase and 4.45 elaborated responses per data collection session compared to his baseline phase.

During his generalization phase, Doug asked questions to peers during conversations with a mean frequency of 13.33 questions asked per data collection session. This represents a total increase in mean frequency of 2.93 questions asked per data collection session compared to his intervention phase and 10.70 questions asked per data collection session compared to his baseline phase.

Roger

Roger elaborated on responses with a mean frequency of 2.20 elaborated responses per data collection session and with a range of zero to six elaborated responses during his baseline phase. Results increased to a mean frequency of 6.17 elaborated responses per data collection session with a range of five to eight elaborated responses during his intervention phase. This demonstrated a total increase in mean frequency of 3.97 elaborated responses per data collection session. An analysis of PND demonstrated that the intervention was ineffective (PND = 33%; Scruggs & Mastropieri, 1998). An increase in results is also evident related to Roger asking questions during conversations with peers. While Roger asked questions with a mean frequency of 0.40 questions asked per data collection session and with a range of zero to one question asked during his baseline phase, results increased to a mean frequency of 2.0 questions asked per data collection session with a range of zero to three questions asked during his intervention phase. This demonstrated a total increase in mean frequency of 1.60 questions asked per data collection session. An analysis of PND demonstrated that the intervention had questionable effectiveness (PND = 67%; Scruggs & Mastropieri, 1998). While Roger's mean frequency of elaborated responses decreased during his generalization phase when compared to his intervention phase, his mean frequency of elaborated responses increased when compared to his baseline phase. During generalization sessions, Roger elaborated on responses during conversations with peers with a mean frequency of 4.67 elaborated responses per data collection session. This represents a total decrease in mean frequency of 1.50 elaborated responses per data collection session compared to his intervention phase and a total increase in mean frequency of 2.47 elaborated responses per data collection session compared to his baseline phase. During the generalization phase, Roger's mean frequency of asking questions to peers increased when compared to his intervention phase. During his generalization phase, Roger asked questions to peers during conversations with a mean frequency of 4.0 questions asked per data collection session. This represents a total increase in mean frequency of 2.0 questions asked per data collection session compared to his intervention phase and 3.60 questions asked per data collection session compared to his baseline phase.

Summary of Results

For each participant, mean frequencies of both elaborated responses and questions asked increased during the intervention when compared to the baseline phase. Mean frequency increases of elaborated responses ranged from 3.85 elaborated responses to 4.22 elaborated responses per data collection session among participants. Mean frequency increases of questions asked ranged from 1.60 questions asked to 7.77 questions asked per data collection session among participants. An analysis of PND demonstrated that the intervention used within this research study effectively or very effectively enhanced conversational skills related to elaborating on responses and asking questions for two of the three participants within this research study. During the generalization phase, each participant demonstrated an increase in the mean frequency of elaborated responses compared to their baseline phases. Two of the

participants, Judy and Doug, even increased their mean frequency of elaborated responses during their generalization phases compared to their intervention phases. During the generalization phase, each participant demonstrated an increase in mean frequency of questions asked when compared to both their baseline and intervention phases.

Discussion

This study was developed and implemented with the intent to examine the effectiveness of utilizing the teaching interactions procedure within naturalistic settings on conversational skills related to elaborating on responses and asking questions during conversations with peers among college students with ID. Within this study, utilizing the teaching interactions procedure within naturalistic settings supported participants' both enhancing conversational skills related to elaborating on responses and asking questions, as well as generalizing these skills across settings participants frequently encountered during their daily lives at the time of this study. These findings support previous research findings that the teaching interactions procedure can be used to facilitate social skill acquisition among students with ID (Hui Shyuan Ng et al., 2016), as well as adapted for use within naturalistic settings (Kassardjian et al., 2013).

To a certain extent, whether or not participants conversed with peers during their baseline phases depended on whether they were asked questions by their peers, as well as whether the peer conversations were topics of interest for the participants. When participants did converse with peers during baseline, conversations were typically initiated and maintained by peers rather than the participants. This is evident by the low frequency of questions asked among all three participants during baseline, as well as the variability within baseline phases for both Doug and Roger related to elaborated responses.

The intervention appeared to have the effect of increasing conversation initiations as evidenced by mean differences in initiation frequency. During intervention phases, participants asked both initial questions to engage peers in conversations, as well as follow-up questions to learn more about their peers' interests and experiences. In addition to initiating and maintaining conversations during "Coffee Talk," asking questions allowed participants to engage their peers in conversations based on participant interests. This helps to account for increases in mean frequencies of elaborated responses among all participants during intervention phases compared to baseline phases. Rather than merely responding to questions asked by their peers as they did during their baseline phases, participants were extending conversations with their peers by consistently elaborating on their responses during their intervention phases. Discussing topics of interest likely served as a form of naturally occurring reinforcement that maintained a higher mean frequency of elaborated responses among participants during their intervention phases compared to their baseline phases.

Participant results related to elaborated responses and questions asked during the generalization phase are especially encouraging. This suggests that non-essential characteristics of "Coffee Talk" such as specific peers present, time of day, or the layout of the room itself were not responsible for mean frequency increases of elaborated responses and questions asked during each of their intervention phases. Since there were fewer peers sitting at the same table as participants within campus dining halls compared to "Coffee Talk," there were also fewer

existing conversations for participants to participate in during their generalization phases. This meant that participants were increasingly required to both initiate and maintain conversations during their generalization phases in order to interact with peers with and without disabilities. Given the conditions above, participant results related to elaborated responses and questions asked demonstrated the participants' ability to generalize conversational skills across settings, as well as display conversational skills within settings they frequently encountered outside the scope of this research study.

Limitations and Implications for Future Research

Despite the effectiveness of utilizing the teaching interactions procedure within naturalistic settings on the conversational skills of college students with ID, limitations of the study must be considered when interpreting these results. First, the duration and design of this study did not permit an analysis of skill maintenance over time. Future research studies that include longer study duration and maintenance phases are needed to appropriately assess whether utilizing the teaching interactions procedure within naturalistic settings facilitates long-term maintenance of conversational skills among college students with ID.

Second, during the same academic semester as this research study, participants received skill instruction related to social awareness and social decision-making through a course that was part of their postsecondary university program. While the content of this course did not directly address the conversational skills targeted within this study, it is possible that social skills acquired through this course influenced participant performance within this research study. The use of staggered baselines within this study helped to account for these variables. Specifically, for each participant, mean frequency increases related to elaborated responses and questions asked did not increase substantially until participants progressed to the intervention phase of this study. However, the potential influence of this skill instruction should be considered when interpreting results within this study.

Implications for Practice

The effectiveness of the intervention package used within this study has several practical implications for facilitating conversational skills among college students with ID. First, in accordance with the teaching interactions procedure (Hui Shyuan Ng et al., 2016), the researcher modeled examples and non-examples of social skills related to asking questions, elaborating on responses, introducing oneself, active listening, and appropriate body language during conversations with peers. Modeling examples and non-examples of social skills targeted during instructional sessions allowed participants to better understand social skills likely to result in social reinforcement from their peers as well as social skills unlikely to result in social reinforcement from their peers. Second, in accordance with the teaching interactions procedure, students were provided with both a specific social task as well as a practical context in which to demonstrate the social task as part of role-play sessions (Gutman et al., 2012). The inclusion of role-play within instructional sessions provided participants opportunities during each instructional session to practice targeted conversational skills. Consistent practice opportunities translated to increases in mean frequencies of both elaborated responses and questions asked during intervention phases for each participant within this research study. Third, immediately

following role-play sessions and in accordance with the teaching interactions procedure, performance feedback was used to promote fluent acquisition of conversational skills as well as to prevent the development of poor habits related to conversational skills that could serve as barriers to social interaction (Hui Shyuan Ng et al., 2016). Ultimately, through repeated practice of socially acceptable forms of conversational skills, participants came into contact with naturally occurring reinforcement in the form of social attention from peers. Finally, providing instruction within naturalistic settings was beneficial within this study for two major reasons. First, instructional settings were relevant to participants because they were settings participants frequently encountered during their daily lives. Second, instructional settings were meaningful to participants because they were selected based on participant recreational interests. Incorporating these components into social skill instruction may enhance the relevance and benefits of social skill instruction provided to college students with ID.

To summarize, conversational skill acquisition and generalization among participants within this study is consistent with current research related to the teaching interactions procedure, a comprehensive approach for teaching social skills that involves establishing curricular relevance, embedding frequent and authentic practice opportunities into instructional sessions, and providing immediate and specific performance feedback to promote student success (Hui Shyuan Ng et al., 2016; Kassardjian et al., 2013). Utilizing the teaching interactions procedure within naturalistic settings creates opportunities for students to access naturally occurring reinforcement contingencies that are ultimately required to maintain social skill acquisition in the absence of instructional interventions and supports and, in the process, supports students with ID as they strive to achieve postsecondary transition goals as young adults. It is our hope that such research continues to explore conversational opportunities within inclusive settings with the intent to increase outcomes for students with disabilities as they transition through their postsecondary experiences and prepare for adulthood.

References

- Alwell, M., & Cobb, B. (2009). Social and communicative interventions and transition outcomes for youth with disabilities: A systematic review. *Career Development for Exceptional Individuals*, 32(2), 94-107. doi: 10.1177/0885728809336657
- Butler, L. N., Sheppard-Jones, K., Whaley, B., Harrison, B., & Osness, M. (2016). Does participation in higher education make a difference in life outcomes for students with intellectual disability? *Journal of Vocational Rehabilitation*, 44(3), 295-298. doi:10.3233/JVR-160804
- Carter, E. W., Gustafson, J. R., Mackay, M. M., Martin, K. P., Parsley, M. V., Graves, J., . . . Cayton, J. (2019). Motivations and expectations of peer mentors within inclusive higher education programs for students with intellectual disability. *Career Development and Transition for Exceptional Individuals*, 42(3), 168-178. doi:10.1177/2165143418779989
- Dotson, W. H., Leaf, J. B., Sheldon, J. B., & Sherman, J. A. (2010). Group teaching of conversational skills to adolescents on the autism spectrum. *Research in Autism Spectrum Disorders*, 4(2), 199-209. doi:10.1016/j.rasd.2009.09.005
- Gengoux, G. W. (2015). Priming for social activities: Effects on interactions between children with autism and typically developing peers. *Journal of Positive Behavior Interventions*, 17(3), 181-192. doi:10.1177/1098300714561862

- Gilson, C. B., Gushanas, C. M., Li, Y., & Foster, K. (2020). Defining inclusion: Faculty and student attitudes regarding postsecondary education for students with intellectual and developmental disabilities. *Intellectual and Developmental Disabilities*, 58(1), 65-81. doi:10.1352/1934-9556-58.1.65
- Gutman, S. A., Raphael-Greenfield, E. I., & Rao, A. K. (2012). Effect of a motor-based role-play intervention on the social behaviors of adolescents with high-functioning autism: Multiple-baseline single-subject design. *The American Journal of Occupational Therapy : Official Publication of the American Occupational Therapy Association*, 66(5), 529-537. doi:10.5014/ajot.2012.003756
- Hall, S. A. (2017). Community involvement of young adults with intellectual disabilities: Their experiences and perspectives on inclusion. *Journal of Applied Research in Intellectual Disabilities*, 30(5), 859-871. doi:10.1111/jar.12276
- Higher Education Opportunity Act of 2008, Pub. L. No. 110–315 § 122 STAT. 3078 (2008).
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, 71(2), 165-179. doi:10.1177/001440290507100203
- Hughes, C., Golas, M., Cosgriff, J., Brigham, N., Edwards, C., & Cashen, K. (2011). Effects of a social skills intervention among high school students with intellectual disabilities and autism and their general education peers. *Research and Practice for Persons with Severe Disabilities*, 36(1-2), 46-61. doi:10.2511/rpsd.36.1-2.46
- Hui Shyuan Ng, A., Schulze, K., Rudrud, E., & Leaf, J. B. (2016). Using the teaching interactions procedure to teach social skills to children with autism and intellectual disability. *American Journal on Intellectual and Developmental Disabilities*, 121(6), 501-519. doi:10.1352/1944-7558-121.6.501
- Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).
- Kassardjian, A., Rudrud, E., Taubman, M., Leaf, J. B., Edwards, A., Schulze, K., . . . Leaf, R. (2013). Utilizing teaching interactions to facilitate social skills in the natural environment. *Education and Training in Autism and Developmental Disabilities*, 48(2), 245-257.
- Kazdin, A. E. (1978). Methodological and interpretive problems of single-case experimental designs. *Journal of Consulting and Clinical Psychology*, 46(4), 629-42.
- Koegel, L. K., Park, M. N., & Koegel, R. L. (2014). Using self-management to improve the reciprocal social conversation of children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 44, 1055-1063. doi: 10.1007/s10803-013-1956-y
- Koegel, L. K., Vernon, T. W., Koegel, R. L., Koegel, B. L., & Paullin, A. W. (2012). Improving social engagement and initiations between children with autism spectrum disorder and their peers in inclusive settings. *Journal of Positive Behavior Interventions*, 14(4), 220-227. doi:10.1177/1098300712437042
- Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2010). Single-case designs technical documentation. Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf.
- Leaf, J. B., Taubman, M., Bloomfield, S., Palos-Rafuse, L., Leaf, R., McEachin, J., & Oppenheim, M. L. (2009). Increasing social skills and pro-social behavior for three children diagnosed with autism through the use of a teaching package. *Research in Autism Spectrum Disorders*, 3(1), 275-289. doi:10.1016/j.rasd.2008.07.003

- Lyons, G. L., Huber, H. B., Carter, E. W., Chen, R., & Asmus, J. M. (2016). Assessing the social skills and problem behaviors of adolescents with severe disabilities enrolled in general education classes. *American Journal on Intellectual and Developmental Disabilities*, 121(4), 327-345. doi:10.1352/1944-7558-121.4.327
- Minkin, N., Braukmann, C. J., Minkin, B. L., Timbers, G. D., Timbers, B. J., Fixsen, D. L., . . . Wolf, M. M. (1976). The social validation and training of conversational skills. *Journal of Applied Behavior Analysis*, 9(2), 127.
- Moore, E. J., & Schelling, A. (2015). Postsecondary inclusion for individuals with an intellectual disability and its effects on employment. *Journal of Intellectual Disabilities*, 19(2), 130-148. doi:10.1177/1744629514564448
- Park, J., Bouck, E. C., & Duenas, A. (2020). Using video modeling to teach social skills for employment to youth with intellectual disability. *Career Development and Transition for Exceptional Individuals*, 43(1), 40-52. doi:10.1177/2165143418810671
- Peters, B., Tullis, C. A., & Gallagher, P. A. (2016). Effects of a group teaching interaction procedure on the social skills of students with autism spectrum disorders. *Education and Training in Autism and Developmental Disabilities*, 51(4), 421-433.
- Phillips, B. N., Kaseroff, A. A., Fleming, A. R., & Huck, G. E. (2014). Work-related social skills: Definitions and interventions in public vocational rehabilitation. *Rehabilitation Psychology*, 59(4), 386-398. doi:10.1037/rep0000011
- Phillips, E. L., Phillips, E. A., Fixsen, D. L., & Wolf, M. M. (1971). Achievement place: Modification of the behaviors of pre-delinquent boys within a token economy. *Journal of Applied Behavior Analysis*, 4(1), 45.
- Scruggs, T. E., & Mastropieri, M. A. (1998). Summarizing single-subject research: Issues and applications. *Behavior Modification*, 22(3), 221-242. doi:10.1177/01454455980223001
- Siperstein, G. N., Parker, R. C., & Drascher, M. (2013). National snapshot of adults with intellectual disabilities in the labor force. *Journal of Vocational Rehabilitation*, 39(3), 157-165. doi:10.3233/JVR-130658
- Smith, K. A., Smith, K. A., Ayres, K. A., Ayres, K. A., Alexander, J., Alexander, J., . . . Shepley, S. B. (2016). Initiation and generalization of self-instructional skills in adolescents with autism and intellectual disability. *Journal of Autism and Developmental Disorders*, 46(4), 1196-1209. doi:10.1007/s10803-015-2654-8

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Self-Determination Strategies for Students with Disabilities from Culturally and Linguistically Diverse Backgrounds

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Abstract

Self-determination is considered critical in motivation and the development of student learning. However, students with disabilities often struggle to develop self-determination skills, particularly those from culturally and linguistically diverse (CLD) backgrounds. Understanding the relationships between cultural values and self-determination in motivation is an essential step in improving student self-determination. This paper provides strategies for cultivating self-determination and motivation as related to autonomy, competence, and relatedness.

Keywords: self-determination, culturally and linguistically diverse, students with disabilities, teachers, motivation

Self-Determination Strategies for Students with Disabilities from Culturally and Linguistically Diverse Backgrounds

North Secondary School has a large population of students with disabilities from culturally and linguistically diverse backgrounds. During a recent professional development training, the teachers learned that motivation and self-determination are often interconnected. They wonder what strategies could be implemented to enhance student self-determination. Mrs. Darson, a special education teacher, shares specific strategies with her colleagues as they consider ways to best support the students at North Secondary.

Self-determination is a combination of skills in which students demonstrate control over making decisions and evaluating their learning (Field, Martin, Miller, Ward, & Wehmeyer, 1998). Self-determination as a motivational construct explains student behavior, cognition, and emotion during learning, which may impact the likelihood that students meet their individualized education program (IEP) goals (Seong, Wehmeyer, Palmer, & Little, 2015; Wehmeyer, Palmer, Soukup, Garner, & Lawrence, 2007). For students with disabilities, lack of motivation can be challenging and might negatively impact academic achievement (Lazowski & Hulleman, 2016), self-efficacy (Nalavany & Carawan, 2012; Seyed, Salmani, Motahari Nezhad, & Noruzi, 2017), self-advocacy (Doren & Kang, 2016), and social skills development (Chou, Wehmeyer, Palmer, & Lee, 2017).

Students with disabilities who are culturally and linguistically diverse (CLD; e.g., students of color, English learners, and students from low socioeconomic status), have unique personal experiences that might hinder motivation, and subsequently the development of self-determination (Shogren, 2011; Zhang & Benz, 2006). These challenges with self-determination (e.g., motivation) may include limited access to resources (Shogren, Shaw, Raley, & Wehmeyer, 2018; Trainor, 2005; Walker & Test, 2011), gaps in learning due to interrupted schooling (Shogren & Broussard, 2011; Thoma, Agran, & Scott, 2016), and low academic achievement (Eisenman, Pell, Poudel, & Pleet-Odle, 2015; Garrels & Palmer, 2020). In addition, CLD students with disabilities are likely to feel more alienated which stem from lower self-efficacy beliefs and underdeveloped self-determination skills (Smith & Routel, 2009), when compared with their peers from dominant backgrounds. Further, some students from CLD backgrounds might face challenges regarding self-determination and motivation due in part to a mismatch between perceptions of student ability and the varied expectations of family and school staff (Barrio, Miller, Hsiao, Dunn, Petersen, Hollingshead, & Banks, 2017). While student motivation and self-determination are important skills, there is limited literature addressing the unique needs of CLD students with disabilities while providing specific strategies. In light of the importance of self-determination development, this article provides strategies that increase and bolster motivation within Deci and Ryan's (2000) triad of psychological needs. Self-determination skills reflect three essential characteristics- *autonomy*, *competence*, and *relatedness* (Deci & Ryan 2000; Fiedler & Danneker, 2007). The development of student autonomy, competence, and relatedness is a central tenet of special education services across the educational continuum (see Figure 1).

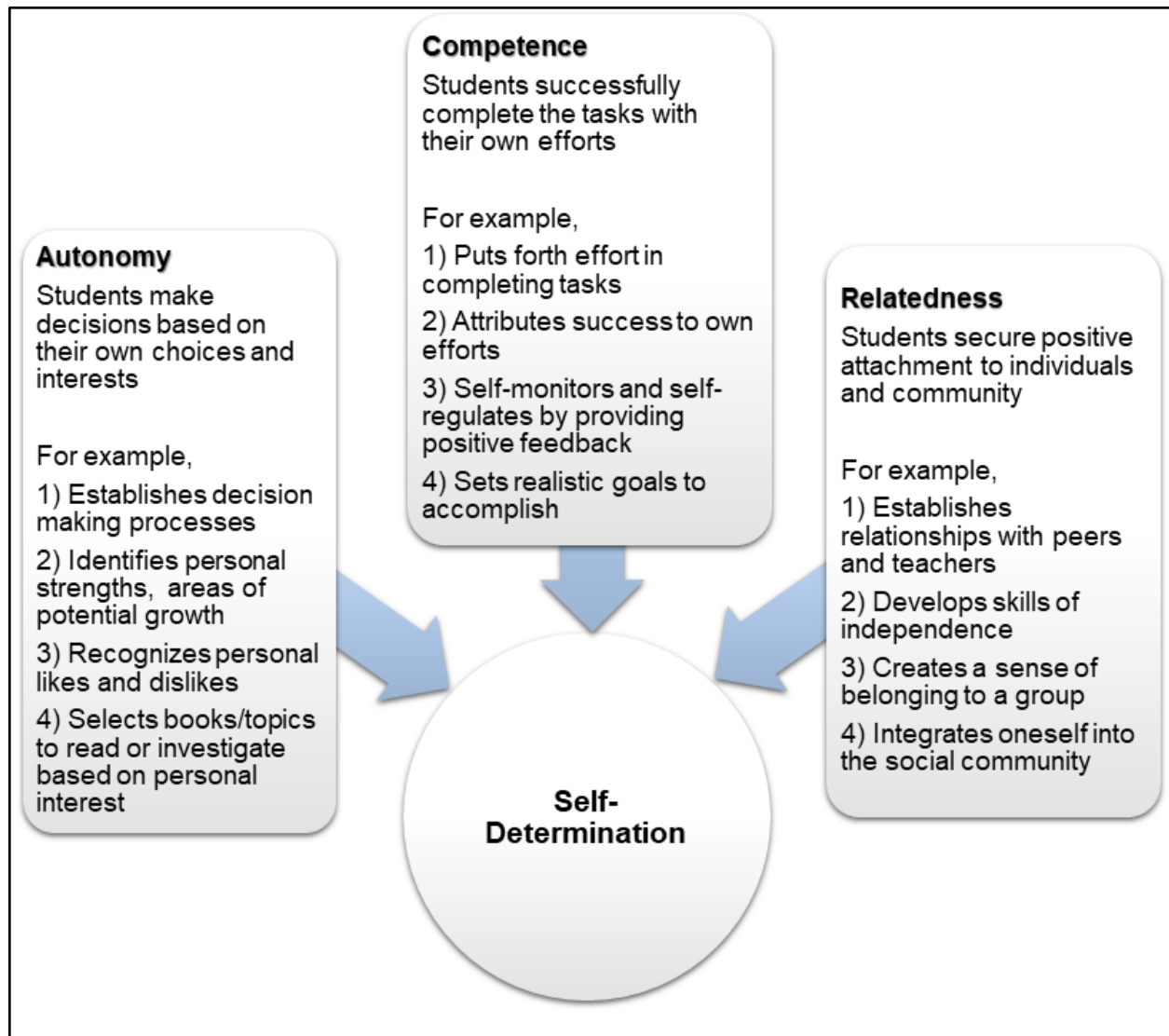


Figure 1. Three essential characteristics of self-determination for teachers to consider. Adapted from “Intrinsic and extrinsic motivations: Classic definitions and new directions.” by M. Ryan and E. Deci, 2000, *Contemporary Educational Psychology*, 25, 54-67.

Autonomy

Autonomy refers to a student’s desire to control self-behavior (Pintrich, 2003) and is a psychological need that promotes an internal locus of control, ensuring that decisions pertaining to behavior stem from within an individual (Niemic & Ryan, 2009; Ryan & Deci, 2000). Previous research agrees that autonomy is essential to intrinsic motivation (a desire from within the individual); when students are permitted to control their learning, their motivation to learn increases and thus autonomy increases (Jang, Reeve, & Halusic, 2016).

Two challenges to autonomy development are the teacher-centered instruction that persists in a majority of classrooms (Gil-Kashiwabara, Geenen, & Powers, 2012; Keel, Cushing, &

Awsumb, 2018) and the varied cultural perspectives and expectations held by students with disabilities from CLD backgrounds (Gay, 2018; Shogren, 2011). For example, some CLD families might work from a collective support perspective regarding a student self-development instead of emphasizing an individual perspective, which is more typical of the mainstream culture (Keel, Cushing, & Awsumb, 2018; Zhang & Benz, 2006). Collectivist cultures tend to stress interdependence between family members and might include hierarchical family structures based on gender, age, and authority figures; it is essential to note that not all collectivist culture groups reflect this belief system (Black, Mrasek, & Ballinger, 2003; Griffin, 2011). Autonomy, however, does not limit the transference from different cultural backgrounds; instead, “it is a universal concept and holds across all cultural groups” (Awang-Hashim, Thaliah, & Kaur, 2017, p. 290). Teachers can employ several strategies that develop autonomy in students with disabilities, including student-centered learning and self-directed IEP.

Student-Centered Learning

When teachers incorporate choices, students develop ownership and may experience a greater sense of control in their learning (Reeve, 2015). Thus, fostering student participation in decision making can increase individual self-direction that, in turn, allows for the development of autonomy. Decision making refers to opportunities for students to authentically participate in personal choice-making and is vital in developing self-determination and personal growth. Students from CLD backgrounds should be afforded opportunities to make decisions in all educational settings. With standard curriculum in mind, consider providing students with choices of books based on interest and home culture (e.g., Sequoyah: Inventor of Written Cherokee), offering choices of tasks in instruction (e.g., the student decides how many pages she needs to read at one time and then records her progress on a line graph), and providing options in how they demonstrate mastery towards a set goal (e.g., writing a report, giving a verbal presentation, or creating a poster presentation in both English and the home language).

Self-Directed IEP

The self-directed IEP strategy supports student autonomy by preparing students to actively participate in their IEP (Seong, Wehmeyer, Palmer, & Little, 2015). For example, the teacher can guide how to actively participate in the IEP development and meetings through a process of identifying student interests, strengths, and areas to improve (Griffin, 2011; Hoover, Erickson, Patton, Sacco, & Tran, 2019). This teaching and learning process takes time, and for students from diverse backgrounds, there might need to be additional support. For example, the student might need to practice speaking to professionals or to practice self-advocating during IEP meetings. By providing a storyboard template that guides students in leading an IEP meeting, role-playing (e.g., practice introducing himself to an adult and sharing his interests and needs), and developing a video for the IEP meeting (e.g., <https://spark.adobe.com/>), students from CLD backgrounds become active IEP team members. These activities facilitate the development of personalized IEP goals and thus promote autonomy (Barrio et al., 2017; Pintrich, 2003; Valenzuela, & Martin, 2005). *The Self-Guided IEP Steps* (Martin, Marshall, Maxson, & Jerman, 1996; Seong et al., 2015) are in a student-friendly cue card in Figure 2.

Self-Guided IEP Meeting Checklist Did I...		
Step	My Tasks	Checklist
1	Make introductions and tell the purpose of the meeting	
2	Share my hobbies, hopes, and expectations	
3	Report and review my old goals, then ask the team for feedback on my progress	
4	Share future goals with the team	
5	Remember to ask questions if I don't understand	
6	Summarize my new goals and create an action plan	
7	Say: "Thank you for attending my meeting..."	
8	Work on the new goals all year and update the action plan monthly	

Figure 2. Self-guided IEP checklist designed for students to use during an IEP meeting. Adapted from "The self-directed IEP" by J. E. Martin, L. H. Marshall, L. M. Maxon, and P. L. Jerman, 1996, www.zarrowcenter.ou.edu.

The next step involves students leading the meeting and sharing their strengths and areas to improve. By engaging in the self-directed IEP meeting, students develop communication skills by expressing ideas, sharing learning perspectives and personal interests, and listening and responding appropriately to feedback from the IEP team members (Test & Neale, 2004). For additional strategies and examples that support autonomy, see "Autonomy" in Table 1.

Mrs. Darson shares her experience in implementing a self-directed IEP with her student, Anton. She assisted Anton in developing his transition meeting video by guiding him to consider all of his hopes and dreams as he develops several goals that he will present at the meeting next month. Before the meeting, Mrs. Darson shares how she used a Self-Guided cue card with Anton to review and practice for the meeting, bolstering his motivation and self-determination skills so that Anton could feel more comfortable and confident leading his IEP meeting.

Competence

Scholars consider competence as a critical factor in motivating and enhancing student self-determination skills because it relates to personal goal-setting and self-efficacy (Ryan & Deci, 2000). Teachers find that students who display competence are more motivated in learning activities, and therefore experience a higher rate of success in self-determination

(Elliot, Dweck, & Yeager, 2017; Reeve, 2012). Indeed, student competency directly correlates with academic achievement and persistence with challenging academic tasks (Muenks, Wigfield, & Eccles, 2018; Ryan & Deci, 2000). One way teachers can support student competence is by assisting students in establishing goals and recognizing progress towards goals. For example, a student who has a goal to increase active class participation, learns how to monitor progress, and at the end of the week the teacher and student review and graph the data, and set a new goal for the following week.

Teachers can directly influence student competence in that teacher expectations are predictive of student achievement (Timmermans, De Boer, & van der Werf, 2016). Students with and without disabilities from CLD backgrounds often experience decreased teacher expectations compared with peers from dominant backgrounds because of variance between home standards and school standards (Gay, 2018; Rychly & Graves, 2012). Decreased teacher expectations may contribute to teachers exposing students to less rigor and subsequently, students developing fewer critical skills, compared to students without disabilities. Lack of critical skills may increase the likelihood that students will experience decreased competence in academic settings, compromising the development of self-determination (Urdan & Schoenfelder, 2006). A powerful antidote to decreased student competence is the successful completion of academic tasks. When students understand expectations and feel competent in a task, motivation increases (Ruzek, Hafen, Allen, Gregory, Mikami, & Pianta, 2016; Timmermans et al., 2016). For example, when teachers incorporate project-based learning or have their students solve authentic problems, they increase student motivation (Hovey & Ferguson, 2014).

Culturally Responsive Goal Setting

A focus on culturally responsive goal-setting assists teachers in combating the formation of decreased expectations and further supports student competence and development of self-determination (Gay, 2018; Zhang, Wehmeyer, & Chen, 2005). The IEP team, including the student and family, collaborate to develop a plan, set appropriate and realistic goals and monitor student progress to support competence in learning and goal setting. As teachers and families work collaboratively to support student competence in this way, student motivation and engagement increases, and as a result, students experience an increase in competence and confidence (Deci & Ryan, 2000). When IEP teams consider a variety of goal-setting tasks that include a focus on student and family-valued goals, all stakeholders benefit (Barrio et al., 2017; Shogren, 2011).

Culturally responsive goal setting should be consistent with student dreams, family expectations, and cultural values. For example, *Possible Selves* (Hock, Deshler, & Schemaker, 2006) is a strategy designed to increase student self-determination by having students examine their futures and think about goals that are important to them. Students think about and describe their hoped-for selves (e.g., what they would like to become—a 10th grader hopes to be a scientist), expected possible selves (e.g., what they expect they would become—he expects to take additional math and science credits in high school), and feared possible selves (e.g., what they are afraid of becoming—he fears not being accepted to college). Students set goals, imagine their future, and put efforts toward achieving the goal. Consider student and family input and familial goals honors family home culture and

expectations. This process enhances motivation, self-determination, and encourages students to set and achieve personal goals.

Attributing Success to Efforts

Another consideration when setting goals concerns student effort. It is crucial for teachers to *explicitly* connect student effort, both behaviorally and academically, to positive outcomes because it reinforces intrinsic motivation (Moeller, Theiler, & Wu, 2012). Targeting a specific, meaningful, and manageable short-term goal supports students in learning to attribute personal effort to positive outcomes. The teacher might have a student work toward a weekly language proficiency goal (e.g., communicating with peers in both English and their home language), meeting with the student, and explicitly making connections between student effort and success in completing that goal. Incorporating high leverage practices such as providing corrective and elaborative feedback and specific verbal praise can further enhance motivation and consequently builds student competence (McLeskey et al., 2017). For additional strategies and examples that support competence, see “Competence” in Table 1.

Mrs. Darson shares an experience in which she helped Laura, a Latina student with a learning disability, reach content area goals by making comparisons to her native culture. At the beginning of the history unit, Mrs. Darson had Laura list areas that she found difficult and write learning objectives for the unit. Considering Laura’s cultural background, Mrs. Darson briefly introduced American history and worked with Laura to compare and contrast the history of Laura’s native country with a T-chart. Mrs. Darson encouraged Laura to share her home culture and helped her search online resources about history in her native country. When she succeeded with the graphic organizer, Mrs. Darson emphasized the fact that Laura’s hard work and persistence led to her success in completing this task and achieving her learning objectives.

Relatedness

Relatedness refers to a need to belong to a group (Pintrich, 2003), a psychological need to feel connected to a group, and a desire for respect and care (Ryan & Deci, 2000). Autonomy and competence both improve when students feel connected to a group, thus fostering self-determination. Students are more likely to become intrinsically motivated when they feel a sense of competence accompanied by a sense of autonomy, but this motivation can flourish in the presence of relatedness (Deci & Ryan, 2000). Student motivation to succeed requires a supportive environment (Ruzek et al., 2016). With varying academic levels, diverse needs, and interests in today’s classrooms, teachers must work to understand student cultural differences within their classrooms. Students with disabilities from CLD backgrounds may have differing values towards relatedness than students and teachers from the dominant group. For instance, students from backgrounds that value collectivist cultures may struggle with the individualistic nature of relationships in the dominant group (Black et al., 2003; Wu & Chu, 2012). These differences may contribute to feelings of alienation and isolation in school contexts. Strategies that focus on developing a sense of belonging and intentional groupings benefit students with disabilities from CLD backgrounds.

Developing a Sense of Belonging

Research shows that a sense of belonging can be a critical component of student learning. Because values differ across cultures, students with and without disabilities and their CLD families may hold a wide variety of perspectives on relatedness. It is crucial to examine the perceptions of families and gather input from students with disabilities from their cultural perspectives (Shogren et al., 2018; Trainor, 2005) in order for teachers to reflect on their expectations or cultural values. When teachers provide a variety of resources, materials, and use classroom displays that reflect the school community (Gerzel-Short et al., 2019), it creates an inclusive learning environment that demonstrates a sense of cultural competence in partnering with families and students. For example, teachers have students use technology to create a personal profile sharing favorite foods, authors, songs, and stories that reference their culture (e.g., <http://www.readwritethink.org/files/resources/interactives/profile/>). The teacher then facilitates a discussion of commonalities and differences among students using a Venn diagram as a graphic organizer for future activities.

Intentional Student Grouping

For students with disabilities who are CLD, it is imperative that teachers are intentional in creating student groups that ensure every student feels valued, respected, and cared for and student differences are celebrated. Language barriers and cultural differences might account for social isolation and segregation from peers and the community. Teachers need to work together to bridge cultural divides so that students from CLD backgrounds benefit from group work (Anderson, 2006; Corey et al., 2013). For example, pairing same-language partners can allow students to use native language to process or clarify essential concepts and promote relatedness that encourages students to share their thoughts and play a leadership role (Gerzel-Short et al., 2019). For additional strategies and examples that support relatedness, see “Relatedness” in Table 1.

Mrs. Darson shares an experience engaging CLD families. IEP stakeholders invited Laura and her family to contribute their thoughts during the IEP meeting. Laura reviewed her goals and presented a letter she had written to her abuela (grandmother) in both English and Spanish, while her family shared their expectations. Then, the IEP team updated her goals and objectives reflecting the new information. The team also considered culturally sensitive goals that were in alignment with the family’s expectations that Laura continues to develop biliteracy (e.g., Laura will attain a beginning fifth-grade level in reading proficiency in her native language, as measured by an oral reading assessment in Spanish). Making sure to consider student and family input and familial goals, ensures that family home culture and expectations are honored.

Table 1
Additional Examples for Developing Self-Determination

Self-Determination Skills	Strategies/Examples
Autonomy	• Incorporate choice boards/learning menus (e.g., https://www.smores.com/z12ay-tic-tac-toe-choice-boards-menus). • Permit choice of incentives (e.g., https://www.interventioncentral.org/teacher-resources/student-rewards-finder). • Select assignment/task order. • Offer multiple ways to demonstrate knowledge (e.g., presentation, videos). • Adjust instruction based on formative assessment. • Utilize explicit instruction, modeling, verbal rehearsal, and role-playing to teach students (e.g., teach students about their IEP goals, how to identify needs and interests)
Competence	• Establish norms and provide role cards with simplified language during group work. • Incorporate project-based learning to solve culturally relevant problems. • Encourage students to share their language, cultural, and holidays with the class in various formats (e.g., recordings, blogs, websites). • Create assignments that incorporate student culture and use materials that represent all types of diversity. • Teach students how to identify, master, and generalize culturally responsive goals (e.g., http://www.ou.edu/education/centers-and-partnerships/zarrow/choicemaker-curriculum/take-action---teaching-goal-attainment).
Relatedness	• Engage students in small group discussions (e.g., turn and talk, think-pair-share) using home languages. • Partner students who are CLD with a native speaker when reading texts in English. • Include trade books that represent student diversity (e.g., https://diversebookfinder.org/). • Incorporate student background and experiences when creating instructional models (e.g., provide real examples that reflect the community and students). • Discuss cultural perspectives regarding self-determination goals and objectives in the class.

Conclusion

Supporting students in school-based goal-setting, choice-making, and self-advocating for their learning is necessary for the development of self-determination skills. Students with disabilities from CLD backgrounds are unique and these skills do not occur through happenstance. Teachers who thoughtfully consider specific self-determination strategies are deliberately creating opportunities for students to develop autonomy, competence, and relatedness within the school context. It is equally important to attend to the development of student belonging in consideration of cultural and linguistic diversity. Autonomy, competence, and relatedness are three characteristics of self-determination that are interconnected with motivation and should be developed systematically and simultaneously. Teachers play a vital role in inculcating self-determination. Encouraging teachers and other school professionals to extend their knowledge in self-determination is important to better equip educators with tools to enhance motivation for students. When teachers consider autonomy, competence, and relatedness within the self-determination framework, they are providing opportunities for students with disabilities from CLD backgrounds to develop into self-determined adults.

References

- Anderson, J. R. (2006). On cooperative and competitive learning in the management classroom. *Mountain Plains Journal of Business and Economics, Pedagogy*, 7, 1-10.
- Awang-Hashim, R., Thaliah, R., & Kaur, A. (2017). A cultural insight into the development of teacher autonomy support scale: A self-determination theory perspective. *Journal for Multicultural Education*, 11, 287-305.
- Barrio, B. L., Miller, D., Hsiao, Y. J., Dunn, M., Petersen, S., Hollingshead, A., & Banks, S. (2017). Designing culturally responsive and relevant individualized educational programs. *Intervention in School and Clinic*, 53, 114-119.
- Black, R. S., Mrasek, K. D., & Ballinger, R. (2003). Individualist and Collectivist Values in Transition Planning for Culturally Diverse Students with Special Needs. *Journal for Vocational Special Needs Education*, 25, 20-29.
- Chou, Y. C., Wehmeyer, M. L., Palmer, S. B., & Lee, J. (2017). Comparisons of self-determination among students with autism, intellectual disability, and learning disabilities: A multivariate analysis. *Focus on Autism and Other Developmental Disabilities*, 32(2), 124-132.
- Corey, M. S., Corey, G., & Corey, C. (2013). *Groups: Process and practice*. Boston, MA: Cengage Learning.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227-268.
- Doren, B., & Kang, H. J. (2016). Autonomy, self-realization, and self-advocacy and the school-and career-related adjustment of adolescent girls with disabilities. *Career Development and Transition for Exceptional Individuals*, 39(3), 132-143.
- Eisenman, L. T., Pell, M. M., Poudel, B. B., & Pleet-Odle, A. M. (2015). "I think I'm reaching my potential" students' self-determination experiences in an inclusive high school. *Career Development and Transition for Exceptional Individuals*, 38, 101-112.
- Elliot, A. J., Dweck, C. S., & Yeager, D. S. (Eds.). (2017). *Handbook of competence and motivation: Theory and application*. Guilford Publications.

- Field, S., Martin, J., Miller, R., Ward, M., & Wehmeyer, M. (1998). Self-determination for persons with disabilities: A position statement of me. Division on Career Development and Transition. *Career Development for Exceptional Individuals*, 21, 113-128.
- Fiedler, C. R., & Danneker, J. E. (2007). Self-advocacy instruction: Bridging the research-to-practice gap. *Focus on Exceptional Children*, 39(8), 1-20.
- Garrels, V., & Palmer, S. B. (2020). Student-directed learning: A catalyst for academic achievement and self-determination for students with intellectual disability. *Journal of Intellectual Disabilities*, 24(4), 459-473.
- Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice*. teachers college press.
- Gerzel-Short, L., Kiru, E., Hsiao, Y-J., Hovey, K., Wei, Y., & Miller, R. (2019). Engaging culturally and linguistically diverse families of children with disabilities. *Intervention in School and Clinic*. Advance online publication. doi: 10.1177/1053451219837637.
- Gil-Kashiwabara, E., Geenen, S., & Powers, L. E. (2012). Expectations and experiences of Latina and Anglo girls and parents for life after high school. *Multiple Voices for Ethnically Diverse Exceptional Learners*, 13, 5-25.
- Griffin, M. M. (2011). Promoting IEP participation: Effects of interventions, considerations for CLD students. *Career Development for Exceptional Individuals*, 34, 153-164.
- Hock, M. F., Deshler, D. D., & Schumaker, J. B. (2006). Enhancing student motivation through the pursuit of Possible Selves. In C. Dunkel & J. Kerpelman (Eds.), *Possible Selves: Theory, research and applications* (pp. 205-221). Hauppauge, NY: Nova Science Publishers.
- Hoover, J. J., Erickson, J. R., Patton, J. R., Sacco, D. M., & Tran, L. M. (2019). Examining IEPs of English learners with learning disabilities for cultural and linguistic responsiveness. *Learning Disabilities Research & Practice*, 34(1), 14-22.
- Hovey, K. A., & Ferguson, S. L. (2014). Teacher perspectives and experiences: Using project-based learning with exceptional and diverse students. *Curriculum & Teaching Dialogue*, 16(1/2), 77-90.
- Jang, H., Reeve, J., & Halusic, M. (2016). A new autonomy-supportive way of teaching that increases conceptual learning: Teaching in students' preferred ways. *The Journal of Experimental Education*, 84, 686-701.
- Keel, J. M., Cushing, L. S., & Awsumb, J. M. (2018). Post-school visions and expectations of Latino students with learning disabilities, their parents, and teachers. *Career Development and Transition for Exceptional Individuals*, 41(2), 88-98.
- Lazowski, R. A., & Hulleman, C. S. (2016). Motivation interventions in education: A meta-analytic review. *Review of Educational Research*, 86, 602-640.
- Martin, J. E., Marshall, L. H., Maxson, L. M., & Jerman, P. (1996). *Self-directed IEP*. Longmont, CO: Sopris West.
- McLeskey, J., Barringer, M-D., Billingsley, B., Brownell, M., Jackson, D., Kennedy, M., Lewis, T., ... Ziegler, D. (2017). *High-Leverage practices in special education*. Arlington, VA: Council for Exceptional Children & CEEDAR Center.
- Moeller, A. J., Theiler, J. M., & Wu, C. (2012). Goal setting and student achievement: A longitudinal study. *The Modern Language Journal*, 96, 153-169.
- Muenks, K., Wigfield, A., & Eccles, J. S. (2018). I can do this! The development and calibration of children's expectations for success and competence beliefs. *Developmental Review*, 48, 24-39.

- Nalavany, B. A., & Carawan, L. W. (2012). Perceived family support and self-esteem: The mediational role of emotional experience in Adults with Dyslexia. *Dyslexia*, 18, 58-74.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7, 133-144.
- Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95, 667.
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In *Handbook of Research on Student Engagement* (pp. 149-172). Boston, MA: Springer.
- Reeve, J. (2015). Giving and summoning autonomy support in hierarchical relationships. *Social and Personality Psychology Compass*, 9, 406-418.
- Ruzek, E. A., Hafen, C. A., Allen, J. P., Gregory, A., Mikami, A. Y., & Pianta, R. C. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and instruction*, 42, 95-103.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54-67.
- Rychly, L., & Graves, E. (2012). Teacher characteristics for culturally responsive pedagogy. *Multicultural Perspectives*, 14, 44-49.
- Seong, Y., Wehmeyer, M. L., Palmer, S. B., & Little, T. D. (2015). Effects of the self-directed individualized education program on self-determination and transition of adolescents with disabilities. *Career Development and Transition for Exceptional Individuals*, 38, 132-141.
- Seyed, S., Salmani, M., Motahari Nezhad, F., & Noruzi, R. (2017). Self-efficacy, achievement motivation, and academic progress of students with learning disabilities: A comparison with typical students. *Middle East Journal of Rehabilitation and Health*, 4(2), e44558.
- Shogren, K. A. (2011). Culture and self-determination: A synthesis of the literature and directions for future research and practice. *Career Development for Exceptional Individuals*, 34, 115-127.
- Shogren, K. A., & Broussard, R. (2011). Exploring the perceptions of self-determination of individuals with intellectual disability. *Intellectual and Developmental Disabilities*, 49, 86-102.
- Shogren, K. A., Shaw, L. A., Raley, S. K., & Wehmeyer, M. L. (2018). Exploring the effect of disability, race-ethnicity, and socioeconomic status on scores on the self-determination inventory: Student report. *Exceptional Children*, 85(1), 10-27.
- Smith, P., & Routel, C. (2009). Transition failure: The cultural bias of self-determination and the journey to adulthood for people with disabilities. *Disability Studies Quarterly*, 30, 175-182.
- Test, D. W., & Neale, M. (2004). Using the self-advocacy strategy to increase middle graders' IEP participation. *Journal of Behavioral Education*, 13, 135-145.
- Thoma, C. A., Agran, M., & Scott, L. A. (2016). Transition to adult life for students who are Black and have disabilities: What do we know and what do we need to know? *Journal of Vocational Rehabilitation*, 45(2), 149-158.

- Timmermans, A. C., de Boer, H., & van der Werf, M. P. (2016). An investigation of the relationship between teachers' expectations and teachers' perceptions of student attributes. *Social psychology of education, 19*(2), 217-240.
- Trainor, A. A. (2005). Self-determination perceptions and behaviors of diverse students with LD during the transition planning process. *Journal of Learning Disabilities, 38*, 233-249.
- Urdu, T., & Schoenfelder, E. (2006). Classroom effects on student motivation: Goal structures, social relationships, and competence beliefs. *Journal of School Psychology, 44*, 331-349.
- Valenzuela, R. L., & Martin, J. E. (2005). Self-directed IEP: Bridging values of diverse cultures and secondary education. *Career Development for Exceptional Individuals, 28*(1), 4-14.
- Walker, A. R., & Test, D. W. (2011). Using a self-advocacy intervention on African American college students' ability to request academic accommodations. *Learning Disabilities Research & Practice, 26*, 134-144.
- Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., Garner, N. W., & Lawrence, M. (2007). Self-determination and student transition planning knowledge and skills: Predicting involvement. *Exceptionality, 15*, 31-44.
- Wu, H. Y., & Chu, S. Y. (2012). Self-determination of young children with special needs from culturally and linguistically diverse backgrounds. *Preventing School Failure: Alternative Education for Children and Youth, 56*, 149-156.
- Zhang, D., & Benz, M. (2006). Enhancing self-determination skills of culturally diverse students with disabilities: Current status and future directions. *Focus on Exceptional Children, 38*, 1-13.
- Zhang, D., Wehmeyer, M. L., & Chen, L-J. (2005). Parent and teacher engagement in fostering the self-determination of students with disabilities. *Remedial & Special Education, 26*, 55- 64.

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Mapping Review of Individuals Who are Bilingual with Autism Spectrum Disorders

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Abstract

This systematic mapping review summarized findings from 54 studies focused on individuals who are bilingual with autism spectrum disorders (ASD). Currently, there is a scarcity of research, which provides strategies for this population. The purpose of this study was to review literature to provide information, both qualitative (narrative) and quantitative (research studies) about the outcomes for intervention, the issues faced with this population, and identify best practices. The current review encompassed research for 725 participants' ages 2 to 35 years old. Findings indicated that the majority of the studies, 28, were concerned with issues and interventions for this population. The remaining articles, 26, reported on bilingual exposure on language delay, although no significant results for language delay were found based on bilingual exposure, and parent beliefs regarding their children with ASD.

Keywords: bilingual, autism spectrum disorders, culturally and linguistically diverse, language, intervention

Mapping Review of Individuals who are Bilingual with Autism Spectrum Disorders

Autism spectrum disorder (ASD) is a neurodevelopmental disability that affects social interactions, restrictive, repetitive, and stereotypical behaviors (DSM-5; American Psychiatric Association, 2013). The Center for Disease Control and Prevention (2018) noted that children with ASD could show signs as early as 18 months old. Signs and symptoms could include deficiencies in social communication, such as lack of functional language among others and be formally diagnosed by an experienced professional by 2 years old. However, many individuals with ASD are not diagnosed until later in life (National Center on Birth Defects and Developmental Disabilities, 2020).

The 10th Revision of International Classification of Diseases, Clinical Modification (ICD-10-CM) defines childhood autism as a developmental disorder, which impairs social communication and behavior (World Health Organization, 1992). Current prevalence rates in the United States indicate that 1 in 59 children are diagnosed with ASD and those who track these rates have found increasing trends for this population (Baio et al., 2014). In addition to the growing rates of children with ASD, children who are bilingual identified as English Learners (ELs) are also increasing (Lund et al., 2017). In the United States, over 60 million individuals above the age of five speak a language other than English, and of those individuals, 62% speak Spanish in the home (U.S. Census Bureau, 2015). Additionally, the Center for Disease Control and Prevention (2018) reported that ASD is to occur in all racial, socioeconomic, and ethnic groups.

In this review, we will collectively refer to individuals with a second language spoken in their home as bilingual, as a number of different terms are found in the literature. Bilingualism is the ability to communicate in more than one language (Merriam-Webster, n.d.). Sequentially, bilingualism occurs when a child has had exposure to a second language after the age of 3 years old and their native language has been established (ASHA, 2004). While second language learners are referred to as English learners (EL) in the school system (U.S Department of Education, n.d.), ELs are those students whose first language is not English and study in public systems that require modified instruction in English (Klingner & Soltero-Gonzalez, 2009). There is an overlap of students who are considered EL and culturally and linguistically diverse (CLD) (Villegas-Gutierrez, 2015). Therefore, it is worth acknowledging the definitions as an American context for the purposes of this paper.

Due to the rising rates of individuals who are bilingual and of individuals diagnosed with ASD, it is likely that education professionals will work with this population during their career (Lund et al., 2007). Insufficient research has been conducted to point to best practices for this population (Medina, 2012). However, there have been previous literature reviews conducted which have indicated gaps in literature and others who provided suggestions for practitioners.

Issues arise for children who are bilingual diagnosed with ASD, as communication is already often a challenge for many. Therefore, learning to communicate in two different languages is a difficult task. Parents often do not know how to best raise their children and practitioners make recommendations that are not based on research (Drysdale et al., 2015). Several authors have attempted to address and comment on these issues (Jegatheesan & Fowler, 2010; Lim et al., 2018; Medina, 2012).

Medina (2012) provided current issues for readers; however, only one database, Academic Search Premier, was searched. Lund et al. (2017) conducted a systematic review to evaluate bilingual exposure on language delay gathered from seven studies. Effect sizes were reported with no statistically significant results affecting language delay for children with ASD. Welterlin & LaRue (2007) also reviewed the literature for this population, focusing primarily on immigrant children with ASD. They offer recommendations and practices for practitioners and families such as mutually agreed upon goals, ecocultural fit, and collaborative problem solving. However, this systematic review is important because it seeks to expand broadly from previous reviews by using more databases, including studies written in Spanish and English as the first author is fluent in both languages. Additionally, it is merely an updated version from the Welterling & LaRue (2007) study that was conducted more than a decade ago. This work is relevant and is of significant contribution to the literature due to the growing numbers of individuals who are bilingual with ASD in the United States.

Purpose of the Present Study

The purpose of this study is to summarize findings from 54 studies focused solely on children who speak more than one language, also known as, children who are bilingual diagnosed with ASD. This summary will inform educational professionals and researchers working with this population on evidence based practices, issues related to this population, and intervention outcomes. Qualitative articles (narrative) were analyzed by writing a summary of the main

concept. Quantitative studies went through data extraction to analyze characteristics that might be useful to future researchers.

Method

Literature Search

This review is much like a scoping review, except the purpose is to describe and categorize information on a topic to understand the gaps in the literature (Grant & Booth, 2009). A literature search was conducted using five electronic databases: PsycINFO, ERIC EBSCO, Fonte Acadêmica, Fuente Académica, and Linguistics and Language Behavior Abstracts (LLBA). There were different search terms used for different databases because search engines give different results. A systematic review librarian at a research University ran the search terms in the databases to obtain results. The search conducted in PsycINFO using (DE "bilingual eEducation" OR DE "Bilingualism") OR (TI bilingual* OR AB bilingual*) and "autism spectrum disorders or autism or asd". The ERIC EBSCO searched were (DE "bilingual education" OR DE "bilingual education programs" OR DE "bilingual Students" OR DE "Bilingualism") OR TI bilingual* OR AB bilingual* AND (DE "Pervasive Developmental Disorders" OR DE "Asperger Syndrome" OR DE "Autism") OR TI (Pervasive Developmental Disorder* OR Asperger* OR Autism OR autist*) OR AB (Pervasive Developmental Disorder* OR Asperger* OR Autism OR autist*). The search in Linguistics and Language Behavior Abstracts included the terms ((MAINSUBJECT ("Bilingual Education") OR MAINSUBJECT ("Bilingual Teaching Materials") OR MAINSUBJECT ("Bilingualism")) OR bilingual*) AND (MAINSUBJECT.EXPLODE ("Autism") OR (Pervasive Developmental Disorder* OR Asperger* OR Autism OR autist*)). Fonte Acadêmica, Fuente Académica Premier was searched with these terms: ((bilingual* OR Bilingüe) OR (esl or ell) or biling* or SU "bilingual") AND (Pervasive Developmental Disorder OR Asperger OR DE "Autism spectrum disorders in children" or SU "autism" or discapacidad del desarrollo OR Desarrollo no especificado de otra manera OR autism* or autistic* OR autista or Autismo).

Inclusion and Exclusion Criteria

To be included in the mapping review, studies needed to meet the following criteria: (a) participants diagnosed with ASD, developmental disability with concomitant ASD, or severely and profoundly handicapped (based on previous terminology), Asperger's, or Pervasive Developmental Disorder–Not Otherwise Specified (PDD-NOS), and/or autism with a concomitant language disorder under the category of ASD. Moreover, studies were included if they had: (a) groups of individuals who were typically developing as a comparison to groups of individuals with disabilities; (b) one or more of the participants in the study/narrative were identified as bilingual, EL, multilingual, dual language learners, English as a Second Language (ESL), or language learners; (c) studies included keywords such as culture, cultural, ethnic, bilingualism, English Language Proficiency (ELP), multiple language/s, or Hispanic describing participants with a second language; (d) studies published in a peer-reviewed journal and unpublished studies such as dissertations, poster presentations, book chapters, and reports; (e) studies written in English or Spanish; and (f) there were no age, year, or gender restrictions in the search parameters for this study to help encompass a broad range of studies for inclusion.

To be excluded from the mapping review studies needed to be: (a) focused only on bilingualism or only EL without a disability; (b) included individuals with disabilities other than autism, Pervasive Developmental Disorder–Not Otherwise Specified (PDD-NOS) (PDD), and autism with language disorders; or (c) were found on websites or in theses (see Figure 1).

Through this search, 481 studies were identified. An additional 43 articles were added from an ancestral search, which sum 524 studies. After removing duplicates, 422 studies were left and screened from inclusion criteria. Two authors, who were graduate students at the time, examined each study for title and abstract for possible inclusion. From the 422 studies, 91 studies were included for full text eligibility. From those 91 studies, 37 studies were excluded because they did not meet the inclusion criteria (see Figure 1). Therefore, 54 studies were included in the study; 15 were qualitative (narrative) reviews, while 39 were quantitative experimental studies.

Inter-rater Reliability

Two independent raters conducted interrater reliability (IRR). Training was conducted with four sets of 10 articles with 84% reliability for title and abstract. Disagreements were resolved after the author reread and discussed the studies, resulting in 100% final agreement. Inclusion and exclusion criteria were refined through discussion, and the term “severely handicapped” was added for the inclusion criteria if the diagnosis was also associated with ASD during the title/abstract phase. Reliability was 96.67% for title and abstract and disagreements were discussed resulting in 100% final agreement. Training was also conducted for 20% of the full text with 84% reliability; disagreements were discussed resulting in 100% final agreement. After the training, reliability was conducted for 55% of the full text of the studies, with 85% reliability. Reliability agreement was determined by extracting data and checking to see if the data extracted was the same for both raters. Data extracted included (a) participant characteristics (number of participants, age, gender, ethnicity, country, disability), (b) language characteristics (native language, language proficiency), (c) quality of study (e.g. inter-observer agreement, fidelity, validity, maintenance, generalization), and (d) summary of results. We coded for participant characteristics such as age, gender, native language spoken, language proficiency, country of origin, and others.

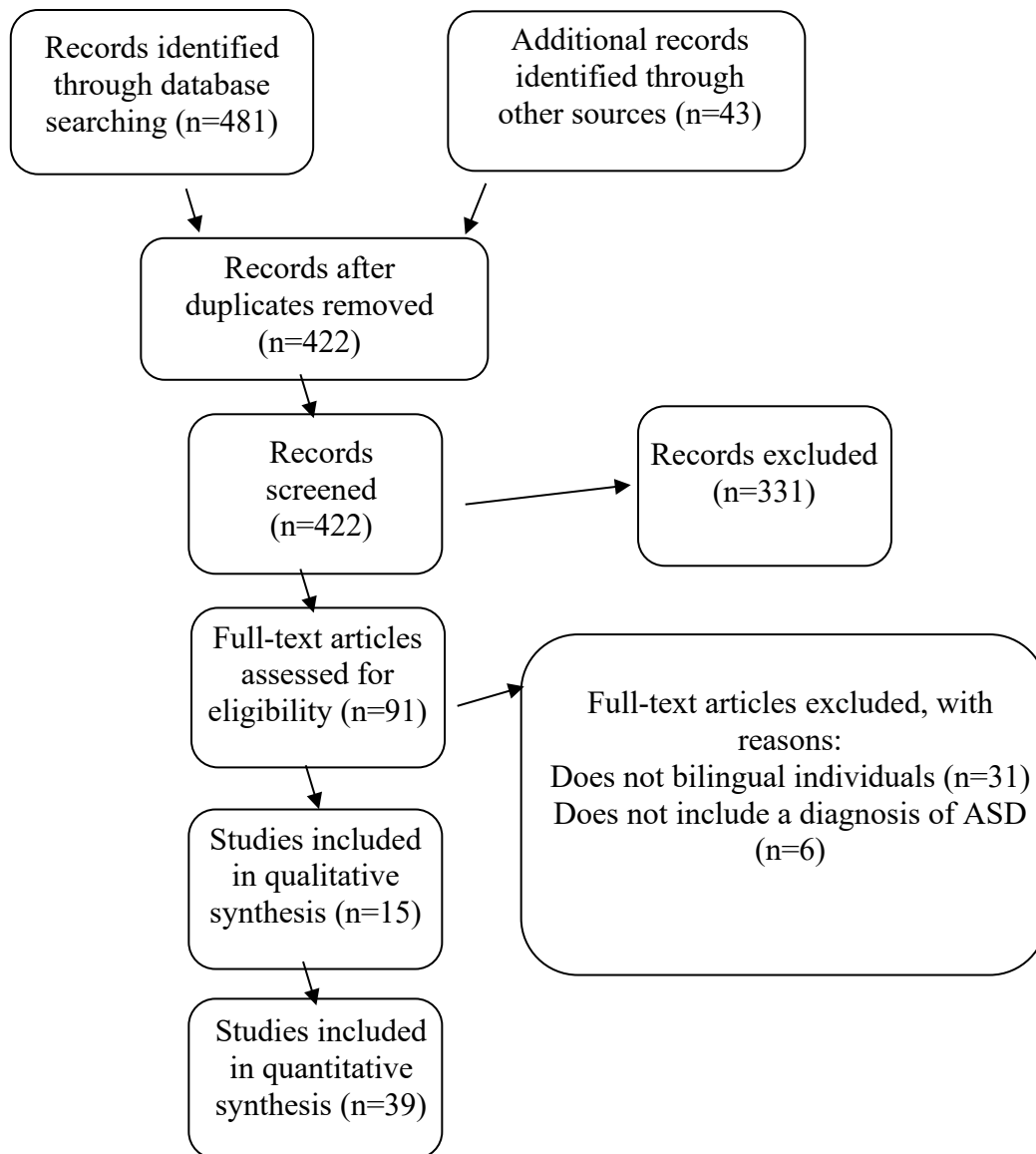


Figure 1: Flowchart of Inclusion

Results

Characteristics of Participants

From the 39 quantitative (experimental) studies included in this review, 1,011 participants were included. From the same 39 quantitative studies, 35 quantitative studies focused on children under 17 years old, and four studies (Duran, 1984, 1985; Tsai 2013; Tseng, & Fuligni, 2000) focused on an older group of adolescents and adults between ages 17 and 35. Studies meeting inclusion criteria for both qualitative and quantitative studies were conducted in homes, schools, and clinics. Countries in which the studies were conducted included China, Canada, United States, India, New Zealand, Indonesia, Norway, Greece, and Taiwan. The primary native languages spoken were English, French, and Spanish. Additional languages included Bangla, Hindi, Arabic, English, Urdu, Kachhi, Gujarati, Italian, Cree, and others (see Table 2). Most of

the studies included both male and female participants. However, 10 of the studies included only male participants (Baldismti, 2016; Jegatheesan, 2010, 2011; Kim, 2014; Lim, 2018; Ozerk 2017; Padmadewi, 2017; Rubinyi, 2006; Seung, 2006; Yu, 2009). One study only included females (Garvin, et al., 2010), and two studies did not report participant gender (Duran, 1984; Leadbitter & Hudry, 2009).

Research Designs

Research designs for the 54 studies included single case research, reviews, and group designs. Studies were disaggregated into three different categories: parent beliefs, bilingual social development, and based on the purpose of the author's articles. 74% of the experimental studies evaluated bilingual exposure on language delays.

Non-Research Studies

Fifteen of the articles included in this mapping review provided a narrative review of this literature. That is, they did not describe interventions, but rather topics related to individuals with ASD who are bilingual. Concepts in these studies included issues, parent beliefs, and bilingual exposure on language delay.

Narrative Articles Discussing Issues

A number of studies in the literature state the issues with practitioner recommendations to families or interventions that represent individuals from various diverse groups (Duran, 1985; Langdon, 2015; Park, 2014; Sanchez, 2007).

Baker (2013) includes a comprehensive review on the research offered for practitioners. After presenting some of the difficulties practitioners face, they also include guidelines composed of questions that could be incorporated for parents from a CLD background. A narrative review also explains further issues children with ASD experience through the perspective of a person with the diagnosis (Döpke, 2006). The author discusses the difficulty for children with ASD to learn behaviors and to generalize these newly learned behaviors to different settings, people, and materials. Additionally, they discuss the challenges to learn and discriminate situations for children who are bilingual and are diagnosed with ASD. Lastly, as a possible solution, they encourage a family-centered practice when working with this population. Solomon (2008) reviewed the literature on how children with ASD socialize and look at their everyday language as well as their experiences. The experiences for participants highlight patterns to cultural practices, which the authors claim to make language more intelligible. Duran (1996) wrote a book with strategies for inclusion classrooms for second language learners who come from CLD backgrounds. The book is broken down with information for children with ASD and culturally responsive practices in special education. Duran (1985) wrote an article on how to teach students with ASD who have limited English proficiency using both languages but did not conduct an experimental study. Best practices for this population have found to be an effective use of parent collaboration, family centered planning, understanding the beliefs of the family, and community involvement (Döpke, 2006; Lim et al., 2018; Welterlin & LaRue, 2007; Zions & Zions, 2003).

The use of applied behavior analytic strategies is recommended in two articles (Fahim & Nedwick, 2014; Jones, 2011). Applied Behavior Analysis (ABA) is a practice to help improve the human condition by observing and modifying behavior (Association of Professional

Behavior Analysts, 2017). This philosophy has proven to be effective in improving behavior for individuals diagnosed with ASD. Although this practice has expanded to numerous countries and the terms have been translated into at least six other languages, there has not been a systematic way to take into consideration the child's culture (Tuomisto & Parkkinen, 2010).

Jones (2011) discusses the use of ABA practices in a culturally and linguistically appropriate context for the child. This author mentions the importance of respecting individual diversity within the teaching methodology. The focus of this paper was to evaluate ABA within a Welsh language including the challenges of assessment, resources, and therapy presented during their incorporation of Welsh.

Fahim and Nedwick (2014) also discusses ABA strategies in their practitioner paper when working with children from a different cultural background than the norm. They specifically make recommendations for practitioners such as parent collaboration, using a multimodal communication mode to increase language use at home, and visual supports in both languages.

Bilingual Social Language Development

In a study by Kremer (2005), the author conducted interviews with mothers of children who had been diagnosed with high functioning autism. They evaluated if bilingual exposure will hinder further language delays for children with ASD. Particularly, they focused on the consequences of clinician recommendations to speak only English at home. The authors argue that speaking English only in a bilingual home, where the heritage language is other than English, can have potential ramifications. There is no support to claim that speaking multiple languages at home will cause harm or further language delays. For more information on the themes and summaries of the results for these studies, (see Table 1)

Table 1

Themes and Summaries of Studies

Theme	Author(s)	Summary
Bilingual Social Development	Kremer-Sadlik (2005)	Many individuals who are multilingual and are diagnosed with delayed high functioning autism are coached to speak only one language. Evidence does not support this recommendation.
Interventions/Issues	Baker (2013)	Practitioners recommend the use of one language for individuals who are multilingual and diagnosed with autism. The author discusses language use recommendations for individuals with autism who have a second language in their background.
Interventions/Issues	Döpke (2006)	Donna Williams, an individual with ASD, argues against the use of only one language for individuals with ASD who are bilingual.
Interventions/Issues	Durán (1985)	The author presents information regarding the education of individuals with ASD who have a second language in their background. Readers are encouraged to teach words in English and Spanish.
Interventions/Issues	Durán (1996)	This book presents information about the history and best practices for children with ASD and are bilingual.
Interventions/Issues	Jones et al. (2011)	Information regarding utilization of applied behavior analytic techniques for individuals with ASD who speak Welsh are provided. Viewing multilingualism using an ABA lens can provide insights to those who work with students who have ASD from diverse groups.
Interventions/Issues	Langdon (2015)	The author provides a firsthand account regarding growing up bilingually and raising children in a bilingual environment. A research review presented in the paper contradicts the view that only one language should be used with individuals who have ASD and are bilingual.
Interventions/Issues	Lim et al. (2018)	Authors discuss the recommendation of the use of one language for individuals with ASD who are also bilingual. The authors suggest solicitation of parent input, collection of unbiased data, and addressing parent concerns.
Interventions/Issues	Medina & Salaman (2012)	A narrative review, which addresses the instruction of individuals with ASD who are bilingual. Recommendations for practitioners who do not speak the child's native language are addressed.
Interventions/Issues	Sanchez (2007)	The recommendation to utilize only one language when working with individuals with ASD who are bilingual is discussed. Recommendations regarding language use for these individuals could be made while keeping the child's relationships and culture in mind.
Interventions/Issues	Solomon (2018)	A review of ethnographic studies regarding language use in children who are bilingual and diagnosed with ASD.
Interventions/Issues	Welterlin & LaRue (2007)	The author present information about the beliefs of western practitioners influences the diagnosis, treatment, and determination of etiology for individuals with ASD. The literature detailing aspects that affect the provision of mental health services and conduct of research in these populations is also reviewed.
Interventions/Issues	Zionts & Zionts (2003)	A Special Issue, which focuses on the development of interventions for families from diverse groups whose child, is diagnosed with ASD. They discuss several articles that will be included in the Special Issue.
Parent Beliefs	None	

Research Studies

Thirty-nine of the articles included in this study had participants in their studies. The topics included were issues, interventions, parent beliefs, and bilingual exposure on language delay.

Articles Discussing Issues and Interventions

Coz, 2011 conducted a study where forty children from Latino backgrounds aged 4 to 12 years old who were diagnosed with ASD participated in computer intervention strategies to improve reading, expressive and receptive skills. Coz (2011) ran an ANOVA within subject design to compare pre and post assessments. Results indicated improvement in their expressive and receptive skills using a computer-assisted intervention.

In a study by Hudry (2017), they sampled 19 parent and child interactions between a monolingual group and a bilingual group of individuals with ASD in their native language and non-native language. They used the mean length of utterances (MLU), total utterances, and proportionate synchronous utterances as their intervention. Results showed few differences with the group of parents who were bilinguals to demonstrate less child imitations and expansions.

Ozerk (2017) evaluated the effects of video modeling with an 11-year-old child with ASD who was bilingual to increase social communication skills in Norway. The language they taught the social skills in was Norwegian. Findings indicated the effectiveness in video modeling to improve the social skills of children with ASD.

Tseng and Fuligni (2000) examined parent-adolescent relationships based on language use for 156 families who were from diverse groups such as Asia, Pilipino, and Latino backgrounds. Adolescent perceptions were evaluated using checklists, and they completed a Cohesion Evaluation Scale to determine perceptions and cohesion. The associations between the relationships of families and language use did not vary across different backgrounds.

Tsai et al. (2013) looked at the brain activity in two groups of children who were bilingual with ASD and without ASD. They evaluated electroencephalographic (EEG) oscillatory activity in the brain in both their native language (Mandarin Chinese) and English. Findings reported children with ASD having more difficulty with brain organization of semantics and syntactic sentences. Padmadewi (2017) explored the use of differentiated instruction and a “buddy program” helped a 10-year-old student in Indonesia learn English in a regular classroom. Results indicated the “buddy program” as effective intervention to teach English to students with ASD. Seung et al. (2006) conducted a longitudinal study with a three-year-old child with ASD. The authors used a Korean-English language intervention implemented at the parent's home for a period of 3 years. Results report using the child's native language to teach children with ASD communication with the gradual acquisition of the English language.

Duran (1984) conducted an experimental study with 15 adolescents with limited English proficiency to teach them functional living skills. Parent interviews helped assist the design of participant's goals. Systematic photographs with instructions in both English and Spanish, as an intervention for 15 adolescents who were bilingual with ASD was included. However, no

specific information was provided on the type of design they incorporated, nor were graphs included to evaluate participant data and progress.

Fernandez and Garcia (2012) conducted interviews with five families who had a child with ASD to evaluate the social consequences of using English as the only language and abandon their native language. Parents reported negative effects of using English only at home as instructed by professionals.

Mather and Jaffe (2010) included a case study of a child who was bilingual with ASD who was incorrectly diagnosed with a language impairment, because of her second language. Magaña et al. (2013) evaluated two groups of mothers, one group was from Latino backgrounds and the other group were from non-Latino white mothers. They discussed the differences in diagnosis for both groups, such as maternal level of education and number of sources of knowledge about the diagnosis of ASD. Similarly, Zuckerman et al. (2013) evaluated the diagnosis of ASD from a group of children from Latino backgrounds. They discuss the importance of pediatricians in early intervention.

Gonzalez-Barrero (2017) investigated the working memory and set shifting by comparing 20 children who were bilingual with ASD to a group of 20 children who were monolingual with ASD. Results indicated that there was no difference between the group of individuals or for the set shifting in daily life.

Lim and Charlop (2017) conducted an alternating treatment design to evaluate differences in play for four children with ASD who spoke another language. They found that the children engaged in increased play skills when they spoke their native language than English. For one of the four children, challenging behavior occurred less in the heritage language than English did. The authors discussed the use of heritage language in interventions for children with ASD.

Overton and colleagues (2007) evaluated the diagnosis for a sample of 18 children from Hispanic origin with ASD. They developed a decision-tree for diagnosing children with or without ASD. Previous research focused mainly on interventions for children, with only one intervention for adults who speak more than one language with ASD.

Bilingual Social Language Development

Many practitioners recommend the use of one language in the home environment because the use of two languages is said to confuse the child (Baker, 2013; Fernandez et al., 2012; Yu, 2016). Currently, there is no research to support the claim from practitioners (Gonzalez-Barrero, 2017; Hambly, & Fombonne, 2012; Leadbitter & Hudry, 2009; Ohashi et al., 2012; Peterson et al., 2011; Sen & Geetha, 2011; Valicenti-McDermott et al., 2013; Zhou et al., 2019).

Hambly and Fombonne (2012) evaluated social abilities and language levels between comparison groups of individuals who were monolingual and bilingual with ASD. Groups were further broken down by bilingual exposure levels. No statistically significant results were demonstrated in this study. The children from the bilingual group did not experience further language delays than the children from the monolingual group.

Reetzke et al. (2015) examined the association of bilingual exposure with structural and pragmatic language development in children who were Chinese with ASD using a quantitative design. Results indicated that bilingual exposure did not indicate poor performance compared to students who were monolingual with ASD.

Baldimti (2016) conducted a study in Greece with four groups of 16 children who were bilingual and monolingual. They evaluated the differences between narrative functioning and executive functioning tasks. The groups consisted of high functioning children with ASD who were bilingual and monolingual between another group of children who were not diagnosed with ASD but were bilingual and monolingual. They evaluated the differences between narrative functioning and executive functioning tasks. Results showed no statistically significant differences between the groups with the children who were diagnosed with high functioning ASD.

Drysdale and colleagues (2015) wrote a systematic review including eight studies, which discussed bilingual exposure on language delays for children with ASD, as well as issues and perceptions of parents who have a child with ASD from a CLD background. Results indicated that bilingual exposure does not have an impact on further language delays for children who were bilingual with ASD, which is congruent with what findings have reported (Hambly & Fombonne, 2012; Kremer-Sadlik, 2005; Ohashi et al., 2012; Wang et al., 2018).

Gonzalez-Barrero (2017) examined the language and cognition between bilingual and monolingual individuals with ASD. Results indicated selected advantages to the bilingual group for cognition, but not language. There were no findings from the morphological skills between groups.

Kay-Raining Bird (2012) conducted a survey to 49 parents from monolingual or bilingual families. Results described issues parents faced when raising a child from a bilingual home. Hambly and Fombonne (2014) also evaluated the cognitive and language abilities for two groups of children diagnosed with ASD. As the previous Hambly & Fombonne (2012), this article is also sub-grouped by level of bilingual exposure. Findings reported no statistically significant differences for social communication outcomes between groups. Cognitive abilities did not affect language development.

Parent Beliefs

There is a scarcity of research on ASD outside of monolingual predominantly Caucasian populations (Yu, 2013). Yet, practitioners often make recommendations regardless of the limited research. Culture and religion may play a role in the way parents view their child's disability (Ijaba, 2016; Jegatheesan, & Fowler, 2010). Collaborating with parents before incorporating a treatment plan can help acquire parent buy-in (Vesely, 2013). Collaboration with parents is an important aspect of working with all bilingual families (Jegatheesan & Fowler, 2010). In a study with 250 mothers from a Hispanic background, 55% believed their child with disabilities was a sign of God (Skinner et al., 2001). In the Hispanic culture, mothers have reportedly believed the diagnosis was fate or God's will (Ijaba, 2016). How parents view their child's disability can affect how they interact and implement treatment at home (Jegatheesan & Fowler, 2010).

Fernandez and Garcia (2012) conducted interviews with five families who had a child with ASD to evaluate the social consequences of using English as the only language and abandon their native language. Kim (2014) also conducted a semi-structured interview with a mother with a child diagnosed with ASD. This study drew data to describe the family cultural views. Rubinyi (2006) described her beliefs and experiences with her son who was diagnosed with ASD and bilingual. She writes about her challenges with the education that her son received during the earlier and later years of his life. Lastly, parent beliefs and stigma are also a topic within the literature that need further exploration (Zuckerman et al., 2018).

Discussion

This systematic mapping review summarized findings from 54 studies for individuals who are bilingual with ASD. ABA has demonstrated to be an effective intervention for this population by using evidence-based practices (Fahim & Nedwick, 2014; Jones, 2011). Some of the main findings were no significant results for language delay based on bilingual exposure for any of the included studies. As one of the core deficits of ASD, individuals with ASD experience communication issues (American Psychiatric Association, 2013). Therefore, parents and practitioners have doubts and questions regarding how bilingual children should be raised. In addition, parents are unsure if a second language will exacerbate their child's language delay (Beauchamp & MacLeod, 2017).

Recommendations for practitioners involve first getting to know the family well and the family's needs by conducting interviews with families. There may be negative consequences based on the recommendations from practitioners to parents that are not based on current research. These recommendations can have an impact on families as they can experience further difficulties trying to learn a new language and may even lead to further isolation from their child if asked to abandon their native language at home (Döpke, 2006). There might also be missed opportunities that prevent teaching of communication skills during those times when children are code switching or speaking in their native language. Parents and practitioners should not use a second language if they lack fluency or if they feel uncomfortable using it (Fahim & Nedwick, 2014). Practitioners are encouraged to get to know the culture of the student before they make any recommendations to parents. Cultural beliefs should be taken into consideration for a child who comes from a different background than the norm and is bilingual (Fahim & Nedwick, 2014). The family religion and culture may play a factor in how families view the disability (Jegatheesan et al., 2010). Therefore, practitioners working with this population are encouraged to ask parents questions and schedule home visits to understand families (Duran, 1996). If practitioners cannot make home visits, tele practice may be a feasible option to conduct interviews and build rapport with families. The use of questionnaires can be incorporated to open the discussion on the language used at home and help understand family routines with their children (Lim et al., 2018). They should also design interventions according to individual strengths and family priorities (Jegatheesan et al., 2010). The literature indicated that bilingualism would not negatively influence language development (Hambly & Fombonne, 2014; Lund et al., 2017; Park, 2014).

Table 2
Participant Characteristics

Author(s)	Number of Participants	Age/Grade	Gender	Country	Language Proficiency	Participant's Native Language
Baldirtsi et al. (2016)	6	7-11 years old	Males	Greece	NR	Albanian, English, Russian, Ukrainian, and Arabic.
Coz (2011)	40	4-12 years old	Males and Females	U.S	NR	Spanish
Drysdale et al. (2015)	182	20 months to 22 years	Males and Females	New Zealand	NR	English or French or 12 other languages
Duran (1984)	15	22 to 35 years old	NR	U.S	Limited	Spanish and English
Garvin et al. (2010)	1	7-9 years old	Female	U.S	Limited	Spanish
Gonzalez-Barrero & Nadig (2017a)	10	6-9 year old	Males and Females	Canada	Limited	English or French
Gonzalez-Barrero & Nadig (2017b)	13	4-10 years old	Males and Females	Canada	Limited	English, Spanish, and French
Gonzalez-Barrero & Nadig (2017c)	10	7-9 years old	Males and Females	Canada	Limited	English, French, or Spanish
Hambly & Fombonne (2009)	23	3-7 years old	Males and Females	Canada	NR	English or French
Hambly & Fombonne (2012)	45	36-78 months	Males and Females	Canada	NR	French, Spanish, or English
Hambly & Fombonne (2014)	23	3-7 years old	Males and Females	Canada	NR	English or French

Hudry et al., (2017)	19	2-6 years old	Males and Females	Australia	NR	Asian (Mandarin, Cantonese, Indonesian, Filipino, Punjabi, Tamil, Urdu) and European languages (Italian, Greek, German, Spanish) and Afrikaans.
Ijalba (2016)	22	37 to 45 months	Male and Females	U.S	NR	Spanish
Jegatheesan et al., (2010)	3	2-8 years old	Males	U.S	NR	Bangla, Hindi, Arabic, English, Urdu, Kachhi, and Gujarati
Jegatheesan (2011)	3	5-6 years old	Males	U.S	Variable	Bangia Hindi Arabic English Hindi Urdu Katch Gujarati Arabic English Hindi Urdu Arabic English
Kay-Raining Bird et al. (2012)	37	24-45 months	Males and Females	Canada	Variable	French , English, Spanish (12 languages included)
Kim & Roberti (2014)	1	5 years and 11 months	Male	U.S	NR	Spanish
Lim & Charlop (2018)	4	8-12 years old	Males	U.S	NR	Korean, Spanish
Leadbitter & Hudry (2009)	10	2-5 years	NR	U.S	NR	Non-English
Magaña et al. (2013)	48	2-22 years old	Males and Females	U.S	NR	Spanish
Ohashi et al. (2012)	20	31.5 to 49.5 months	Males and Females	Canada	NR	English or French (11 additional languages included)
Overton et al. (2007)	18	20 months–16 years of age	Males and Females	U.S	NR	Spanish
Özerk & Özerk (2017)	1	11 years old	Male	Norway	NR	NR

Padmadewi & Artini (2017)	1	10 years old	Male	Indonesia	Limited	Bahasa Indonesia
Petersen et al. (2012)	14	43-73 months	Males and Females	Canada	NR	Chinese and English
Reetzke et al. (2015)	23	45–98 months	Male and Females	U.S	Limited	Chinese
Rubinyi (2006)	1	NR	Male	U.S.	Proficient	French and English
Sen & Geetha (2011)	5	4-10 years old	Males and Females	India	NR	Hindi
Seung et al. (2006)	1	3-6 years old	Male	U.S	NR	Korean
Tsai et al. (2013)	10	17-20 years old	Males and Females	Taiwan	Limited	Mandarin Chinese
Tseng & Fuligni (2000)	126	6 th , 8 th , and 10 th grade	Males and Females	U.S.	Varied	Japanese, Korean, Chinese, Vietnamese, Spanish
Valicenti-McDermott et al. (2013)	40	25-27 months	Males and Females	U.S	NR	English or Spanish
Wang	459	24-60 months	Males and Females	Canada	NR	Spanish, French, English, Chinese, other languages included
Yu (2013)	10	3-8 years old	Males and Females	China	NR	English and Mandarin
Yu (2016)	1	6 years old	Male	U.S	NR	Mandarin and Chinese
Yu (2009)	15	6 months to 14 years of age	Males and Females	U.S.	Limited	Mandarin

y Garcia et al. (2012)	8	NR	NR	U.S.	Varied Levels	Mandarin, Portuguese, Hebrew, Spanish, Arabic
Zhou	13	12–26 months	Males and Females	U.S.	NR	NR
Zuckerman et al. (2018)	189	Mean age of 3.5 years old	Males and Females	U.S.	Varied Levels	Spanish

Note. NR=Not Reported; Country is referring to the country where the study was published; Language proficiency is of the tested language

References

*Indicates studies included in the mapping review.

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed. text rev.). Washington, DC: Author.
- American Speech-Language-Hearing Association. (2004). *Knowledge and Skills Needed by Speech-Language Pathologists and Audiologists to Provide Culturally and Linguistically Appropriate Services* [Knowledge and Skills]. Available from www.asha.org/policy.
- Association of Professional Behavior Analysts. (2017). ABOUT BEHAVIOR ANALYSIS. Retrieved June 12, 2019, from <https://www.bacb.com/about-behavior-analysis/>
- Baio, J., Wiggins, L., Christensen, D. L., Maenner, M. J., Daniels, J., Warren, Z., ... & Durkin, M. S. (2018). Prevalence of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2014. *MMWR Surveillance Summaries*, 67(6), 1.
- *Baldimtsi, E., Peristeri, E., Tsimpli, I. M., & Nicolopoulou, A. (2016). Bilingual Children with High Functioning Autism Spectrum Disorder: Evidence from Oral Narratives and Non-verbal Executive Function Tasks.
- *Baker, D. (2013). Particular polyglots: multilingual students with autism. *Disability & Society*, 28, 527-541.
- Beauchamp, M. L., & MacLeod, A. A. (2017). Bilingualism in children with autism spectrum disorder: Making evidence based recommendations. *Canadian Psychology/Psychologie Canadienne*, 58, 250.
- Bureau, U. (2015). Data Profiles. Retrieved June 25, 2020, from <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2015/>
- Centers for Disease Control and Prevention. (2020, March 25). Data & Statistics on Autism Spectrum Disorder. Retrieved June 25, 2020, from <https://www.cdc.gov/ncbddd/autism/data.html>
- Centers for Disease Control and Prevention. (2018, May 03). Autism Spectrum Disorder (ASD). Retrieved December 21, 2018, from <https://www.cdc.gov/ncbddd/autism/facts.html>
- *Coz, O. (2011). *The effects of a computer-assisted intervention with bilingual Latino children diagnosed with autism*. Adler School of Professional Psychology.
- *Döpke, S. (2006). Is bilingualism detrimental for children with autism. *FKA Children's Services Inc., Richmond, Australia*.
- *Drysedale, H., van der Meer, L., & Kagohara, D. (2015). Children with autism spectrum disorder from bilingual families: A systematic review. *Review Journal of Autism and Developmental Disorders*, 2(1), 26-38.
- *Duran, E. (1984). A University Program Provides Services to Young Adults of Severe Handicaps and Autism Who Are of Limited English Proficiency.
- *Duran, E. (1985). Teaching functional reading in context to severely retarded and severely retarded autistic adolescents of limited English proficiency. *Adolescence*, 20 (78), 433-439.
- *Duran, E. (1996). Teaching students with moderate/severe disabilities, including autism: Strategies for second language learners in inclusive settings. CC Thomas.
- Fahim, D., & Nedwick, K. (2014). Around the world: Supporting young children with ASD who are dual language learners. *Young Exceptional Children*, 17(2), 3-20.

- *Gonzalez-Barrero, A. M., & Nadig, A. S. (2017). Can Bilingualism Mitigate Set-Shifting Difficulties in Children With Autism Spectrum Disorders?. *Child development*.
- *Gonzalez-Barrero, A. M., & Nadig, A. (2018). Bilingual children with autism spectrum disorders: The impact of amount of language exposure on vocabulary and morphological skills at school age. *Autism Research*, 11(12), 1667-1678.
- *Gonzalez-Barrero, A. M., & Nadig, A. (2017). Verbal fluency in bilingual children with autism spectrum disorders. *Linguistic Approaches to Bilingualism*, 7(3), 460-475.
- Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Info Libr J*. 2009;26:91–108.
- *Hambly, C., & Fombonne, E. (2012). The impact of bilingual environments on language development in children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 42(7), 1342-1352.
- *Hambly, C., & Fombonne, E. (2009). The impact of bilingual exposure on the expressive language of children with autism spectrum disorders. In *Poster presented at the annual meeting of the International Society for Autism Research, Chicago, IL*.
- *Hambly, C., & Fombonne, E. (2014). Factors influencing bilingual expressive vocabulary size in children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 8(9), 1079-1089.
- *Ijalba, E. (2016). Hispanic immigrant mothers of young children with autism spectrum disorders: How do they understand and cope with autism? *American journal of speech-language pathology*, 25(2), 200-213.
- International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM). Retrieved from: <https://icd.who.int/browse10/2016/en#/F83>
- *Jegatheesan, B., Miller, P. J., & Fowler, S. A. (2010). Autism from a religious perspective: A study of parental beliefs in South Asian Muslim immigrant families. *Focus on Autism and Other Developmental Disabilities*, 25(2), 98-109.
- *Jegatheesan, B. (2011). Multilingual development in children with autism: Perspectives of South Asian Muslim immigrant parents on raising a child with a communicative disorder in multilingual contexts. *Bilingual Research Journal*, 34(2), 185-200.
- *Jones, E. W., Hoerger, M., Hughes, J. C., Williams, B. M., Jones, B., Moseley, Y., ... & Prys, D. (2011). ABA and diverse cultural and linguistic environments: A Welsh perspective. *Journal of Behavioral Education*, 20(4), 297-305.
- Kalyanpur, M., Harry, B. (2012). Cultural reciprocity in special education: Building family-professional relationships. Baltimore, MD: Brookes Publishing Company
- *Kay-Raining Bird, E., Lamond, E., & Holden, J. (2012). Survey of bilingualism in autism spectrum disorders. *International Journal of Language & Communication Disorders*, 47(1), 52-64.
- *Kim, H. U., & Roberti, M. (2014). "Tengo Que Habla Español. Yo No Entiendo Ingles!": A Qualitative Case Study on a Bilingual Child with Autism Spectrum Conditions. *Journal of Special Education Apprenticeship*, 3(1), n1.
- Klingner, J. , & Soltero-González, L. (2009). Culturally and linguistically responsive literacy instruction for English language learners with learning disabilities. *Multiple Voices for Ethnically Diverse Exceptional Learners*, 12 (1), 4–20.
- *Kremer-Sadlik, T. (2005). To be or not to be bilingual: Autistic children from multilingual families. In *Proceedings of the 4th International Symposium on Bilingualism* (pp. 1225-1234).

- *Langdon, H. W. (2015). Raising children bilingually. *Health Psychology Report*, 3 (3), 260-268.
- *Leadbitter, K., & Hudry, K. (2009). Does bilingualism affect language development in autism. In *Poster session presented at the International Meeting for Autism Research, Chicago, IL*.
- *Lim, N., O'Reilly, M. F., Sigafoos, J., & Lancioni, G. E. (2018). Understanding the linguistic needs of diverse individuals with autism spectrum disorder: Some comments on the research literature and suggestions for clinicians. *Journal of autism and developmental disorders*, 48 (8), 2890-2895.
- *Lim, N., & Charlop, M. H. (2018). Effects of English versus heritage language on play in bilingually exposed children with autism spectrum disorder. *Behavioral Interventions*, 33(4), 339-351.
- Lund, E. M., Kohlmeier, T. L., & Durán, L. K. (2017). Comparative language development in bilingual and monolingual children with autism spectrum disorder: A systematic review. *Journal of Early Intervention*, 39(2), 106-124.
- *Mather, N., & Jaffe, L. E. (2010). *Comprehensive evaluations: Case reports for psychologists, diagnosticians, and special educators*. John Wiley & Sons.
- *Magaña, S., Lopez, K., Aguinaga, A., & Morton, H. (2013). Access to diagnosis and treatment services among Latino children with autism spectrum disorders. *Intellectual and Developmental Disabilities*, 51(3), 141-153.
- *Medina, A. M., & Salamon, J. T. (2012). Current Issues in Teaching Bilingual Children with Autism Spectrum Disorder. *Journal of the American Academy of Special Education Professionals*, 69, 75.
- Merriam-Webster. (n.d.). Bilingualism. In *Merriam-Webster.com dictionary*. Retrieved September 14, 2020, from <https://www.merriam-webster.com/dictionary/bilingualism>
- National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention. (2020, March 13). Screening and Diagnosis of Autism Spectrum Disorder. Retrieved September 14, 2020, from <https://www.cdc.gov/ncbddd/autism/screening.html>
- *Ohashi, J. K., Mirenda, P., Marinova-Todd, S., Hambly, C., Fombonne, E., Szatmari, P., ... & Volden, J. (2012). Comparing early language development in monolingual-and bilingual-exposed young children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 6(2), 890-897.
- *Overton, T., Fielding, C., & de Alba, R. G. (2007). Differential diagnosis of Hispanic children referred for autism spectrum disorders: Complex issues. *Journal of Autism and Developmental Disorders*, 37(10), 1996-2007.
- *Özerk, M., & Özerk, K. (2017). A bilingual child learns social communication skills through video modeling-a single case study in a norwegian school setting. *International Electronic Journal of Elementary Education*, 8(1), 83-98.
- *Padmadewi, N. N., & Artini, L. P. (2017). Teaching English to a Student with Autism Spectrum Disorder in Regular Classroom in Indonesia. *International Journal of Instruction*, 10(3), 159-176.
- *Petersen, J. M., Marinova-Todd, S. H., & Mirenda, P. (2012). Brief report: An exploratory study of lexical skills in bilingual children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 42(7), 1499-1503.

- *Reetzke, R., Zou, X., Sheng, L., & Katsos, N. (2015). Communicative development in bilingually exposed Chinese children with autism spectrum disorders. *Journal of Speech, Language, and Hearing Research*, 58(3), 813-825.
- *Rubinyi, S. (2006). *Natural genius: The gifts of Asperger's syndrome*. Jessica Kingsley Publishers.
- *Sanchez, B. (2007). *Autism Spectrum Disorder and Bilingualism: An Integration of Neurological, Language, and Relational Dynamics in Increasingly Multicultural and Globalized Systems* (Doctoral dissertation, Chicago School of Professional Psychology).
- *Sen, M., & Geetha, Y. V. (2011). LANGUAGE ABILITIES IN BILINGUAL CHILDREN WITH AUTISM (CWA). *Journal of the All India Institute of Speech & Hearing*, 30.
- *Seung, H., Siddiqi, S., & Elder, J. H. (2006). Intervention outcomes of a bilingual child with autism. *Journal of Medical Speech-Language Pathology*, 14 (1), 53-64.
- Skinner, D. G., Correa, V., Skinner, M., & Bailey Jr, D. B. (2001). Role of religion in the lives of Latino families of young children with developmental delays. *American Journal on Mental Retardation*, 106(4), 297-313.
- *Solomon, O. (2008). Language, autism, and childhood: An ethnographic perspective. *Annual Review of Applied Linguistics*, 28, 150-169.
- *Tsai, A. C., Savostyanov, A. N., Wu, A., Evans, J. P., Chien, V. S., Yang, H. H., ... & Liou, M. (2013). Recognizing syntactic errors in Chinese and English sentences: Brain electrical activity in Asperger's syndrome. *Research in Autism Spectrum Disorders*, 7(7), 889-905.
- *Tseng, V., & Fuligni, A. J. (2000). Parent-Adolescent language use and relationships among immigrant families with East Asian, Filipino, and Latin American backgrounds. *Journal of Marriage and Family*, 62(2), 465-476.
- Tuomisto, M.T. & Parkkinen, L. (2010). Translating and developing the terminology of behavior analysis to a national language: its challenges, advantages, and fascination. Paper presented at ABA European conference, Crete, September 2010.
- U.S Department of Education. (n.d.). OUR NATION'S ENGLISH LEARNERS. Retrieved June 22, 2020, from <https://www2.ed.gov/datastory/el-characteristics/index.html>
- *Valicenti-McDermott, M., Tarshis, N., Schouls, M., Galdston, M., Hottinger, K., Seijo, R., ... & Shinnar, S. (2013). Language differences between monolingual English and bilingual English-Spanish young children with autism spectrum disorders. *Journal of Child Neurology*, 28(7), 945-948.
- Vesely, C. K. (2013). Low-income African and Latina immigrant mothers' selection of early childhood care and education (ECCE): Considering the complexity of cultural and structural influences. *Early Childhood Research Quarterly*, 28(3), 470-486.
- Villegas-Gutiérrez, M. (2015). Special Education Assessment Process for Culturally and Linguistically Diverse (CLD) Students. Retrieved September 14, 2020, from [http://5c2cabd466efc6790a0a-6728e7c952118b70f16620a9fc754159.r37.cf1.rackcdn.com/cms/Special_Education_Assessment_Process_for_Culturally_and_Linguistically_Diverse_\(CLD\)_Students_with_logs_and_links_1489.pdf](http://5c2cabd466efc6790a0a-6728e7c952118b70f16620a9fc754159.r37.cf1.rackcdn.com/cms/Special_Education_Assessment_Process_for_Culturally_and_Linguistically_Diverse_(CLD)_Students_with_logs_and_links_1489.pdf)
- Wandry, D. L. (2009). *Engaging and empowering families in secondary transition: A practitioner's guide*. Council for Exceptional Children.
- *Wang, M., Jegathesan, T., Young, E., Huber, J., & Minhas, R. (2018). Raising Children with Autism Spectrum Disorders in Monolingual vs Bilingual Homes: A Scoping Review. *Journal of Developmental & Behavioral Pediatrics*, 39(5), 434-446.

- *Welterlin, A., & LaRue, R. H. (2007). Serving the needs of immigrant families of children with autism. *Disability & Society*, 22(7), 747-760.
- *y Garcia, E. F., Breslau, J., Hansen, R., & Miller, E. (2012). Unintended consequences: An ethnographic narrative case series exploring language recommendations for bilingual families of children with autistic spectrum disorders. *Journal of Medical Speech-Language Pathology*, 20(2), 10-17.
- World Health Organization. (1992). *International classification of diseases: Diagnostic criteria for research* (10th edition). Geneva, Switzerland: Author.
- *Yu, B. (2013). Issues in bilingualism and heritage language maintenance: Perspectives of minority-language mothers of children with autism spectrum disorders. *American Journal of Speech-Language Pathology*, 22(1), 10-24.
- *Yu, B. (2016). Bilingualism as conceptualized and bilingualism as lived: A critical examination of the monolingual socialization of a child with Autism in a bilingual family. *Journal of autism and developmental disorders*, 46(2), 424-435.
- *Yu, B. (2016). Code-switching as a communicative resource within routine, bilingual family interactions for a child on the autism spectrum. *Perspectives of the ASHA Special Interest Groups*, 1(14), 17-28.
- *Zionts, L. T., & Zionts, P. (2003). Multicultural aspects in the education of children and youth with autism and other developmental disabilities: Introduction to the special issue. *Focus on Autism and Other Developmental Disabilities*, 18(1), 2.
- *Zhou, V., Munson, J. A., Greenson, J., Hou, Y., Rogers, S., & Estes, A. M. (2019). An exploratory longitudinal study of social and language outcomes in children with autism in bilingual home environments. *Autism*, 23(2), 394-404.
- *Zuckerman, K. E., Mattox, K., Donelan, K., Batbayar, O., Baghaee, A., & Bethell, C. (2013). Pediatrician identification of Latino children at risk for autism spectrum disorder. *Pediatrics*, 132(3), 445.
- *Zuckerman, K. E., Lindly, O. J., Reyes, N. M., Chavez, A. E., Cobian, M., Macias, K., ... & Smith, K. A. (2018). Parent perceptions of community autism spectrum disorder stigma: Measure validation and associations in a multi-site sample. *Journal of Autism and Developmental Disorders*, 48, 3199-3209.

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Elementary Principals' Views on the Policies and Practices of Paraeducators in Special Education

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Abstract

Paraeducators are often utilized in the education of students with disabilities, and principals play key administrative roles with paraeducators. However, little research exists to understand principals' experiences with paraeducators. This study explored principals' perceptions regarding paraeducators in elementary settings. Given the varied educational policies across the U.S., we utilized a mixed-methods approach to explore the state context related to paraeducators and experiences of principals in one Midwestern U.S. state. Interviews were conducted with state department of education (DOE) employees to understand the educational context and policies. Then questionnaires were developed based on literature, DOE interviews, and feedback from experts and distributed to principals across the state using stratified random sampling. Qualitative and quantitative analyses were used to analyze questionnaire responses. Results indicate a lack of formal policies statewide, which led to varied practices. Principals identified a need for well-defined state level policies to support paraeducator hiring, training, supervision, and evaluation.

Keywords: paraeducator, paraprofessional, principal, education policy, special education

Elementary Principals' Views on the Policies and Practices of Paraeducators in Special Education

Paraeducators - also referred to as paraprofessionals, teaching assistants, and classroom aides – support children in numerous ways in educational settings, ideally under the direction of education professionals such as teachers (Fisher & Pleasants, 2012). With the increased emphasis on inclusive education, the use of paraeducators has steadily spread over the past 60 years, particularly to support elementary level special education students (Author, 2019; Malian, 2011). Paraeducator roles have expanded, with paraeducators now supervising students and providing support in instruction, personal care, social skills, and behavior management (Carter et al., 2009; Fisher & Pleasants, 2012). Paraeducators also support teachers by documenting services received by students (Author, 2016), and collecting and recording student data (Carter et al., 2009). Despite the increasing reliance on paraeducators in the educational system, most paraeducators are employed in part-time positions with limited benefits and low wages (Fisher & Pleasants, 2012). Furthermore, paraeducators often lack clarity in their roles, and receive limited supervision, direction, and guidance from both teachers and administrators (Fisher & Pleasants, 2012; Giangreco et al., 2010). These challenges result in poorly prepared paraeducators and challenges with recruitment and turnover (Fisher & Pleasants, 2012; Giangreco, 2010; Giangreco et al., 2010).

What Laws and Policies Exist Related to Paraeducators?

Federal law reflects the role paraeducators now hold in the education system, but provides minimal guidance for principals to follow in their work with paraeducators. In the Individual Disabilities Education Act of 1997 (IDEA), notes the use of paraeducators in “the provision of special education and related services...to children with disabilities” and the need for paraeducators “who are appropriately trained and supervised” (20 U.S.C. 1412(a)(14)) . However, little guidance was provided within the law to ensure effective training and supervision of paraeducators and no specificity was provided to detail the supervisory roles of educational team members with paraeducators. The No Child Left Behind Act (NCLB) of 2002 and the Individuals with Disabilities Education Act of 2004 continued to recognize the use of paraeducators, but emphasized the need for “highly qualified” paraeducators who have appropriate skills and knowledge. However, with minimal guidance about how to best ensure paraeducators are highly qualified, most districts increased educational requirements or instituted the use of a competency exam to ensure knowledge upon hiring, but did not adjust on the job training practices for paraeducators (Ashbaker & Morgan, 2006). In 2015, when the Every Student Succeeds Act (ESSA) replaced NCLB (2002), the “highly qualified” requirements for paraeducators were upheld, and further clarification was provided around appropriate professional development opportunities for paraeducators with added emphasis on including paraeducators as stakeholders in state and local educational plans. Given the recognition of paraeducator use in educational settings within federal laws, but limited guidance within the law despite increased mention of paraeducators, some states have passed laws to ensure paraeducator qualifications, training, and supervision (see Connecticut Senate bill 913, 2017; Washington State House bill 1115, 2017). Most states, however, have no policies related to paraeducators.

Administrative Roles and Challenges Related to Paraeducators

Administrators hold important roles in the supervision of paraeducators. These roles include conducting observations of paraeducator performance, completing formal evaluations, and supporting teachers in day to day supervisory responsibilities with paraeducators (Ashbaker & Morgan, 2006; Riggs & Riggs, 2002). However, the lack of clear policies, combined with the increasing prevalence of paraeducators, has resulted in a growing burden for administrators to develop approaches to support paraeducators (Riggs & Riggs, 2002). Research in the area of educational administration highlights the need for policies related to paraeducator hiring, training, and supervision (Ashbaker & Morgan, 2006; Ramsey, 2013). Specifically researchers have identified a need for policies to address the challenges recruiting and retaining paraeducators (Giangreco et al, 2010), address the financial and educational costs associated with paraeducator turnover (Ghere & York-Barr, 2007), involve teachers in the hiring process (Author, 2016; Ashbaker & Morgan, 2006), and improve paraeducator training practices (Author, 2016). Specific suggestions have been provided for remediating these challenges including the use of clear job descriptions for paraeducators and teacher supervisors (Jones et al., 2012), designated time for teachers and paraeducators to meet with support from administrators to facilitate that meeting time (Riggs & Riggs, 2002), and improving paraeducator work conditions by ensuring paraeducators are treated as a part of the team (Giangreco et al., 2010). Policies should also support relevant training opportunities for both paraeducators and teacher supervisors, especially related to teacher’s roles in day to day supervision, observation, and feedback (Ramsey, 2013; Sobeck & Robertson, 2019).

Both paraeducators and teachers also identify the important roles principals hold in relation to paraeducators. Paraeducators highlight the need for direction and support from supervisors including principals (Fisher & Pleasants, 2012), and the need for administrative support to ensure training (Breton, 2010). Teachers, emphasize the support they need from principals to carry out their supervisory roles with paraeducators and note the role principals hold in conducting formal evaluations, addressing conflict management, and facilitating training and meeting times for paraeducators (Author, 2016). Yet, both paraeducators and teachers consistently note a lack of support from principals in each of these areas (Author, 2016; Breton, 2010; Fisher & Pleasants, 2012). Furthermore, there is a growing body of research highlighting the challenges that arise for students when paraeducators are misused and overused (Giangreco et al., 2010), including reduced peer interactions, reduced teacher engagement, and paraeducator dependence (Giangreco, 2010). These challenges raise legal, ethical, and programmatic concerns relevant to principals (Chopra & Giangreco, 2019).

Current Study

Although principals play an important role in supporting paraeducators, and there are well documented challenges related to paraeducator supports for students with special needs of relevance to principals (e.g., lack of training, limited supervision, overuse/misuse of paraeducators), little is known about principals' perspectives on policies, hiring, and practices, related to paraeducators. Such knowledge could be used to develop policies related to paraeducators, provide recommendations related to principal and teacher preparation, and improve educational team functioning. To address this gap in the literature, we conducted a mixed methods study to examine principals' perspectives related to paraeducator supports in elementary settings (Creswell, 2015; see Figure 1). We focused on the elementary level due to the high rate of paraeducator employment (U.S. Department of Education, 2007), and on a single Midwestern state to understand principals' perspectives under the same state-level policies. Given the variance in state level policies across the U.S. related to paraeducators, semi-structured interviews were first conducted with Department of Education (DOE) employees to understand state-level policies and answer the research question: *What state-level policies and procedures are in place related to principal support of paraeducators?* DOE responses then informed questionnaire development to provide a more complete understanding of the influence of state level policies related to paraeducators and answer three additional research questions: (a) *What are the perceptions of elementary level principals related to paraeducator hiring, training, supervision, and evaluation?*; (b) *What benefits and challenges do principals perceive related to paraeducators?*; and (c) *What recommendations do principals have for paraeducator policies?*

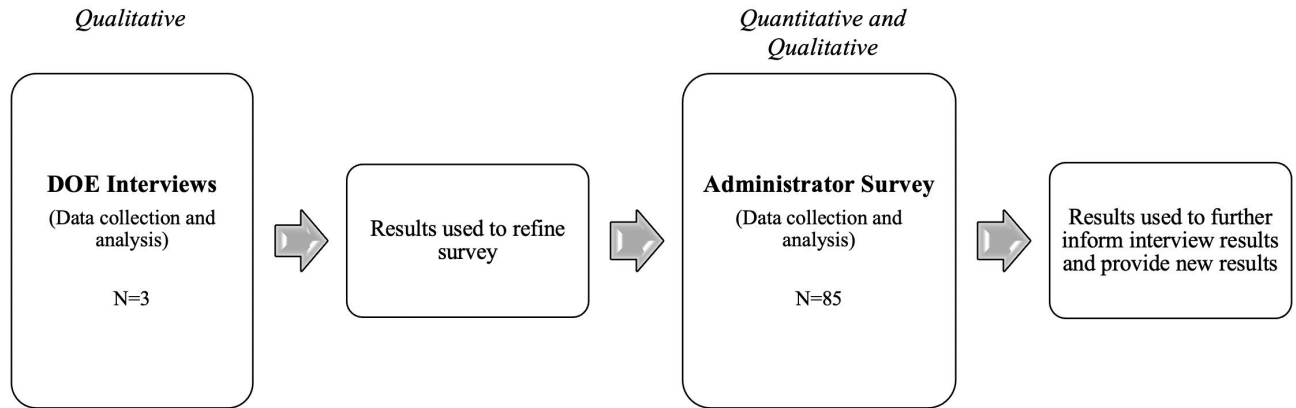


Figure 1: Data Collection, Analysis, and Interpretation Procedures

Method

An exploratory sequential mixed methods study was conducted to examine principals' perspectives related to paraeducator policy, hiring, and practices in elementary settings (Creswell, 2015). A mixed method approach was determined to be the most appropriate method to answer the research questions as it allows for in depth exploration through the combination of qualitative and quantitative methods (Bryman, 2006). In alignment with this design, the study included purposeful sampling of qualitative data using semi-structured interviews with key employees of the DOE and completion of an online questionnaire (including quantitative and qualitative items) by randomly selected elementary principals in the focal state (Creswell, 2015).

First, semi-structured interviews were conducted with DOE employees knowledgeable about state level policies related to paraeducators to understand the context in which principals support paraeducators. Phone calls and searches of the DOE website were conducted to identify relevant employees in all sub-departments of the DOE. Three employees, representing the offices of special education and education improvement, were determined to be the most appropriate for interviews. Each employee was contacted and interviewed via phone. Interviews took an average of 19 minutes (range =15-23). Each DOE employee was asked questions relevant to principal support for paraeducators – including questions related to policies for paraeducator employment (i.e., What policies currently exist related to paraeducator employment?), training and supervision (i.e., What policies currently exist related to paraeducator training and supervision?), and perspectives of legislation that should be implemented (i.e., Should there be additional legislation or policy related to paraeducators? If so, what should the focus be of such policies/legislation?). Interviews were audio recorded and transcribed for later analysis.

Next, a questionnaire was developed to understand principals' perspectives related to paraeducator hiring, training, supervision, and evaluation practices, and recommendations for policies and procedures to improve paraeducator utilization. First we conducted an extensive review of the literature to locate existing questionnaires relevant to the study. Two questionnaires were located, but neither fully addressed the research questions guiding the study. Therefore, a new questionnaire was constructed including elements from these measures, existing literature,

and findings from the DOE interviews. Four paraeducator experts provided feedback on the questionnaire and adjustments were made based on their feedback before use in the study. The final questionnaire included both quantitative and qualitative items which allowed us to gain a better understanding of paraeducator utilization and principals' perspectives (see Appendix A). This included demographic questions (e.g., position, education, experience, certification, district), open-ended questions (i.e., hiring procedures, training, supervision, evaluation practices, benefits/challenges of working with paraeducators), and rating scales to understand the frequency of specific practices or agreement with specific perceptions (i.e., team roles of principals, teachers, and paraeducators, and paraeducator training). See Table 1 for sample questions/items from the questionnaire.

Eighty-five principals, serving students in grades K-6, completed the questionnaire after email contact which included a description of the study, its purpose and goals, and a link to the questionnaire (see Appendix A for a copy of the questionnaire). Principals were selected using stratified random sampling involving all elementary schools in the focal state. 508 principals were sampled and 85 completed the questionnaire. The final participation rate was 12.7%, with a slight under sampling of schools within cities, and slight oversampling of suburban schools. Most principals had a Master's level education (82%), were female (60%), white (83%), and ranged in age from 41-60 (71%). Questionnaire completion took an average of 37 minutes.

DOE interviews and qualitative items within the questionnaire were analyzed using a constant comparative approach (Fram, 2013). A constant comparative approach was determined most appropriate for analysis of the qualitative questionnaire data given the richness of the qualitative responses from principals and DOE employees (see Thorne, 2000). Analysis included the following process. First, each author read through and familiarized themselves with the data and developed topic areas with all authors based on the data. Once initial topics were identified, one member of the research team conducted an independent analysis of the data for each topic area to identify themes and subthemes. A second team member independently coded the data using the same approach. After independent initial coding results were discussed between the two team members to reach consensus and discuss any disagreements. Then the whole research team met to discuss the findings from the two coders. Themes and subthemes were adjusted and refined as necessary during this process to accurately capture the data. Throughout coding authors identified and agreed upon illustrative quotes. This iterative coding and analysis process was continued for each topic area with team roles rotating to ensure reliability and validity of the data using investigator triangulation (Denzin, 1989).

Quantitative data from the questionnaire were analyzed using descriptive statistical methods. Frequency and means were determined for each quantitative item in the questionnaire. Qualitative responses were also analyzed to determine frequency of themes. Quantitative data were analyzed separately and then merged with qualitative data to support triangulation and a full understanding of the topic (see Figure 1; Creswell & Plano Clark, 2011).

Table 1
Study Themes, Sample Questions, and Data Results

Abbreviated Theme	Measure	Sample Question/Item	Sample Data Results
Existing Policies	I	What policies currently exist related to paraeducator training?	<i>We're not here to mandate how paraprofessionals should work in their local districts because [that's] locally controlled.</i>
Hiring	Qs	Teachers are included in the hiring of paraeducators.	Principals generally disagreed or were neutral on teacher involvement in paraeducator hiring. (M=2.87; SD=1.45)
	Qo	What challenges do you face when hiring paraeducators?	<i>Many paraeducators resign, there is high turnover, low retention, and perpetually unfilled positions.</i>
Training	Qs	Indicate the level of training paraeducators receive.	Principals indicated little training in modifications (M=2.60, SD=.95) and assessment (M=2.67, SD=1.00).
	Qo	Describe how you prepare paraeducators for the beginning of the school year.	<i>We do not do a good job with this. We provide basic information ... We also provide Non-Violent Crisis Prevention training. We need to do more.</i>
Supervision	Qs	Teachers are provided with feedback from principals about support to paraeducators.	Principals were neutral about teachers being provided with feedback about their support to paraeducators. (M=3.4, SD=1.22)
	Qo	Describe the day-to-day supervision and training provided to paraeducators in your school.	<i>Day-to-day supervision is, for the most part, under the direction of the classroom teacher where the para[educator] is assigned. Principals do provide some input.</i>
Evaluation	Qs	The paraeducator receives a formal evaluation at least yearly. Describe the	Principals agreed that paraeducators received formal evaluations at least yearly (M=3.95, SD=1.31).
	Qo	formal evaluation process for paraeducators.	<i>There is [no formal evaluation]. A huge problem area.</i>
Benefits	Qo	What are the some benefits that come from paraeducator supports to students with disabilities?	<i>Paraeducator support is the only way we could successfully include our students in general education classrooms.</i>
Recommendations	Qo	What recommendations do you have for paraeducator policies?	Suggested policy change by a principal: <i>State training programs that result in a certification as well as monetary bonuses.</i>

Notes. I=Interview, Qo=Questionnaire open ended question, Qs=Questionnaire scaled question, M=Mean, SD=Standard deviation

Results

Findings from this study resulted in several themes related to paraeducator hiring, practices, and policy (see Table 1 for abbreviated themes, sample questions/items within the study, and sample data results). Each theme is presented with relevant quantitative and qualitative data as is expected within mixed method research (Creswell & Plano Clark, 2011).

Lack of Paraeducator Policies

A major consensus within the study was that the focal state lacked paraeducator related policies. Data from both DOE interviews and principal questionnaires indicated a lack of state-level policies related to paraeducators. The only relevant policy noted during DOE interviews applied generally to all personnel who worked or volunteered schools (i.e., background check/fingerprinting prior to employment). Interviewees specified that policies related to paraeducator hiring, employment, and supervision were determined at the local level. One DOE employee stated: “The state is there to guide you, we want to train, we want to assist...but we’re not here to mandate how paraprofessionals should work in their local districts because [that’s] locally controlled.” Interviewees directed us to two state documents that outlined guidelines for school districts, but the distribution of these guidelines and extent to which they were followed was unknown by DOE employees. No principals mentioned the DOE guidelines within their responses, further illuminating the disconnect between available guidelines and use in schools. DOE employees made a clear distinction between policy and guidelines, and indicated that although guidelines were established, policies related to paraeducators were still needed.

Some Uniformity in Hiring Practices for Paraeducators

Findings from the questionnaire provided insight into paraeducator hiring practices, which were largely uniform across the state. First, within open ended responses, some principals (9%) indicated that current paraeducators were typically placed in open positions before outside applications were sought, regardless of performance concerns. However, in open ended responses, 46% of principals indicated that jobs that could not be filled internally were generally posted online for short periods of time with limited advertising. Applicants were screened for credentials, but districts varied in how principals participated in identifying qualified candidates. For example, in some districts principals identified candidates from applicant pools and participated in the interview, but in other districts applicants were screened at the district-level after which principals were included in interview processes. In open ended responses, principals indicated that interviews were conducted by district level administrators (44%), principals (53%), teachers (15%), and/or current paraeducators (4%). In a scaled item in the questionnaire, principals noted the lack of teacher involvement in the hiring process (55% of principals strongly disagreed, disagreed, or were neutral about teacher involvement in the process; See Table 1). One principal described the process this way: The “position is posted on the website...Principals [do the] first interview, central office does second interview per recommendation of building principals, HR completes hiring paperwork”. In some districts hiring was handled entirely by district administrators, with limited input from principals (7%). One principal provided an example of this model: “director of students services does the hiring... the building administrator is usually involved, but the positions being filled may not be in that administrator’s building.”

One of the practices that emerged within paraeducator hiring was ensuring paraeducator proficiency. In open-ended responses, principals noted several methods to ensure paraeducator proficiency prior to hiring including specific degree/credit hour requirements (31%), proficiency exams (e.g., WorkKeys; 31%), or the interview process itself (20%). One principal noted that during “the interview process...questions regarding acquired skills and how they are implemented to support student learning” were posed to assess proficiency. Other principals (27%) felt that little was done to ensure proficiency before hiring and instead relied on training after hire (16%), and probationary periods (8%) to ensure proficiency.

In open-ended responses, principals indicated several challenges related to paraeducator hiring. A primary concern was a lack of highly qualified applicants (54%). However, they also noted hiring challenges because of low pay and limited benefits (19%), limited hours (6%), and the difficulty of the work (8%). As a result, some principals reported hiring unqualified or minimally qualified individuals (9%) and noted issues with professionalism (11%), and sporadic work attendance/frequently tardies (6%). One principal summarized: “It is a very taxing job with undesirable tasks. It can be physically demanding and has relatively low pay. Many paraeducators resign, there is high turnover, low retention, and perpetually unfilled positions.”

Varied Approaches But Limited Training for Paraeducators

In contrast to the consistency in hiring practices, principals described many different training approaches with paraeducators at the beginning of the school year, which fell into four general themes: little/no training, district initiated training, teacher led training, or administrator led training. Occasionally a combination approach was used in schools such as a “brief meeting [with an administrator] reviewing duties and responsibilities” and district “required training such as CPR.” Regardless of the approach, many principals found training at the beginning of the year to be inadequate, especially when teachers were responsible for training or when little or no training was provided. Specifically, only 37% of principals indicated that teachers ensure paraeducators have appropriate training for the tasks they carry out in educational settings (9% of principals strongly disagreed, 33% disagreed, 20% were neutral, 34% agreed, 3% strongly agreed). One principal shared the challenge of ensuring appropriate training: “We do not do a good job with this. We provide basic information on student assignments based on past experiences and IEP notes/goals. We also provide Non-Violent Crisis Prevention training. We need to do more.” Principals indicated academic support (42%), information about disabilities (36%), and behavior management (28%) as the top three needed topics for paraeducator training.

Principals noted many challenges related to paraeducator training. In open-ended responses, 25% of principals indicated a lack of time and money invested into paraeducator training. Even when training was provided, opportunities were often voluntary or only available for a limited time frame, often without pay. One principal noted: “some professional development opportunities may be available prior to the start of school, but they are voluntary.” Another said they “impart important knowledge to [paraeducators] on the fly, as there is no formal training in place, and their educational backgrounds and work experience have not prepared them for the job.”

Need to Supervise Paraeducators

In open-ended responses, 44% of principals reported that the day-to-day supervision of paraeducators was the primary responsibility of teacher supervisors. They indicated that teachers

were not proficient in this role, yet specific supports were infrequently provided to teachers to improve their supervisory skills. For example, although 74% of principals felt that teachers understood their roles with paraeducators (55% of principals agreed, 19% of principals strongly agreed), many principals indicated that teachers did not conduct regular observations (26% of principals indicated teachers never conduct observations of paraeducators, 20% of principals indicated teachers conducted observations of paraeducators some days), nor provided regular feedback (12% of principals indicated teachers never provide regular feedback to paraeducators, 41% of principals indicated teachers provide regular feedback to paraeducator some days). In qualitative comments 54% of principals highlighted a lack of feedback from teacher supervisors as an area for improvement. Additionally, 28% of principals noted that they do not provide feedback to teachers regarding their work with paraeducators (9% of principals strongly disagreed that teachers are provided with feedback about the support they provide to paraeducators, 19% disagreed). One principal admitted that feedback to teachers related to their work with paraeducators “doesn’t usually happen unless it’s covered in regular teacher evaluation.” Another stated: “Day-to-day supervision is, for the most part, under the direction of the classroom teacher where the para[educator] is assigned. Principals do provide some input.” In open ended comments over half (55%) of principals felt that teachers were not prepared to carry out the supervisory role and required partnership with the principal. One indicated:

[Supervision] is done through the teacher supervisors who are not always well-equipped for this role. They sometimes come to me, the building principal, with honest feedback. They feel reluctant to give that feedback and ask me to deliver that information. Sometimes we make a plan for professional development to overcome issues and sometimes it is a direct conversation with me. On rare occasions, it is a direct conversation with the teacher in the room and the paraprofessional.

Need for Improved Processes for Formal Evaluation of Paraeducators

Reports from principals indicated that formal evaluation practices varied widely across districts. Principals responding to an open-ended question about the formal evaluation process noted inclusion of an observation (9%), written report (21%), and/or in-person meeting (18%). However, evaluations were usually general in nature. One principal stated: “There is a rubric used across [the] district that addresses professional responsibility, reliability, strategies, communication, [and] student interactions.” Principals also indicated that classroom teachers provided feedback (12%), with other paraeducators sometimes providing feedback (8%). Some principals noted that paraeducators complete self-evaluations (7%), while other principals used tools designed for teacher evaluation (6%) - such as the Danielson model, SMART goals, or the Marzano evaluation tool. One principal acknowledged this as a limitation stating that the paraeducator evaluation process “is the same as the teacher professional evaluation process.”

Formal evaluation most frequently occurred once per year (75% of principals agreed or strongly agreed; see Table 1). However, 16% of respondents indicated a lack of formal evaluation: “There is [no formal evaluation]. A huge problem area.” Another principal said: “Sadly, not possible under [our] current supervision model.” Principals were most often responsible for paraeducator evaluations. When principals did not assume full responsibility, they often oversaw the process or were involved in setting up observations or evaluation meetings. One principal used a hands-on approach, but acknowledged it was driven by interest, not policy. “Active for me. I do the

evaluation. I also do some of the direct training. I was a teacher trainer, literacy coach, and provide some district PD, so have an interest in adult education.” Although principals held primary responsibility for formal evaluations, the role of teachers in training and day-to-day supervision was emphasized.

Several challenges were noted by principals related to paraeducator evaluation within their responses to an open-ended request about paraeducator evaluation (e.g., *Describe the formal evaluation process for paraeducators*). Principals noted a need for formal evaluation processes (32%), including evaluation tools specifically designed for paraeducators (14%). One noted: “a strong structure for evaluating teaching staff” exists, but “zero training or tools [for paraeducators]” are provided. This principal went on to admit that hiring challenges influenced evaluation: “We are so desperate for paraeducators, we accept mediocrity because that is all we can find.” One principal further noted that one evaluation a year was insufficient, while others noted the evaluation requirements of other educators in the school resulted in a lack of time and attention devoted to paraeducators (14%). Some even admitted that they were unfamiliar with paraeducator roles (2%), so evaluating performance was difficult. Principals also noted time (14%) and gathering information from supervising teachers (6%) within evaluation as barriers to high quality paraeducator evaluations. “I do not always get accurate performance information from their assigned teachers because some teachers do not want to be involved in evaluating someone or hurting their feelings.” Another noted difficulty when corrective actions were needed: “Teachers do not ‘like’ to evaluate [paraeducators] especially when they see something that needs to be addressed.”

Benefits of Paraeducator Supports

Although principals noted many challenges, they also emphasized the value of paraeducators and the “huge” benefits for students related to paraeducator supports within open-ended responses. Principals noted that paraeducators facilitated the inclusion of children with disabilities and helped “level the playing field” for those children through instructional modifications, by allowing teachers to provide more individualized and small group instruction. One principal wrote: “paraeducator support is the only way we could successfully include our students in general education classrooms.” Principals also felt that paraeducator supports kept students from falling further behind and led to improved academic achievement of students. One stated: “Teachers do not always have the time...paraeducators help to fill in and make sure the student understands and is able to then hold them more accountable...students with disabilities can fall through the cracks without paraeducator support.” In response to an open-ended question (e.g., *What benefits do you perceive come from providing paraeducator supports to students with disabilities?*) 22% of principals noted benefits of paraeducators for academic achievement, 20% noted individualized attention, 13% noted social supports, 4% noted peer acceptance, and 12% noted classroom/behavior management. One principal said that paraeducators have the “ability to more consistently address behavioral concerns [and assist] with socialization and safety.”

Recommendations to Improve Paraeducator Implementation

Principals also provided recommendations to improve paraeducator supports in elementary schools with an emphasis on developing policies relevant to paraeducator issues (20%), or making changes to paraeducator compensation, training, and certification (36%). Principals felt that state level policies were necessary to ensure consistency with paraeducator hiring, training,

and pay. One principal indicated that: “state training programs that result in a certification as well as monetary bonuses provided to districts for improving the salary schedule to hire certified paraeducators” would be effective. Another felt similarly and noted that “higher levels of certification and appropriate state funding to be able to hire quality support staff” was essential. This principal went on to say: when “you pay peanuts, you get squirrels.”

Discussion

This study provides insight into the perceptions and practices of principals and highlights the lack of formal paraeducator policies within the focal state and the need for uniformity to guide paraeducator practices. The processes used within different districts varied widely, and lacked formal policies or procedures. This was apparent in the divergent responses for some topic areas. For example, although hiring practices were largely uniform, the interview process varied widely for principals as evidenced by large split in key players, and exclusion of principals in some cases. Findings indicate a need for clear policies and procedures to support improvements in hiring, training, and supervision of paraeducators.

Hiring practices recommended in the literature that might improve paraeducator utilization include job descriptions outlining roles for paraeducators, teachers, and principals (Jones et al., 2012) improved wages, and the use of interview instruments to select better paraeducator candidates (Dillon & Ebmeier, 2009). Principals also indicated a need for improved paraeducator training, including training specific to the individual responsibilities of paraeducators and training to cover behavior management, academic strategies, and disability specific topics. These recommendations align with research that indicates an increase in academic and behavior challenges from students when paraeducators lack training (Giangreco, Broer, & Suter, 2011) and a call for improved paraeducator trainings (Carter et al., 2009; Sobeck & Robertson, 2019). Interestingly, no principals highlighted other challenges associated with paraeducator use that have been documented in previous research, including interference with peer interactions, reduced teacher engagement, and dependence, nor did they indicate alternatives to the use of paraeducators in elementary settings (Giangreco, 2010). This omission highlights the continued research to practice gap in this area of the paraeducator literature and a need for researchers to make continued efforts to communicate the potential challenges associated with paraeducators with principals. Future research should explore principals’ understanding of potential drawbacks of paraeducator use and inform policies that can guide principals in appropriate use of paraeducators.

This study also reiterated the need for improved supervision of paraeducators, which is primarily provided by teachers (Haydon, Leko, & Stevens, 2018). This can be accomplished through improved administrator support (Ramsey, 2013), scheduled meeting times with paraeducators and teachers (Naraian, 2014), and pre-service and in-service training to teachers (Council for Exceptional Children, 2015). Additionally, since principals hold an important role in the supervision of paraeducators in their school (e.g., conduct formal evaluations, support teachers in day to day supervision; Ashbaker & Morgan, 2006), support and preparation for principals in regard to their role with paraeducators is also essential. Principals also indicated a desire for policies to support paraeducator evaluation, development of tools designed specifically to support paraeducator evaluation, alignment of the formal evaluation process with paraeducator

duties and job descriptions – topics which have not been adequately addressed in the literature and should be explored in future research. Principals also noted a desire for improved input from supervising teachers within paraeducator evaluations, which has been emphasized by the Council for Exceptional Children (2015). Progress in each of these areas would make important improvements to paraeducator evaluation processes.

Implications for Practice and Policy

This study highlighted needed changes in both practice and policy to improve paraeducator supports. Our findings provide suggested improvements to address concerns with paraeducator recruitment and retention, limited training for paraeducators, supervision needs of paraeducators, and evaluation processes for paraeducators. First, as noted in previous research, teachers require additional training to adequately carry out their roles with paraeducators (Author, 2016). Similarly, this study found that principals also need training to adequately carry out their roles with paraeducators. Next, we must continue to press for improvements in paraeducator training tied to assigned duties (Author, 2019). Finally, pay and benefits for paraeducators must be addressed to remediate the challenges districts face with paraeducator recruitment and retention. Changes might include formalized professional development advancement opportunities for paraeducators (Fisher & Pleasants, 2012). State level policies in paraeducator hiring, training, supervision, and evaluation would help usher changes, but in accordance to federal law, such policies should be created with input from paraeducators (Every Student Succeeds Act, 2015). Additionally, considering the lack of awareness principals had about existing state-level guidelines it is also important for the DOE to make efforts to effectively disseminate all policies that are created so that they are implemented within schools.

Limitations and Directions for Future Research

Although this study provides important insight into principals' perspectives, some limitations existed. First, this study involved interviews from DOE employees and questionnaires from principals in one state. The interviews with DOE employees were short given the lack of state policies and guidelines and included only three individuals who had knowledge of approaches to paraeducators at the state level, further highlighting the lack of emphasis within the state to ensure high quality paraeducator practices. Additionally, the principals within our study were all from the same state, so findings from this study may not generalize to other states. However the policies within this state, despite being quite limited, are similar to most states. Furthermore, this study considered only elementary school principals' perspectives related to paraeducator supports; more research is needed in this area especially in other grade levels and with additional relevant stakeholders (e.g., teachers, paraeducators). Furthermore, this study was exploratory in nature and focused on descriptive quantitative analyses coupled with qualitative findings. Future research could add clarity to this body of research by systematic data collection and inferential statistical analyses to examine potential predictors of perceptions of benefits and challenges of paraeducator support for students with disabilities.

Summary

Principals are crucial part of how the paraeducators are utilized in the educational system to provide supports for children with disabilities. This study provided important insights into the lack of state policies regarding paraeducators, and how principals perceive their efforts to develop and implement local practices. Principals who participated in this study emphasized the

importance of paraeducators in elementary settings, but emphasized the need for state level policies to ensure consistency for paraeducator hiring, training, supervision, and evaluation.

References

- An Act Concerning School Paraprofessional Training, Connecticut SB 913. (2017). Retrieved from <https://www.cga.ct.gov/2017/JFR/s/2017SB-00913-R00ED-JFR.htm> May 18, 2017.
- An Act Relating to Paraeducators. Washington state HB 1115. (2017). Retrieved from <http://lawfilesexext.leg.wa.gov/biennium/2017-18/Pdf/Bills/House%20Passed%20Legislature/1115-S.PL.pdf> May 18, 2017.
- Ashbaker, B. Y., & Morgan, J. (2006). The role of administrators in paraprofessional supervision to support ethnic minority students with special needs. *Educational Considerations*, 34, 17-21.
- Author. (2016).
- Author. (2019).
- Breton, W. (2010). Special education paraprofessionals: Perceptions of preservice preparation, supervision, and ongoing developmental training. *International Journal of Special Education*, 25(1), 34-45.
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6, 97-113.
- Carter, E., O'Rourke, L., Sisco, L.G., & Pelsue, D. (2009). Knowledge, responsibilities, and training needs of paraeducators in elementary and secondary schools. *Remedial and Special Education*, 30(6), 344-359.
- Chopra, R. V. & Giangreco, M. F. (2019). Effective utilization of teacher assistants in inclusive classrooms. In M. J. Schuelka, C. Johnstone, G. Thomas, & A. Artiles (eds.), *Handbook of Inclusion and Diversity in Education*, (pp 193-207). Thousand Oaks, CA: Sage.
- Council for Exceptional Children. (2015). *What every special educator must know: Professional ethics and standards* (7th ed.). Arlington, VA: Council for Exceptional Children.
- Creswell, J. (2015). *A concise introduction to mixed methods research*. Los Angeles, CA: Sage.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. Thousand Oaks, CA: SAGE.
- Denzin, N. K. (1989). *The Research Act* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Dillon, A., & Ebmeier, H. (2009). The development and field test of an employment interview instrument for school paraprofessionals. *Journal of Special Education Leadership*, 22(2), 93-104.
- Every Student Succeeds Act of 2015, 20 U.S.C. § 1177.
- Fisher, M., & Pleasants, S. L. (2012). Roles, responsibilities, and concerns of paraeducators: Findings from a statewide survey. *Remedial and Special Education*, 33(5), 1-11.
- Fram, S. M. (2013). The constant comparative analysis method outside of grounded theory. *The Qualitative Report*, 18(1), 1-25.
- Ghere, G., & York-Barr, J. (2007). Paraprofessional turnover and retention in inclusive programs: Hidden costs and promising practices. *Remedial and Special Education*, 28, 21-32.
- Giangreco, M. F. (2010). One-to-One paraprofessionals for students with disabilities in inclusive classrooms: Is conventional wisdom wrong? *Intellectual and Developmental Disabilities*, 48(1), 1-13.

- Giangreco, M., Suter, J., & Doyle, M. (2010). Paraprofessionals in inclusive schools: A review of recent research. *Journal of Educational and Psychological Consultation*, 20, 41-57.
- Giangreco, M. F., Broer, S. M., & Suter, J. C. (2011). Guidelines for selecting alternatives to overreliance on paraprofessionals: Field-testing in inclusion-oriented schools. *Remedial and Special Education*, 32(1), 22-38.
- Haydon, T., Leko, M. M., & Stevens, D. (2018). Teacher Stress: Sources, Effects, and Protective Factors. *Journal of Special Education Leadership*, 31(2), 99-107.
- Individuals with Disabilities Education Act of 1997, 20 U.S.C. § 1400.
- Individuals with Disabilities Education Act of 2004, 20 U.S.C. § 1400.
- Jones, C. R., Ratcliff, N. J., Sheehan, H., & Hunt, G. H. (2012). An analysis of teachers' and paraeducators' roles and responsibilities with implications for professional development. *Early Childhood Education Journal*, 40(1), 19-24.
- Malian, I. M. (2011). Paraeducators Perceptions of Their Roles in Inclusive Classrooms: A National Study of Paraeducators. *Electronic Journal for Inclusive Education*, 2(8), 2-25.
- Naraian, S. (2014). Agency in real time? Situating teachers' efforts toward inclusion in the context of local and enduring struggles. *Teachers College Record*, 116, 1-38.
- No Child Left Behind Act of 2002, P.L. 107-110, 20 U.S.C. § 6319.
- Ramsey, M. J. (2013). *A case study analysis of paraprofessional work, training, and supervision in inclusive elementary schools* (Doctoral dissertation, University of Kansas).
- Riggs, C. G., & Riggs, C. G. (2002). Providing Administrative Support for Classroom Paraeducators: What's a Building Administrator to Do? *Rural Special Education Quarterly*, 21(3), 10-14.
- Sobeck, E. E., & Robertson, R. (2019). Perspectives on current practices and barriers to training for paraeducators of students with autism in inclusive settings. *Journal of the American Academy of Special Education Professionals*, 131-159.
- Thorne, S. (2000). Data analysis in qualitative research. *Evidence-based nursing*, 3(3), 68-70.
- United States Department of Education (June, 2007). *Description and employment criteria of instructional paraprofessionals*. Retrieved December 22, 2017 from <https://nces.ed.gov/pubs2007/2007008.pdf>

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Appendix A
Administrator Questionnaire
Open Ended Questions

1. Please describe the hiring procedures for paraeducators in your school.
 - a. How do you ensure that paraeducators are proficient in required academic skills including literacy, mathematics, oral/written communication?
 - b. What challenges do you face hiring paraeducators?
2. Please describe how you prepare the paraeducators in your school for the beginning of the school year.
3. Please describe the day to day supervision and training provided to paraeducators in your school (e.g., observation and feedback provided about performance). What is the role of the paraeducator/teacher/administrator in the training and supervision process?
4. Please describe the formal evaluation process for paraeducators in your school.
 - a. What challenges do you face evaluating paraeducators?
5. What are the some of the benefits that you perceive come from providing paraeducator supports to students with disabilities?
6. What other challenges do you face when work with paraeducators?
7. What recommendations do you have for policies/procedures (state and local) related to paraeducators?

Paraeducator Roles/Team Relationships

[All answers on a scale consisting of “never, some days, most days, or every day”]

Supervision of Students

1. Paraeducators monitor students at lunch/recess/in school hallways.
2. Paraeducators support students during therapy (speech, occupational, physical, etc.).
3. Paraeducators support students during specials/electives (physical education, art, music, etc.).
4. Paraeducators reinforce school rules/safety procedures.
5. Paraeducators assist students moving to different locations within the school.
6. Paraeducators supervise students being transported to/from school.

Classroom Organization/Clerical

1. Paraeducators obtain/prepare/organize instructional materials.
2. Paraeducators maintain instructional equipment.
3. Paraeducators grade student work.
4. Paraeducators record grades/assessment results.
5. Paraeducators collect student materials/work.
6. Paraeducators tidy/organize the classroom.

Paraeducator Duties

1. The paraeducator assesses student performance and monitors student progress.
2. The paraeducator carries out instruction under the direction of the teacher.

Teacher Duties

1. Teachers discuss student progress with the paraeducator.

2. Teachers discuss the classroom schedule/what is happening in the classroom with the paraeducator.
3. Teachers conduct observations of paraeducators as they work with students.
4. Teachers provide feedback to paraeducators regarding their performance.
5. Teachers provide the paraeducator with instructional plans to implement with students.

[All answers on a scale consisting of “strongly disagree, disagree, neutral, agree, strongly agree”]

Paraeducator Roles

1. Teachers have a clear understanding of the paraeducator’s role/responsibilities.
2. The paraeducator interacts well with students.
3. The paraeducator interacts well with parents.

Teacher Roles

1. Teachers have a clear understanding of their responsibilities related to overseeing the work of paraeducators.
2. Teachers are included in the hiring of paraeducators.
3. Teachers meet regularly with the paraeducator.
4. Teachers ensure paraeducators have appropriate training for the tasks they are assigned to carry out.

Administrator Roles

1. The paraeducator receives a formal evaluation at least yearly.
2. Teachers are provided with feedback from administrators about the support they provide to paraeducators.

Team Relationships

1. Paraeducators and teachers in my school work as an effective team.
2. Paraeducators are valued in my school.
3. Paraeducator suggestions are incorporated.

Paraeducator Training

[All answers on a scale consisting of “sufficient training, some training, little training, no training”, top 5 training topics also ranked]

Development

1. Typical development in children
2. Atypical development in children
3. The impact of speech/language development on academic and nonacademic learning

Families/Culture

1. The importance of families in the educational process (e.g., IEP role, effect of disability)
2. Cultural diversity among learners and their families
3. The impact of language and culture on communication development
4. The influence of personal/cultural differences on educational practice

Disabilities

1. Information about specific disabilities
2. Supports and services for individuals with disabilities including the IEP process
3. Legal issues related to special education services

Behavior Management

1. Behavior management and behavior supports
2. Function of behaviors (e.g., behavior as a form of communication)

Social Skills/Inclusion

1. Inclusion of students with disabilities
2. Social skill support for students with disabilities

Academic Supports

1. Modification of learning materials
2. Assistive technology (including augmentative and alternative communication systems)
3. Instructional techniques (e.g., reading, math, writing instruction)
4. Assessment (e.g., administration of tests, monitoring student academic progress)

School/Student Specific

1. Information about individual student needs (e.g., student specific IEP goals and accommodations)
2. Information about school/district policies (including safety procedures)

Working with Adults

1. Techniques for interacting with adults in the school system (teachers, parents)
2. Working with related service providers (occupational, physical, speech therapists, etc.)

Professionalism

1. Maintain confidentiality
2. Engage in ethical practices

Child Find Activities Between Public School Personnel: Engagement, Barriers, and Experiences

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Abstract

Under the Individuals with Disabilities Education Act, local education agencies or school districts are responsible to conduct child find activities within their agency or district boundaries. This responsibility entails collaborating with private school personnel on an annual basis. Through this qualitative study with a grounded theory approach, we explored the nature of interactions between public and private school personnel as they pertained to child find activities. This inquiry represents the first exploration of relationships between private and public schools within the context of child find activities.

Child Find Activities Between Public School Personnel: Engagement, Barriers, and Experiences

The Individuals with Disabilities Education Act (2004) obligates public schools/districts to find children (i.e., *child find*) who need special education services per § 20 U. S. C. 1412(a)(10). Public schools have an obligation to locate, evaluate, and identify children suspected of having a disability who attend in private schools located within their districts and/or county boundaries. Home-school programs qualify for this service as well. Due to child find obligations, public school must collaborate and consult with private schools and home-school families or collaboratives on an annual basis.

Child find activities typically take place during the fall. They provide the opportunity for public and private school personnel to create professional and collegial relationships (Lane & Jones, 2015). Public schools have the obligation to educate private school personnel and home-school families about child find activities including how to request an assessment. Private school personnel and home-school families owe public school personnel information about the number of students with disabilities who have been identified by a public school psychologist, speech pathologist, or other public school specialist. The number of students correlate to funding available to these students in the form of related services per § 20 U.S.C. 1412(a)(10) (IDEA, 2004).

Child find activities include not only locating, evaluating, and identifying children suspected of having a disability, but annual collaboration and consultation between public and private school representatives to assure the availability of services and supports as defined under IDEA (2004, § 20 U.S.C. 1412(a)(10)). Public schools utilize funds provided by federal and state agencies to deliver those services and supports (i.e., related services) to children in private and home schools. Related services include speech services, transportation, counseling services, and other various individual services identified through an Individual Service Plan. However, these

services are more often “related” rather than direct to a child (Dagget, 2018; Lane & Kinnison, 2014; Osborne & Russo, 2014).

In this study, we explore the relationship between public school districts and private schools surrounding child find practices. Combing through the published research revealed that no such understanding exists. Eigenbrood (2005) compared special education program services in public and faith-based schools in one given county in the U.S. Midwest. Eigenbrood noted that faith-based schools and parents do not have students assessed. He attributed the omission to a lack of education by the LEA. Additionally, private school personnel consider assessments irrelevant as children can be served without a formal diagnosis (pp. 20-21). While our previous study explored Christian school representatives’ perspectives of child find, we recommended further work to understand both public and private school perspectives and practices (Lane & Jones, 2015).

Our review of published research indicates the current study is unique. For the purposes of this study, a private school refers to those that serve children from birth to age 18 without state or federal funding other than as outlined in the Every Student Succeed Act (e.g., Title 1). States define homeschooling variously. For this study, we define the term as the education of children at home with primary teaching provided by parents. This study intends to describe the relationship between public and private school personnel or home-school families related to child find activities and obligations defined in IDEA (2004). Besides describing current practices, such an effort will lead to developing best practices to enhance those relationships.

Method

A qualitative methodology with a grounded theory approach was used. We chose a grounded theory approach with the hope of identifying current practices and developing a theory to develop best practices. As explained by Creswell (2013), we sought to uncover an explanation for the process and to create future action (p. 83). Grounded theory allowed us to identify concerns, if any, between public and private school personnel (Charmaz, 2014, pp. 322-323). Where appropriate, qualitative responses were coded and themed. The first round of coding sought research question alignment by focusing on key words identified in the research questions: engage, barriers, experiences, collaboration, and consulting. The second round of coding looked for elements of a theory. Saldaña (2016) identified a theory as “what and how and preferably why something happens. . . [a] condensed lesson of wisdom we formulate” (p. 278). The research questions for this study follow:

1. How do public and private school personnel engage in child find activities as outlined in IDEA (2004)?
2. What barriers exist between public and private school personnel when conducting child find activities?
3. What are the experiences of public and private school personnel regarding collaboration and consultation with one another when conducting child find activities?

It bears noting that virtually no research exists to characterize private and public schools' child find collaborations. As a pioneering effort, this research reflects an approach for surveying school personnel about the topic.

Questionnaire Development

We used SurveyMonkey™ to simultaneously construct two versions of the survey. During the design stage, we constantly compared versions of the survey. The diligence in the parallel construction ensured item compatibility across versions, a step which facilitated the ability to later cross-analyze responses. The comparison also assured sufficient data collection to address each research question. We mapped the survey items to the research questions and compared our understandings of items. In some cases, the navigation of differences resulted in added or modified items.

Besides collecting information about the school's or district's characteristics, the questionnaires collected insight about relationships between organizations. Likert-type scales and open-ended questions facilitated data collection. Likert-type scales include four ordinal choice items that most often gauged frequency (*never, not very often, often, always*) and satisfaction (*satisfied, very satisfied, not at all, somewhat*). The questionnaire included appraisals of the eligibility of participants. For example, one question gauged whether participants had direct experience with the child find process. Additionally, the survey blocked participants who self-identified as a charter school that received state or federal funding. Charter schools do not conduct child find activities with private schools.

Content Validity

Content validation included an appraisal of the survey by five individuals with administrative experience in public and private schools. The validators reviewed both versions of the survey and rated the ease of answering and clarity of the items. Validators also provided their general impressions regarding the survey. An analysis of validators' responses informed revisions and omissions of questions.

Recruitment

We recruited participants through invitations advertised in affiliates' publications as well as via email campaigns. Email addresses came from the 50 states' databases (exclusively about educators with districts or public schools) as well as databases developed by one of the researchers. The emails of public educators included superintendents, assistant superintendents, and directors of special education departments. The emails of private educators included school administrators. All participants completed a SurveyMonkey™-based questionnaire. Table 1 compares response information by type of entity (i.e., private or public).

Table 1
Response Information to Email Invitations

	Public Schools	Private Schools
Invitations Sent	24,469	14,792
Bounced	206	395
Complete Response	720	392
Partial Response	457	106
Opted Out	168	90

Analysis

The ensuing analysis regards Likert-type scale responses as ordinal data. Several of Harpe's (2015) recommendations justified handling the data as ordinal. First, this study intended to divulge comparisons or contrasts between groups. After that intention, the questionnaire design assumed a comparison that used group- rather than individual-level data. Harpe (2015) noted that emphasizing groups implies aggregates, warranting the treatment of data as ordinal. Second, the researchers provided only four choices for the Likert-type items. Harpe (2015), however, argued the need for at least five choices to produce continuous data and move beyond ordinality. Conversely, the use of four responses invoked Harpe's (2015) recommendation to use analysis for categorical or nonparametric (i.e., ordinal) data.

Results

As the intention of the research pertained to comparisons, only a brief comment ensues about nuances specific to private schools. The remaining discussion compares responses from the types of organizations represented (i.e., private schools and public school districts).

Public Schools

Public school participants totaled 1,215. Most (65.31%) public school representatives lacked experience or knowledge of child find collaborations involving private schools, as well as assessments of children placed in private schools by their parents. Nearly two-thirds (61.67%) of districts claimed that they employed dedicated personnel to coordinate with private schools. More representatives described assessment requests as rarely (42.89%) or never (19.61%) warranted. Few (8.19%) representatives claimed all requests demonstrated warrant. Nearly a third (29.31%) of representatives claimed that requests were often warranted.

Private Schools

Private school respondents totaled 497. Most schools (137 or 54.37% of those responding) identified as sectarian or nonsectarian (108 or 42.86%). Seven respondents reported that they serve in-home-based schools. Most schools (232 of 256 or 90.63%) knowingly accept children who qualify for special education services. Figures 1 and 2 reflect responses regarding where and how students with disabilities receive services in private schools. Twenty-one of the reported settings located provision within the regular classroom; 31 located provision outside of the regular classroom.

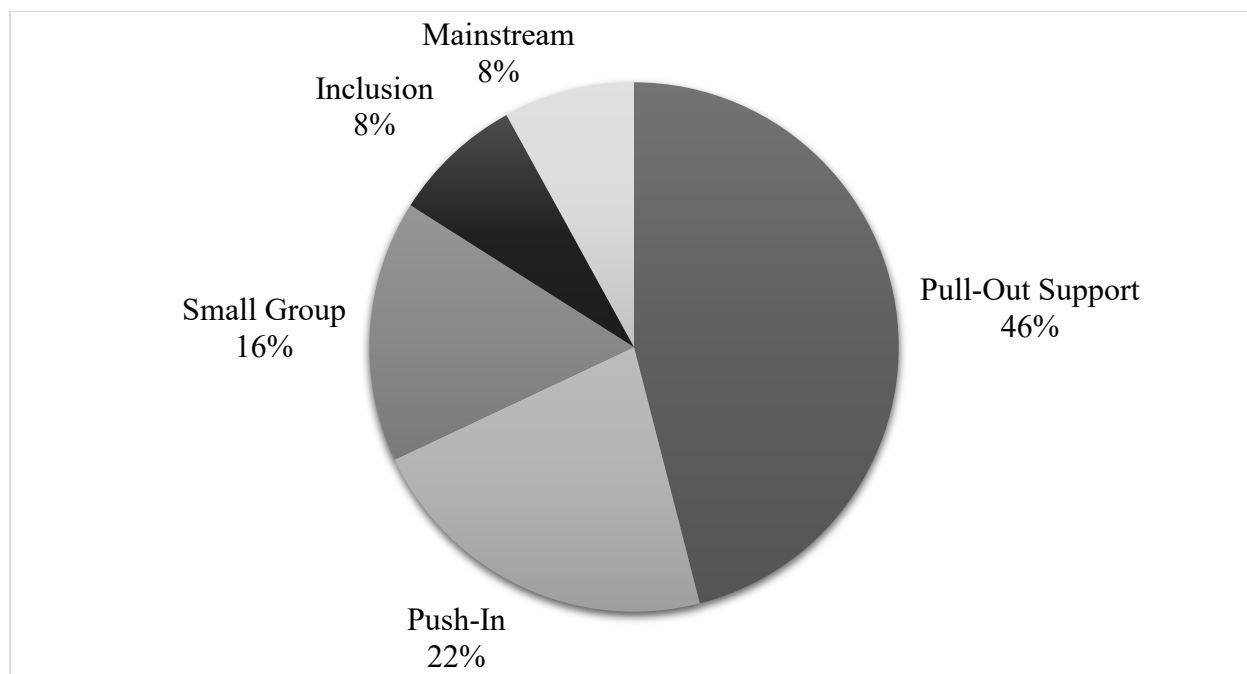


Figure 1: Private School Special Education Settings

Private school participants identified several common modes of support for children with disabilities. Six participants indicated interventions, two remediation, 12 modifications, 25 accommodations, six tutoring/therapy, six individual plans, and two assess students to monitor growth and/or need. Figure 2 reflects the themes identified.

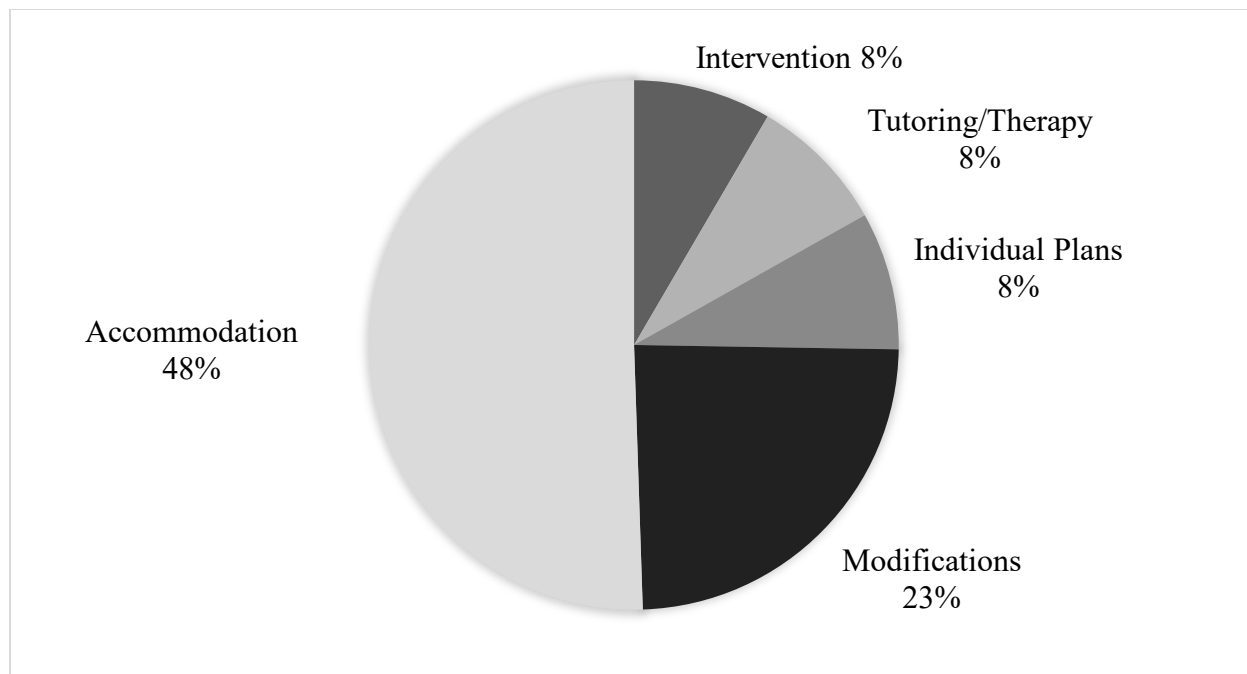


Figure 2: Modes of Support

More than half (54.61%) of respondents indicated that they accepted placements of students with special needs from districts. Just over half of respondents (120 or 57.7%) indicated that their schools did not employ a dedicated specialist to work with students with disabilities.

Figure 3 shows the personnel serving children with disabilities in private schools.

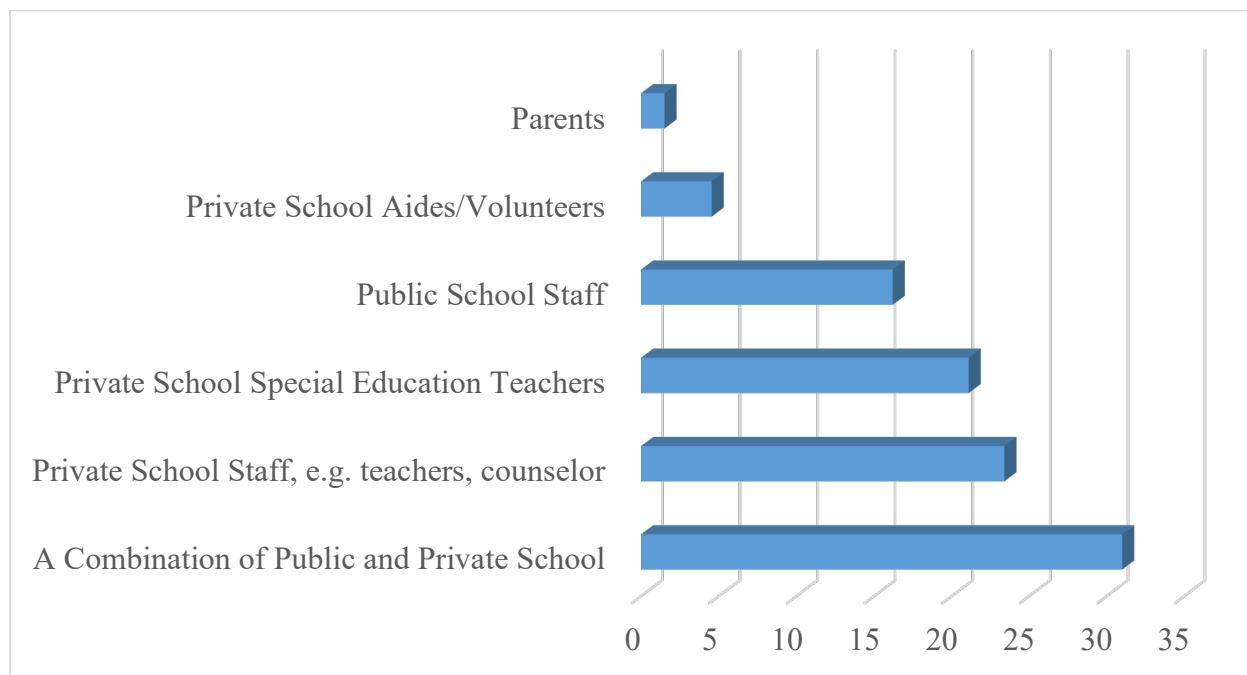


Figure 3: Personnel Employed to Service Children with Disabilities in Private Schools

Figure 4 shows the disabilities served by the private school participants.

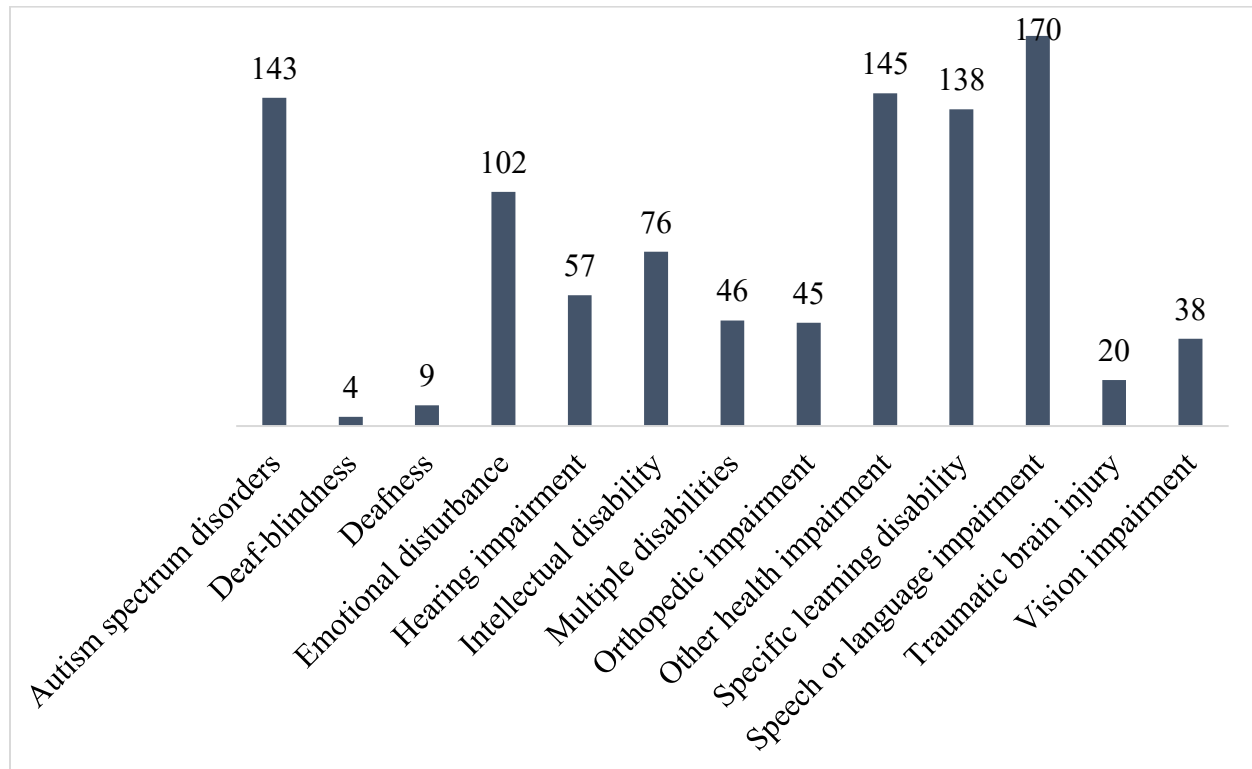


Figure 4: Disabilities Represented Among Children Enrolled in Private Schools

Settings

Respondents representing private schools most often characterized their school's settings as *suburban* (124 of 254 or 48.82%). A smaller proportion of respondents representing public schools described their setting as *suburban* (194 of 978 or 19.84%). Public school representatives more often identified the school's setting as *rural* (663 of 978 or 67.80%).

The representation of suburban private schools may demonstrate volunteer bias that respondents representing those schools self-selected at a higher rate. On the other hand, the difference in representation may reflect a distinction between private and public schools: private schools may appear more often in suburban settings; public schools more often in rural settings. The latter explanation would suggest that the unrealized fruition of *child find* may reflect the geographical differences of public and private schools.

Grade Levels

Inverse trends characterize the grade levels that are served in either setting. Private school representatives more often reported serving preschool and elementary grades (i.e., 1-6), which matches national records for private school provisions (National Center for Education Statistics [NCES], 2018). A previous exploration of *child find* in private schools found a similar representation of grade levels in private schools (Lane & Jones, 2015). The representation of

grade levels in this response set fits those previous findings. Public school representatives more often reported serving secondary grade levels (i.e., 7-12), which contradicts national records of public school provisions (NCES, 2018). In the United States, elementary schools outnumber secondary schools at a rate of nearly 3:1 (NCES, 2018, Table 105.50). The response set reflected in this study underrepresents public elementary schools.

The difference in grade level representation prompted the following questions, which we pose here with the hope of pursuing their responses elsewhere:

- How does the abundance of early education in private schools intersect with aspirations of early identification for intervention?
- Do families rely on public schools for the high school education of their children?
- Are private schools constructed to favor earlier grades?

Figure 5 demonstrates the inverse representation of grade levels by setting, reported in proportions.

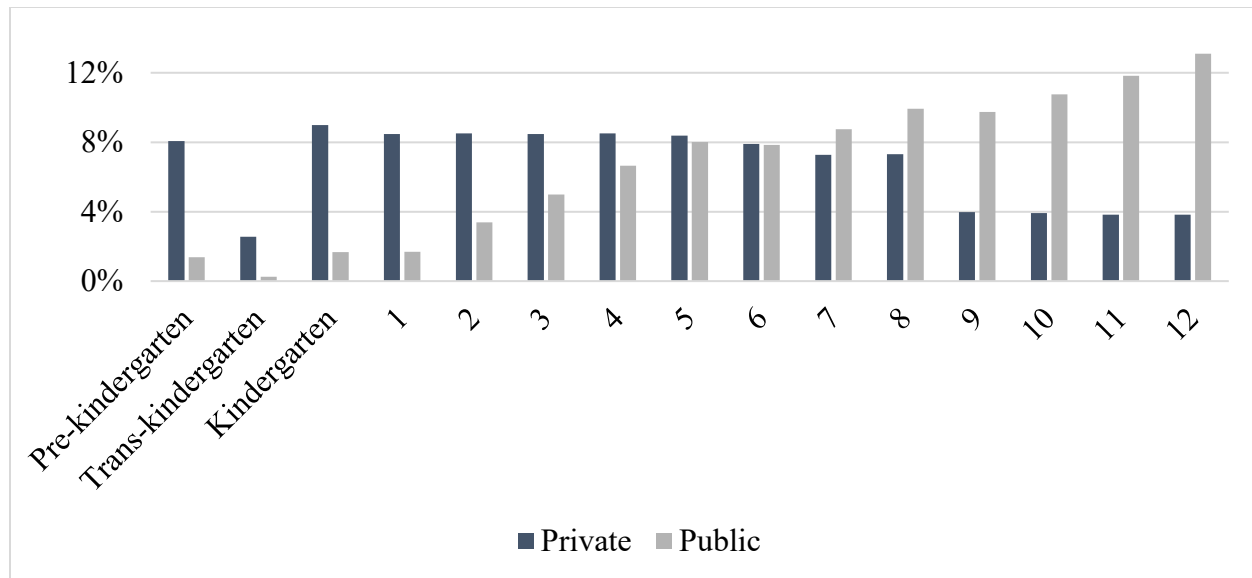


Figure 5: Grade Levels Represented by Setting and Reported by Proportions.

Table 2 depicts school characteristics as reported by participants.

Table 2

School Characteristics Reflected in Responses

	Private	Public
Settings	10 inner city, 58 rural, 124 suburban, 62 urban	16 inner city, 663 rural, 194 suburban, 105 urban
Total Enrollment	58,687	1,731,768
Average Enrollment	238.50	1,780
Enrollment Range	1 to 3,150	5 to 150,000
Pre-kindergarten	183	639
Trans-kindergarten	58	112
Kindergarten	204	775
1	192	783
2	193	1,562
3	192	2,307
4	193	3,068
5	190	3,700
6	179	3,624
7	165	4,039
8	166	4,584
9	90	4,500
10	89	4,970
11	87	5,456
12	87	6,048

Elementary total	1,401	15,931
Secondary total	684	29,597

More than half (56.20%) of private school representatives reported annual contact from the district regarding *child find*. A slightly smaller proportion (48.42%) of district representatives indicated contact with private schools for the purpose of coordinating *child find* activities.

Comparisons

Over the three previous years, private school participants saw 2,050 students identified by public school districts ($\mu = 10.25$). Private school participants from 200 schools reported as few as zero (35 participants) up to as many as 104 children who participated in such processes. More children participated in privately or independently arranged evaluations during the same interval, totaling 2,770 ($\mu = 13.72$). Representatives from 202 schools reported as few as zero (25 participants) and as many as 250. Table 3 summarizes reports from private school participants. By contrast, public school participants reported 3,674 child identifications ($\mu = 11.93$). Public school participants also reported as few as zero children identified (88 respondents) but up to 300. Fifty-one participants explicitly stated a lack of knowledge of how many children had participated in evaluations.

Table 3

Identification and Evaluation Incidents as Reported by Private School Respondents

	Total	M	Range
Children identified by public-school district	2,050 at 200 schools	10.25	0 (35 respondents) to 104
Children identified by private psychologist, education specialist, etc.	2,770 at 202 schools	13.72	0 (25 respondents) to 250
Number of students who pursued a public-school assessment?	1,405 at 132 schools	10.75	0 (5 respondents) to 50; 5 uncertain

Qualitative Respondents

Of the 1,215 public school respondents, only .07% or 88 participants, and of the 497 private school respondents, only 14.6% or 73 participants responded to the qualitative inquiries. Participants described and explained their experiences with their counterparts pertaining to child find activities.

Engagement, Collaboration, and Consultation

Sixty-one of the 73 private school participants indicated they attend an annual *child find* meeting held by their public school district. Notification of the annual meeting includes formal invitations. Private school personnel also report public schools inform the general public about *child find* activities through a wide range of mediums, e.g., social media, newsletters, radio, public notices, bulletin board, newspapers. Sixteen of the private school respondents indicated they are unclear as to how child find activities are conducted.

Fourteen public school respondents indicated they had no experience in working with private schools as someone else in the district handles child find activities. Thirty respondents indicated

they did not have personal experiences, therefore, reported out on what they have been told, 13 reported they had no private schools within their district boundaries, and six stated they only work with home-school programs.

Qualitative questions explored if and how public school personnel experienced personnel from private schools through the child find process. Via open-ended comments, public school personnel most often indicated positive (indicated through 64 comments) and less often neutral experiences (30 comments). Few (indicated through nine comments) characterized negative experiences with private school personnel during child find processes.

Figure 6 reflects only those participants who have engaged with their public or private school counterparts. The figure compares personal and organizational satisfaction with interactions and collaborations. Responses indicate that most participants from private and public organizations are satisfied with the interactions and collaboration between entities. Private school participants more often expressed they felt *somewhat satisfied* than *very satisfied*. Public school participants expressed comparable incidents of feeling *very satisfied* and *somewhat satisfied*. Participants from public-school districts more often expressed they felt *very satisfied* than they expressed feeling *somewhat satisfied*. Slightly less frequent satisfaction, then, characterizes private school participants' appraisal of the relationship.

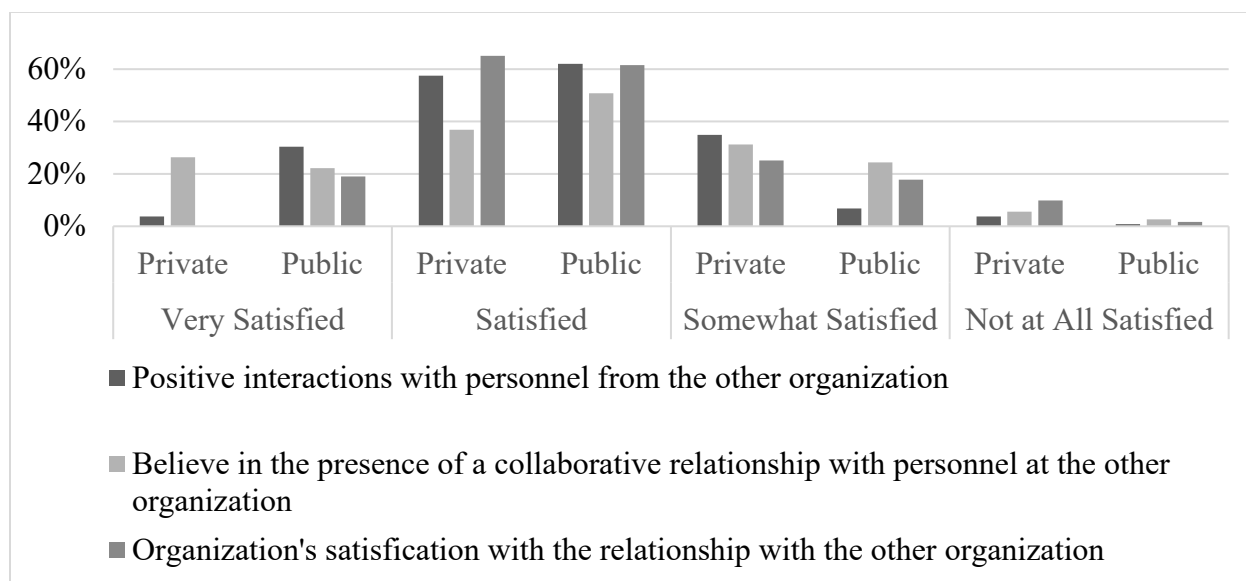


Figure 6: Comparative Satisfaction Ratings Toward Complementary Organization

Most private school participants (144 of 208 or 69.23%) reported that they had worked with their district to identify children. Fifteen (7.21%) participants reported no knowledge of whether their private school engaged with their district to identify children. Most private school participants (36 of 42 or 85.71%) reported they feel *comfortable* or *somewhat comfortable* contacting the district to arrange assessment services. Only six (14.29%) reported they felt *not at all comfortable* coordinating assessments with their district. Most (88.49%) participants indicated they can guide parents in requesting an assessment from their district. Table 4 summarizes the

satisfaction of private school personnel when working with personnel in public schools during child find activities.

Table 4

Private School Satisfaction with Public School Personnel During Child Find Activities

	Very Satisfied	Satisfied	Somewhat Satisfied	Not at All Satisfied	No Experience
To what extent have interactions with public school personnel been positive?	4	61	37	4	0
To what extent do you believe you have a collaborative relationship with public school personnel?	38	53	45	8	0
To what extent is your school satisfied with the relationship you have with your public-school district.	0	93	36	14	1

Figures 6 and 7 demonstrate how district representatives appraise private educators' understanding of *child find*. Figure 8 demonstrates the distribution of responses to the question, Do you find private school personnel knowledgeable about annual child find activities? The distribution illustrated in Figure 5 indicates that district representatives generally deem private educators as *somewhat* knowledgeable regarding annual *child find* activities, a mere step beyond *not at all* knowledgeable. Only 11 respondents considered private educators *well-informed* about such activities. Figure 6 demonstrates the distribution of responses for two questions: How often do private school personnel understand annual child find activities? And How often are private school personnel eager to learn about child find activities. Most district representatives considered private educators *not very often* understanding or eager to learn (153 and 125). However, only a slightly smaller group deemed private educators *often* understanding and eager to learn (91 and 107).

Figure 6

District Representatives' Appraisals of Private Educators' Knowledgeability of Child Find

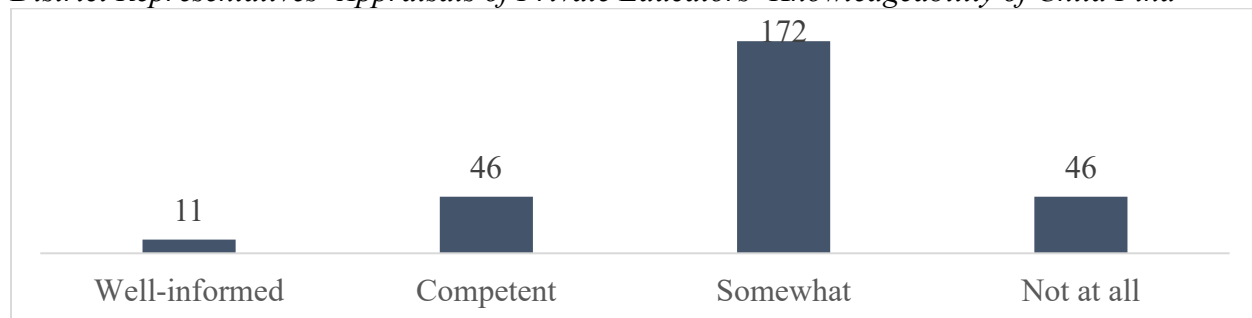


Figure 6: District Representatives' Appraisals of Private Educators' Knowledgeability of Child Find

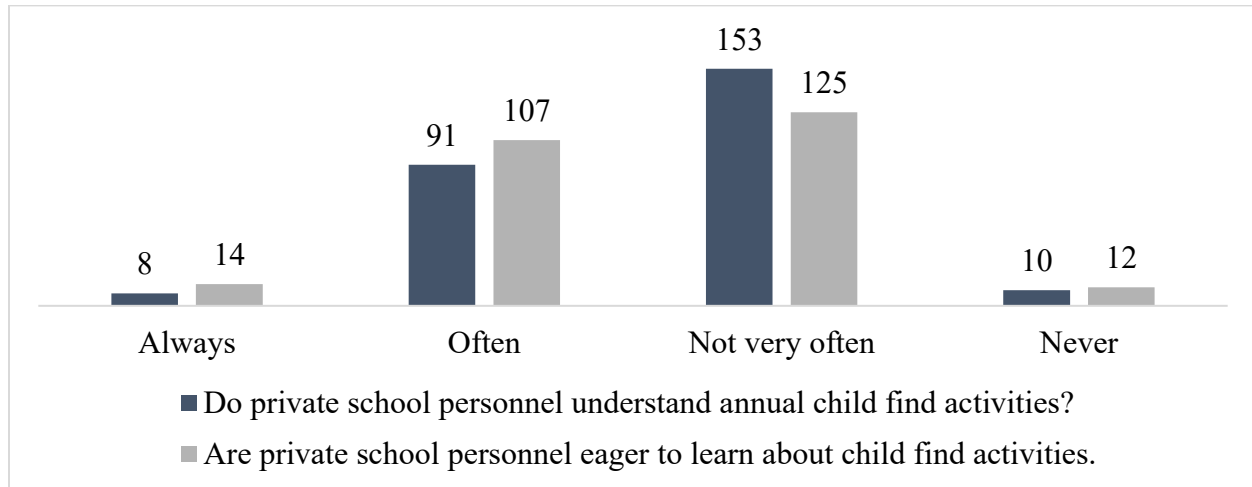


Figure 7: District Representatives' Appraisals of Private Educators' Understanding of and Willingness to Learn about Child Find

Participants indicated they engage with one another through direct communication. “Our district does inform [private school] principals that we are obligated to refer any parent inquiries to the district office so that children be assessed appropriately and served if needed” and “we have a great relationship with the local school district. They [public schools] reach out to us throughout the school year.” Private school participants indicated they often engage with public school personnel when an assessment is needed. They engage by either sending a letter to the public school themselves or asking the parent to send a letter. Conversely, public school personnel may be aware of a child in the private schools who many need to be assessed, yet no one from the private school makes a request for an assessment.

Some public and private school participants described no collaborative barriers with their respective counterparts. For example, one statement from a private school participant read, “The public school has had a consistent person working in the private school department and this has really helped.” Another concisely stated: “No barriers. Public school works very well with us as we all want every child to have a successful education experience.” Another described the relationship as “excellent; our district is extremely responsive and collaborative.” Public school participants indicated that “[private school personnel] ask good questions and are vested in their students” and “collaboration with private school parents, teachers, and administrators to develop Private School LEA Plan [has been a collaborative effort].”

Some private school participants indicated collaborative barriers: “Generally, the barrier is that they [public schools] are so busy that our families have to wait a few months to be seen.” Another expressed a sense of feeling ignored: “We would simply like to have a more collaborative relationship with our public school . . . we have reached out to work on a more collaborative relationship but have not had a response.” Another described a sense that lack of collaboration characterized the district’s intent, stating, “Public school staff don’t collaborate

with private school staff” and “[The] central office has declined [collaboration] in last four years.” Public school participants expressed similar barriers: “We advertise child find activities and all are invited to attend. No one from the private school has attended.” Another public school respondent described collaboration as “not good, they tend to only take and not collaborate.” One participant decried the lack of participation, indicating that “[it] would be great to have more collaboration [from the private schools].”

A few responses tied to the theme of consultation between public and private school personnel. However, we felt the responses worth noting. Several responses by public school participants indicated that “consultation with private school staff and/or parents when child find questions arise occur throughout the school year.” Public school personnel also indicated

We travel to each private school in our area and screen students, there is an assign[ed] school psychologist to our [private] school to meet the need, there is a point of contact for each of the private schools. The private school contacts that person to discuss concerns. Referrals are then made to appropriate public school who would complete the evaluation.

Another respondent indicated, “As Director of Special Education, I always offer to meet with [private school] staff and or parents to discuss concerns, explain criteria, and discuss interventions/supports to assist student.” Three public school participants shared their inability to support private schools due to their caseload in the public school. A private school participant indicated

The public school has contracted third party resources to perform evaluations. The personnel are very caring and qualified; yet they are outside the actual special education department of the public school and do not control the processes nor have information about schedules and funding.

Changes to Make Relationships More Satisfying

Table 5 compares the frequency of selections from private and public educators. The selections indicate the changes that would contribute to more conducive relationships between the organizations. While educators from either the private or public sector agreed that *collaborative effort* proves essential, they more often identified characteristics of or efforts from the other organization (e.g., Private schools having special education credentialed staff or Explanation of the assessment process).

Table 5
Changes to Improve Collaboration, Arranged by Organization

	Private	Public
Collaborative effort	54	189
Understanding what the district needs to assess	28	
Private schools understanding disability		197
Private schools having RtI and/or student study teams in place		228

Warranted assessment requests		86
Adhering to a timely assessment	36	
Knowing who to contact	32	
Explanation of the assessment process	22	
Being treated as a colleague	41	
Knowing who to contact when an assessment is needed	32	
Understanding what the public schools need when we request an assessment	32	
Being patient with us so that we can understand the educational assessment report	18	
Feeling like we are team members	42	
Private schools having special education credentialed staff		240
Other	29	68

IDEA Regulations

Statements made by both participant groups demonstrate a lack of legal understanding regarding IDEA regulations.

Child Find

Public school personnel are responsible for conducting *child find* activities in collaboration with private schools that reside within their school district/county boundaries. Public school participants offered the following statements, indicating their lack of familiarity with this responsibility:

- “We do not do child find,”
- “We do not reach out to the private schools specifically,”
- “We do a few activities a year and advertise in the school paper,”
- “We do very little with the private school that falls within our district,”
- “We don’t really work with or against private schools,” and
- “We do not help private schools.”

A public school participant stated, “I am not aware if private schools do child find,” which reflects the participant’s lack of knowledge. Public school participants also indicated that “[our school’s] resource allocation is different when parents exercise choice to attend private school,” and “It would appear they [private schools] rely on the Public Schools to be knowledgeable and answer the questions.”

Multitiered Systems of Support/Response to Intervention

A second barrier which public school participants consistently note, the need for a child to have a multitiered support system (MTSS) or response to intervention (RtI) prior to an assessment. Public school participants stated that “they [private schools] do not understand MTSS/RtI process.” “Most private schools are lacking full implementation of the MTSS,” “[Private schools] need a better MTSS process and RtI activities prior to referral,” and “Since private schools do not need to follow RtI it can be challenging to obtain the information for referral that

documents what interventions and strategies have been implemented to address the student's deficits." Another described the challenge robustly:

They [private schools] are not informed in the areas of RtI and student support. Typically, private school personnel don't have sufficient data and often even have not provided structured and research instruction so it can be difficult to determine whether a disability exists when they are not providing strategic instruction.

One private school participant indicated that "[public schools] have changed the protocol, asking for RtI evidence." IDEA (2004) requires the utilization of MTSS/RtI is not necessary prior to an assessment, nor can an evaluation be deterred because MTSS/RtI has not been conducted (34 CFR §§300.304-300.311). Although the lack of MTSS/RtI cannot serve as grounds to deter a parent request for assessment, it is prudent. Public and private school participants reflected that public schools work with private schools to implement MTSS/RtI practices within the private schools.

A/B Ratio Allotment

Qualitative data indicates that private school participants do not have a clear understanding of *child find* and the IDEA legal mandates.

- "[The public school is] only testing for learning disabilities."
- "The timeline of the assessment process is prohibitive, especially for those students who plan to remain in a private school."
- "Most of our barriers occur with timing. There is a large lag between when we first initiate the request and when the assessment has occurred."
- "The [parents] have been told they will not assess them until their child is enrolled in the public school."

The statement, "We attempted evaluation once, 10+ years ago. It took 1 ½ years with no results for student or parent" reflect our earlier findings (Lane & Jones, 2015).

Private school participants also misunderstand the service provision changes that occurred under IDEA (1997).

- "I find that parentally placed students have a more difficult time obtaining services they are entitled to."
- "We don't feel that our students receive the full benefit of their IEP because they are in a private school. The services are limited."
- "Local districts do not want to pay for support needed for students that do not attend their schools."

Some private school participants reflect a lack of understanding regarding the A/B allotment. A lack of understanding manifests in statements such as "I share information with all of our families on proportionate funding available for students who have completed the full and initial evaluation" and "We do not receive money from any of our special needs children ourselves."

Figure 8 demonstrates the proportions of responses to whether private school staff participated in discussions about the allotment of A/B ratio funding. More than half (59.29%) of respondents confidently denied participating. If uncertain responses (i.e., *don't know*) are excluded, that proportion increases to 70.34%.

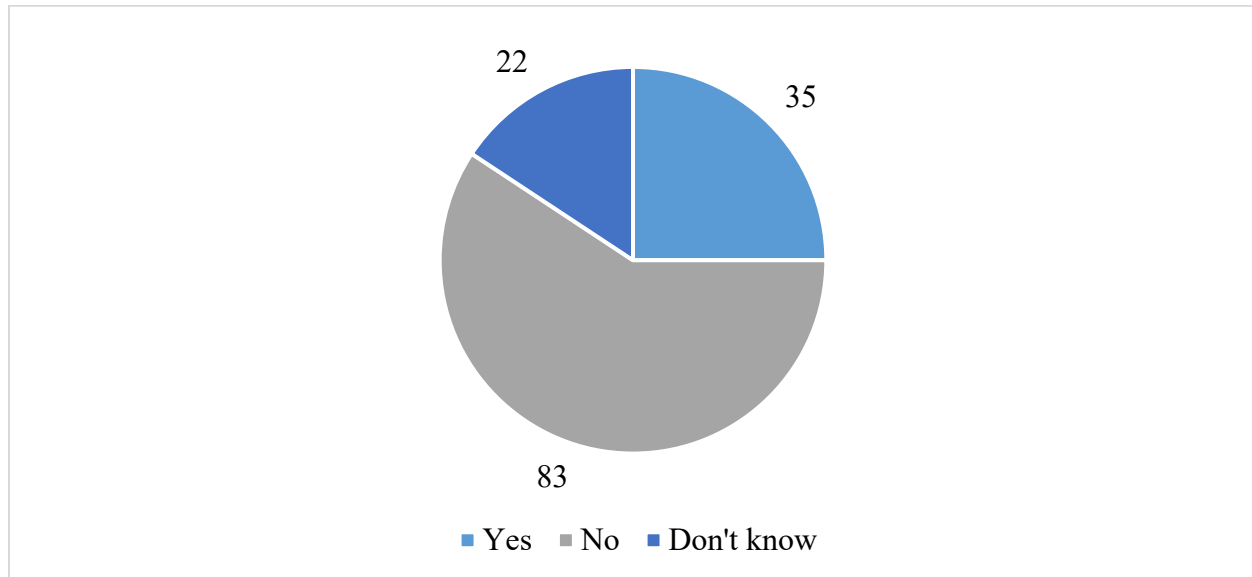


Figure 8: Proportions of Responses for A/B Ratio Funding

Professional Development and Parent Education

Professional development and parent education emerged as needs that would alleviate current barriers. Most public school participants reflected on the lack of knowledge private school representatives have about special education.

- “[Private school personnel] do not have a true understanding about criteria for special education or what it means to have a disability.”
- “[Private school teachers have a] lack of knowledge.”
- “As a former parent of private school and heavily involved with this, private school had limited knowledge about [special education] students and their needs let alone how to deal with student assessment, and [private school teachers] have limited knowledge in assessment and disabilities.”

Comments from public school participants implied the role public schools play in educating private school personnel.

- “They [private school personnel] rarely remember the process.”
- “They [public school personnel] over-identify student...that are not warranted...its time consuming and unnecessary.”
- “[Private school personnel] have no knowledge of what to do.”
- “Private school teachers need to understand that we must offer an IEP [to private school families] that would be provided if the student were being served in our district.”

- “Private school would like any child that a parent has concerns about evaluated. Many times, the child is functioning at a developmentally appropriate level but below the private school expectations. This creates a level of concern with the parents that their child is disabled.”

In turn, private school participants stated they would like to take advantage of public school special education professional development: “Annual training would be great on how to refer children to child find in our district.” Data collected from private school participants indicate their eagerness to learn how to support students, especially when students do not qualify for special education services:

Sometimes we can see a need, however, the school district assessment determines that the child is not delayed enough to qualify for services. This is frustrating to watch a child continue to struggle and not get the help that is needed for the child’s success.

Another participant stated, “We would also love to be included (even at cost) in public school in services or trainings for staff members.”

More than 50% of public school participants stated they include private school educators in their special education professional development days: “Our district provides annual training to private school providers as well as shares resources and staff to conduct school-based team meetings and initiate the referral process.” Conversely, public school educators also need education about the public school’s responsibility to private schools. Sixteen participants indicated they did not understand why they were being asked to complete this survey. Comments included

- “I’m public [so I do not know how to answer this question].”
- “I need a N/A button because I have no idea if private schools do this.”
- “It is not [our] responsibility.”
- “I am not aware of this [child find] activity in private schools.”

Private and public school participants voiced concerns about the need for parent education. Public school participants stated that parents need to be “informed and knowledgeable that they have rights for their child to receive testing and services.” Public school participants frequently indicated that private school personnel send parents to the public school to request an assessment without proper education to do so. Conversely, private school participants reported that “private school parents generally want nothing to [have their child assessed by] public schools.”

Dispositional Barriers

Qualitative responses disclosed dispositional barriers between public and private school personnel. No indications clarified if these dispositions developed over time or resulted from a single episode. Regardless, data reflects a disrespect between public and private school personnel. Private school participants reported that “some [public school] team members are outwardly contemptuous of private and choice education as schools who ‘steal their kids.’” Another indicated that “our LEA [local education agency] refuses to acknowledge us as a reputable resource and invalidates all testing we conduct and will deny services to most of our

students.” Still another private school representative stated, “The public school system has, at times, had a tendency to dismiss our concerns.” Other responses follow:

- “Sometimes we have encountered attitudes where the public school personnel seemed to consider us unqualified or ‘less than’ educators because we work at a private school.”
 - “The district has shamed them [parents] and judged the private school without having any real knowledge of the environment, teachers.”
 - “I have found school district personnel to be somewhat dismissive. I don’t take it personally and I hope it’s not for any reason other than that they are very busy, but I would hope that they do not speak to my parents or children in this manner.”
- Public school participants supported these claims of disrespect toward private schools.

Thirteen percent of public school participants indicated a bias against private schools’ qualifications. Whether these biases reflect factual information remains uncertain. Additional statements follow:

- “What I do know is that public schools are far superior to private [schools].”
- “The support that the students receive from the private school is not from a certified teacher with a teaching background.”
- “Private schools are not prepared to provide services or have an understanding of special needs students.”
- “I believe that students with special needs are best served in public schools.”
- “Private schools do not require certified teacher.”
- “I do not agree with IDEA that the public [school] should be providing services at the private school.”

Another public school participant’s statement implies confusion about the study and collaboration between public and private schools: “The survey appears to be biased toward private funding. Try to provide what public schools provide at the same cost to ALL children, regardless of learning ability, not just those who will pay for private education.”

Grounded Theory

The theory derived from the data indicates the need to educate personnel at both public and private schools. Public school personnel need education about their child find obligation to private schools that reside in their district’s geographic boundaries. Public school personnel also need to realize their obligation to educate private school personnel about A/B allocations. To assure accurate allocations, public and private school personnel must collaborate to account for all children with disabilities in the private schools who have been assessed by a public school multidisciplinary team. Allocation funding cannot be accurate without this assurance.

Private school personnel must develop a voice if they are to direct those funds to meet the needs of children with disabilities in their schools. However, private school personnel must accept IDEA (2004) regulations by giving public school personnel the right to make the final decision on said services. Private school personnel need to reach out to their public school district if they are going to support children who need assessment for a disability that affects their education.

MTSS/RtI functions as an effective early intervention approach. Public school personnel cannot require MTSS/RtI implementation prior to responding to a parent's request for assessment. Private school personnel would benefit from implementing an MTSS/RtI framework in their school. In doing so, children will acquire skills to succeed and avoid the need to be assessed for a disability.

Requesting that a child be assessed for a disability can upset parents, whether their child attends a public or private school (Wright & Wright, 2006). Public and private school personnel must put aside their differences to collaborate. The child and parent must represent the focal point. With a collaborative focal point, public and private school personnel find a common goal: all children desire and have the right to an education. Children can and do receive an appropriate education in either setting. That the setting is determined appropriate for public schools by IDEA (2004) regulations or by parents' choice in a private school should not elicit a lack of disrespect between colleagues. Public and private school personnel need to realize they each bring formal and professional education, knowledge, and experience to the table.

Recommendations for Further Research

This study provided a unique lens on the child find efforts of public and private school personnel to identify, locate, and evaluate children with disability. Theory derived from the collected data indicates a substantial need to educate private and public school personnel, along with parents of children enrolled in private schools. These findings beg further understanding of public and private school personnel's knowledge about child find activities in order to specify what information to provide. Would these educational opportunities provide the skills to engage in child find activities with their public school district?

In turn, it would be interesting to learn which public school districts have developed effective child find activities. Successful districts demonstrate best practices that can be shared with others across the country. Lastly, if private schools will serve children with disabilities and refer parents to their public school districts, their personnel must educate themselves about best practices. Granted, this self-education could be achieved with public school districts, working collaboratively to meet the needs of all children.

References

- Creswell, J. W. (2013). *Qualitative inquiry & research design. Choosing among five approaches* (3rd ed.). Sage Publications.
- Charmaz, K. (2014). *Construction grounded theory* (2nd ed.). Sage Publications.
- Dagget, L. M. (2016). Special education and students in nonpublic schools. In C. J. Russo & S. Permuth (Eds.) (pp. 224-260), *Legal issues of faith-based and other nonpublic schools*, (7th ed.). Education Law Association.
- Eigenbrood, R. (2005). A survey comparing special education services for students with disabilities in rural faith-based and public school settings. *Remedial and Special Education*, 26(1), 16-24. <http://doi.org/10.1177=07419325050260010301>
- Eigenbrood, R. (2010). IDEA requirements for children with disabilities in faith-based schools. *Journal of Disability Policy Studies*, 15(1), 2-8.

- Harpe, S. E. (2015). How to analyze Likert and other rating scale data. *Currents in Pharmacy Teaching and Learning*, 7(6), 836-850. <https://doi.org/10.1016/j.cptl.2015.08.001>
- Individuals with Disabilities Education Act. (2004). <https://sites.ed.gov/idea/>
- Individuals with Disabilities Education Act. (1997). <https://www.congress.gov/105/plaws/publ17/PLAW-105publ17.pdf>
- Lane, J. M., & Jones, D. R. (2015). Child find practices in Christian schools. *Journal of Research in Christian Education*, 24(3), 212-223. <http://dx.doi.org/10.1080/10656219.2015.1100566>
- Lane, J. M., & Kinnison, Q. P. (2014). *Welcoming children with special needs. Empowering Christian special education through purpose, policy, and procedures*. Westbow Press.
- National Center for Education Statistics. (2018). Table 105.50: Number of educational institutions, by level and control of institution: Selected years, 1980-81 through 2015-16. https://nces.ed.gov/programs/digest/d17/tables/dt17_105.50.asp?current=yes
- Osborne, Jr., A. G., & Russo, C. J. (2014). *Special education and the law: A guide for practitioners*, (3rd ed.). Corwin Publishing.
- Saldaña, J. S. (2016). *The coding manual for qualitative researchers* (3rd ed.). Sage Publications.
- Wright, P. D., & Wright, P. W. D. (2006). *From emotions to advocacy* (2nd ed.). Harbor House Law Press.

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Perceptions of the Efficacy of Classroom Management Techniques

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Abstract

One of the biggest challenges of teaching is classroom management. This paper covers some of the abundant literature that has been written on the topic, with the goal of narrowing down the practices to a short list that can be used in practice by aspiring or current teachers. After reviewing the literature, with a focus on that produced within the last five years, the author sought feedback from actual teachers to obtain more direct perceptions of classroom management tactics from those vested in the field. A thirty question Google Survey was provided to an engaged teacher Facebook Group. While over a dozen techniques were clearly being used to some level, a few stood out as being seen as most efficacious and thus should be prioritized within teachers' classroom management repertoire: consistent routines, establishment of classroom rules or expectations, purposeful teacher movement, seating arrangements, and meeting the psychological needs of students.

Perceptions of the Efficacy of Classroom Management Techniques

Seminal Studies

Well-known in the field of education, Katherine Bucher and M. Lee Manning have covered five of the most often discussed and quoted educational theorists: B.F. Skinner, Fritz Redl and William Wattenberg, William Glasser, and Thomas Gordon (Bucher & Manning, 2001). Although Skinner was a psychologist who did not work in classrooms, he believed that positive rewards are helpful in shaping human behavior. Teachers who practice utilizing positive rewards believe students will repeat behaviors that are rewarded while stopping unrewarded or even ignored behaviors. Regardless, the reinforcement needs to be appropriate and immediate. Redl and Wattenberg provided a more hands-off strategy termed "group dynamics." Because students, especially in middle school, often imitate peer behavior, they should be able to exhibit self-control on their own.

Compared to Redl and Wattenberg, Glasser's "choice theory" incorporates a significant psychological angle, believing there are four basic psychological needs that drive students: the need to belong, for power, for freedom and for fun. If these needs are met, students will behave. Gordon also believes in self-discipline, but is known particularly for "I-messages," which try to deflate the personalization of misbehavior. For example, saying, "I'm frustrated by all this noise" serves to point out the problem behavior but shifts the focus to the whole class while still addressing individual misbehavior. Bucher and Manning point out that teachers can adopt any of these specific philosophies or use a combination that works best for them. However, prior to the work of Jacob Kounin in 1970 (as cited in Egeberg, McConney, & Price, 2016), little empirical research had been done on effective classroom management. Kounin showed that effective managers succeeded not just because they were good at handling misbehavior, but because they were "good at *preventing* misbehavior from occurring in the first place" (*italics added*).

Common Practices

In “Using Positive Behavior Support to Design Effective Classrooms” (Anderson & Spaulding, 2007), emphasis is on three areas: defining and teaching expected behavior (creating rules), acknowledging students for behaving in a prosocial manner, and responding to discipline fairly and consistently. Two proactive strategies that stand out in “Proactive Classroom Management” (Nagro, Frazer, & Hooks, 2019) are movement integration and visual supports. As Mahar et al. (2006) state, “purposeful movement during instruction can help students who are inattentive and/or hyperactive sustain attention and remain on task by fulfilling their need to move in structured and meaningful ways” (as cited in Nagro et al., 2019, p. 134). A good example is allowing children to walk along a number line to demonstrate adding and subtraction of integers.

While Collier-Meek, Johnson, Sanetti, Minami, and Eckert (2019) looked at fourteen different classroom management components, the foundation of best practices, per Simonsen et al. (2015), includes “the physical design of the classroom, classroom routines, and positively stated expectations” (as cited in Collier-Meek et al., 2019, p. 349). In addition to these foundational components, active supervision, opportunities to respond and pre-corrections are all ways teachers can prevent problematic behavior. Behavior-specific praise should be delivered at a high rate that quickly follows the desired good student behavior. Further, behavioral contracts, token economies or a combination of these have been shown to have a positive impact.

Joshua Englehart makes some convincing, research-backed arguments that should make teachers think deeper about best practices (Englehart, 2012). One is that teachers need to be good managers before they can be good teachers. Yet if teachers are diverted from lessons to get students on task, they cannot deliver on the lesson. Instead, they are “mutually reinforcing” and must be “executed with quality concurrently.” Another is that teachers, like students, have varying strengths and weaknesses. While true, in terms of classroom management, teachers must have the mental set that Kounin (1983) calls “withitness” and “healthy emotional objectivity” (as cited in Englehart, 2012, p. 71). A third is that classroom management is near impossible when managing children who are not taught to act right at home. In some cases, it is not that the child has not been taught right, but that the “interaction patterns that he or she has been taught at home are different from those expected at school” (Englehart, 2012). In this situation, teachers need to make clear that different settings (such as school) require a different set of behaviors, although Delpit (1995) says this “does not devalue their home culture” (as cited in Englehart, 2012, p. 72).

Rules and Routines

When developing rules, teachers should solicit student input since this will likely lead to better compliance as the students feel more vested. The characteristics of effective rules were examined closely by Alter and Haydon (2017) who found seven key features of effective rules: limited in number, created collaboratively with students, stated positively, specific in nature, posted publicly, taught to students and tied to positive and negative consequences. The latter two are considered the most critical. In fact, within multi-tiered systems of support such as SW-PBIS, the establishment of enforceable rules taught to students is a fundamental part of the system (Reine, Herman, & Stormont, 2013). When the authors examined other studies on rules, they found that rules were not created collaboratively in most of these studies (from 1969 to 2015). Further, in only about 50% of the studies were the rules stated in a positive fashion. Alter and Haydon’s findings were supported by Marzano et al. (2003), who said “a widely used - and generally

effective - preventive strategy among teachers in... education is that classroom rules are negotiated instead of imposed” (as cited in Korpershoek, Harms, de Boer, van Kuijk, & Doolaard, 2016, p. 644).

Lester, Allanson, and Notar (2017) found that routines must be practiced consistently starting from the beginning of the academic year, be clearly defined, and remain until the end of year. While 100% on-task behavior is not realistic, focusing on routines, especially time-management, can keep learning time “in check,” and help prevent loss of academic time. One popular routine consistent with this strategy is the “do now” warm-up activity many teachers use to initiate engagement while the teacher can handle non-academic tasks like checking homework and attendance. While planning varied lessons might seem contrary to being routine, they help keep students engaged and appeal to diverse learning styles. In this sense, they are likely to prevent disruptive behavior. By creating an atmosphere of procedures beyond just the opening of each class, students “develop a system of self-management” that leaves the teacher time for other classroom management plans.

Positive Supports

Rules are helpful in establishing a classroom that Sprick et al. (2006) say have a “positive, productive teaching environment that supports students and constructively holds them accountable for their classroom behavior” (as cited in Back, Polk, Keys, & McMahon, 2016, p. 406). Bulger et al. (2002) specifically talk about creating a positive learning environment by showing “passion for the subject matter, using student names, reinforcing student participation in class, and being active in moving among the students” (as cited in Sieberer-Nagler, 2016, p. 165).

A comparison of mindfulness-based and behavioral (i.e. the good behavior game [GBG]) approaches in an urban school was undertaken by Long, Renshaw, and Camarota (2018). As for the mindfulness approach, the STOP (“stop,” “take three deep breaths,” “observe self and others,” “proceed positively”) was the approach undertaken in the study. According to Black and Fernando (2014), mindfulness behavior interventions have shown benefits for improving classroom behavior, “including building self-regulatory skills and increasing active engagement” (as cited in Long et al., 2018, p. 235). Results revealed that neither intervention led to significant improvements in behavior. Still, they do suggest mindfulness skills training (MST) might have helpful effects on student mental health compared with traditional class wide behavioral interventions such as the GBG.

Cultural Responsiveness

A study by Kwok (2019) focused on beginning urban teachers found that such teachers should “implement a range of classroom management strategies.” Bondy, Ross, Gallingame, and Hambacher (2007) found that [three urban novice teachers] all “insisted on respectful behavior, established an academic-centered community, and used culturally responsive modes of communication” (as cited in Kwok, 2019, p. 343). Specific to culturally relevant classroom management, Weinstein, Tolinson-Clarke, and Curran (2004) believe it is necessary to adapt classroom management to the classroom context, “particularly when there are differences between the culture of the teacher and student” (as cited in Kwok, 2019, p. 343). The results of Kwok’s study show that beginning urban teachers need to focus on behavioral techniques (including positive reinforcement, management of student material, and even establishment of

student body posture [to be in an appropriate learning position]), with academic and relational strategies used less.

Back et al. (2016) focused on classrooms in urban environments which often have larger classes and more challenging instruction because of the diversity of the population. The authors espouse the CHAMPs model (Conversation, Help, Activity, Movement, Participation), which features clarifying routines and expectations, organizing the physical environment and managing student behavior. The model is also in line with the use of positive behavior supports instead of exclusionary discipline strategies, which Mitchell and Bradshaw (2013) said is associated with “higher levels of order, fairness and student-teacher relationship in the school” (as cited in Back, Polk, Keys, & McMahon, 2016, p. 400).

Tarwijk, den Brok, Veldman, and Wubbels (2009) examined multicultural classrooms specifically in The Netherlands, comparing themes in classroom management in the United States as espoused by Evertson and Weinstein (2006). As for positive teacher-student relationships, the Dutch teachers did talk about this, but far less compared to providing and enforcing rules. Evertson and Weinstein also focused on the consequences of teachers’ decisions for students’ social, moral, and emotional development. However, the Dutch teachers hardly discuss classroom management from this perspective, feeling that such focus is implicit in their teaching. Compared to teachers in multicultural schools in the US, most Dutch teachers in the study considered explicit reference to cultural and ethnic differences among students to be inappropriate.

Self-management

According to Berliner (1986), Browers & Tomic (2000) and Espin & Yell (1994), teachers who have problems with behavior management and classroom discipline are frequently “ineffective in the classroom... and report high levels of stress and symptoms of burnout” (as cited in Herman, 2019, p. 156). In response to which self-management strategies were used by teachers, Herman found they used to “a great or large extent” conflict management (88%), assertive communication (84%) and monitoring one’s own thoughts (83%). To handle students with behavior problems in the classroom, trained teachers used rewards most (79%), followed by the rearrangement of desks (73%).

One method studied to help maintain classroom management practices was undertaken by Oliver, Wehby, and Nelson (2015). The Good Behavior Game was used as the classroom management practice for which a checklist was utilized. The results of the study suggest that self-monitoring checklists by teachers can indeed be utilized to maintain consistent and accurate implementation of classroom management practices. The self-monitoring form in the study likely “acted as a prompt and reminder for teachers to continue using each step of GBG” (Oliver et al., 2015). Further, they are a cost effective and easy-to-use strategy to maintain implementation of evidence-based practices.

Professional Development

Kennedy, Hirsch, Rodgers, Bruce, and Lloyd (2017) examined professional development to support evidence-based classroom management practices. Specifically, they looked at content acquisition podcasts for teachers with embedded modeling videos (CAP-TV). These are brief

instructional videos (5-15 minutes) that deliver key content regarding a specific practice that the teacher needs to learn. In their exploratory study, Kennedy et al. (2017) found that CAP-TV may enable high school teachers to learn how to implement evidence-based classroom management practices such as PBIS. If teachers do feel uncertain about using preventive strategies (O'Neill & Stephenson, 2012), such as negotiating about classroom rules, they often keep using the... less effective reactive strategies (as cited in Korpershoek, Harms, de Boer, van Kuijk, & Doolaard, 2016).

Mitchell, Hirn, and Lewis (2017) examined teacher training further, including coaching. While a tool such as CAP-TV can be helpful, coaching can help teachers defend evidence-based practices in the face of pushback or resistance from peers or administrators. The authors also found that a whole-school approach is important because, as Abbott et al. (1998) mention, it “allowed for the development of schoolwide structures of support” (as cited in Michell et al., 2017, p. 146), in this case meaning the use of peer coaches to help with skill application and the inclusion of training during staff meetings. The message from research by Moore et al. (2017) provides further support for training: teachers need better support on strategies for providing “more intensive behavioral interventions for students who exhibit the most problematic behaviors.”

Technology in Classroom Management

Attempts to better manage student behavior in the classroom are not immune to the use of technology. One study looked at the effects of using the American application (“app”) Class Dojo by 10th grade students and parents in the Turkish city of Bingol (Bahceci, 2019). Through the app, teachers can label and record student behaviors throughout the school day and teachers, parents and students are able to view the behaviors. The author used a five-point Likert scale to report her findings. In short, all the students reported that the app caused their parents to become more interested in their classes. The app also motivated the students, as most reported that the scores given by their teachers were a source of motivation. While one might speculate that the use of the app would create added anxiety, two-thirds of the students would recommend the app. Likewise, and less surprising, teachers stated that the app helped them maintain discipline in the classroom. Parents became more aware of the classroom behavior of their children and, when necessary, advised their children to behave better.

Challenges

Despite the large number of strategies that have proven to be successful, Collier-Meek et al. (2019) found that teachers implement the strategies at a lower level than what would be expected if the goal is to successfully manage the classroom. Part of the reason is that it is challenging to implement many strategies. Fortunately, the study explains that even implementation at 75% did make a difference. In other words, 100% implementation is not necessary to successfully manage the classroom.

The barriers to implementing classroom management and behavior support plans were examined in a paper by Collier-Meek, Sanetti, and Boyle (2017). The authors divided the barriers into three categories: organization, implementer, and intervention. The most prevalent organization barrier was time for planning. The most dominant implementer barrier was effectiveness at managing behaviors. The most common intervention barriers were resources, time (of the actual intervention), and effectively implementing the strategy. Collier-Meek et al. (2019) suggest

utilizing school psychologists to help teachers integrate the new interventions while still managing their other responsibilities for particularly challenging students.

Hagermoser-Sanetti, Williamson, Long, and Kratochwill (2018) evaluated adherence to implementation planning of classroom management plans and found that all teachers “demonstrated a distinct and immediate level change, with high levels of quality and decreased variability.” Further, disruptive behavior decreased. The research showed that teachers need implementation planning and support. Once implementation improves, evidence-based classroom management strategies improve.

Method

The participants in the study were derived from a post on the Facebook Group entitled, “Talented and Treasured Teachers.” As described on the group page (<https://www.facebook.com/groups/1491668394466699/>) this is a group that “encourages teachers to share resources, ideas, ask questions, motivate each other and just unite!” The group has been active since October 2015 and as of early 2020 had approximately 9,500 members. It is not possible for just any person on Facebook to join; rather, the administrator of the group needs to approve anyone seeking to become a member.

It is important to highlight that there was self-selection in this process. In other words, the people who join the Talented and Treasured Teachers (“TTT”) group might be more ambitious than the average teacher. Unmotivated, mediocre teachers who are not striving to learn from colleagues and become better teachers are naturally less likely to join such a group. In contrast, ambitious teachers who practice life-long learning and who embrace professional development, formally or informally, are more likely to become members of the group. Further, the most engaged members are more likely to respond to a survey such as the one presented herein.

A post on the TTT Facebook Group page was delivered on March 3, 2020. The post specifically solicited participation in a “brief survey on classroom management.” More precisely, the text stated, “Hi everyone! Part of the requirements of my education master's program is to survey current teachers regarding my area of inquiry: classroom management best practices. I would be most appreciative if you could take just 10 minutes (approximately) to complete my survey, available at [*Google Survey link closed*]. Thank you for your time and insight!”

For the survey content, there were 30 questions in total, including one open-ended (and optional) question. The survey was divided into three sections:

- A) The topic at hand: teachers’ perception of optimal classroom management strategies. This consisted of twenty-four questions, in line with the categories discussed in the literature review, thus including famous theorists, common practices, rules and routines, positive supports, cultural responsiveness, professional development, and technology in the classroom.
- B) Demographic information: five were demographic questions to help understand the respondent constituency, including years of teaching, certification level and school type.

- C) Open ended: one optional, open-ended question at the conclusion: “Any other comments you would like to add? (OPTIONAL)”

After a second post, a total of thirty-three responses were received, at which point the survey was closed for new participants. For clarity, participants could have discontinued participation at any time with impunity.

The sum of responses from the survey provided the data to be analyzed. Responses to these questions were given values consistent with the survey questions, i.e. ranging from “Always” to “Never” or “Yes” / “No.” In the case of questions utilizing a Likert scale, numbers were listed in the spreadsheet dependent on the answers: very effective-1, 2, 3, 4, very ineffective-5.

Demographic responses were given values i.e. “Female” / “Male.” Likewise, certification levels were listed in the spreadsheet cells i.e. “Fully general education certified,” “Fully special education certified,” “Fully certified in general and special education,” etc. From the data, Google Forms presented easily digestible pie and bar charts for each question. The one open-ended (optional) question at the conclusion of the survey provided unidentifiable verbatim responses.

Findings

Almost all respondents were female (97%). They were mostly experienced teachers (85% five-plus years of teaching) who were all certified in one educational area. A robust 36% were fully certified in general and special education. Nearly half (49%) taught in a traditional classroom while nearly one-quarter (24%) taught in an inclusive classroom. The remainder were nearly split between self-contained classrooms and a combination of traditional and inclusive classrooms. Nine out of ten respondents taught in public schools, with the remaining 10% evenly split between private, charter and “other” schools (see Table 1).

Table 1
Respondent Demographics

Gender	Female	97.0%
	Male	3.0%
Length of Teaching	Less than 5 years	15.2%
	More than 5 years	84.8%
Certification Level	Fully certified in general education	54.5%
	Fully certified in special education	6.1%
	Fully certified in general and special education	36.4%

	Other	3.0%
Classroom Type	Traditional classroom environment	48.5%
	Inclusive classroom environment	24.2%
	Self-contained classroom environment	12.1%
	A combination of traditional and inclusive classroom environments	15.2%
School Type	Public School	90.9%
	Private School	3.0%
	Charter School	3.0%
	Other School	3.0%

Most teachers had heard of the behavioral theorists asked about in the questionnaire. However, some were better known than others, as summarized here:

Table 2
Behavioral Theorists

Heard of B.F. Skinner and the classroom management practice of positive rewards based on his behavioral theory:	79%
Heard of William Glasser and his “choice theory” that speaks to four basic psychological needs that drive student behavior:	49%
Heard of Thomas Gordon and his use of “I-messages” to deflate personalization of misbehavior:	40%
Heard of Redl and Wattenberg and their “group dynamics” theory that students should practice self-control on their own, influenced by their peers or group:	12%

When teachers were asked if they practiced the techniques espoused by these four theorists, teachers who said they “Always” use the respective technique were as follows:

Table 3

Practices of Behavioral Theorists

Meeting psychological needs (Glasser)	36%
Positive rewards (Skinner)	30%
I-messages (Gordon)	6%
Group Dynamics (Redl and Wattenberg)	1%

As for the perceived efficacy of these theorists, they ranked as follows when considering the “top-two” boxes on a five-point Likert scale:

Table 4

Top Two Box Rankings of Behavioral Theorists

Meeting psychological needs (Glasser)	63%
Positive rewards (Skinner)	60%
I-messages (Gordon)	30%
Group Dynamics (Redl and Wattenberg)	24%

Other classroom management techniques were also considered on the same scale as the above four associated with traditional theorists. In entirety, they ranked as shown in this table when again considering the “top-two” boxes on a five-point Likert scale:

Table 5

Top Two Box Rankings of Classroom Management Techniques Considered

Consistent routines	88%
Establishing classroom rules	85%
Purposeful teacher movement	73%
Rearrangement of classroom seating	73%
Meeting psychological needs	63%
Positive rewards	60%
Mindfulness activities	60%
PBIS	51%

Behavior contracts	51%
<i>I</i> -messages	30%
Group Dynamics (self-control)	24%
Good Behavior Game	18%

The bottom three techniques in Table 5 did not score well on the Likert scale, with at least 70% ranking the techniques in the “bottom-three” boxes on the five-point Likert scale.

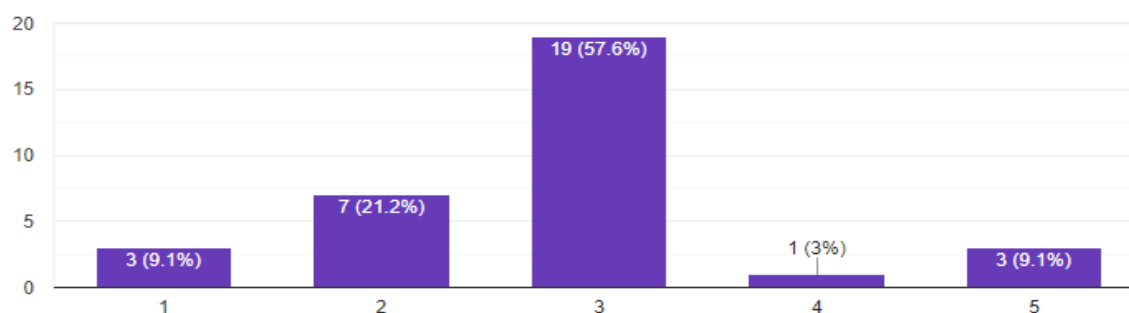


Figure 1. Likert scale response: Is the use of “I-messages” an effective classroom management technique?

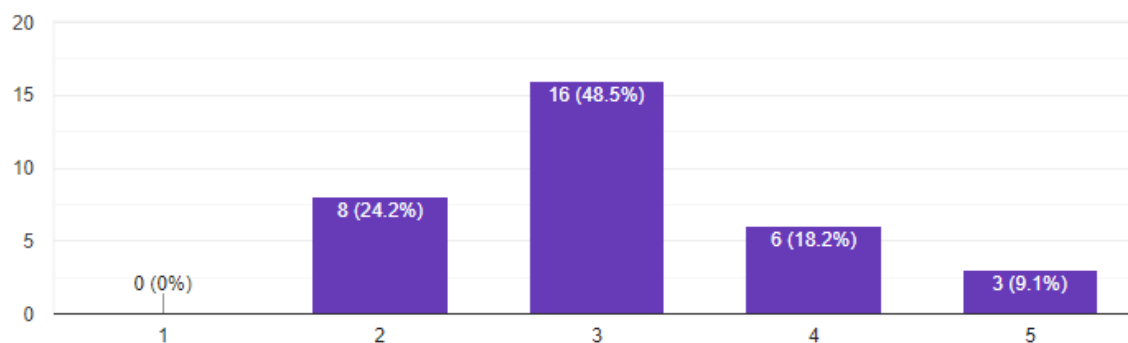


Figure 2. Likert scale response: Is letting students practice their own self-control an effective classroom management technique?

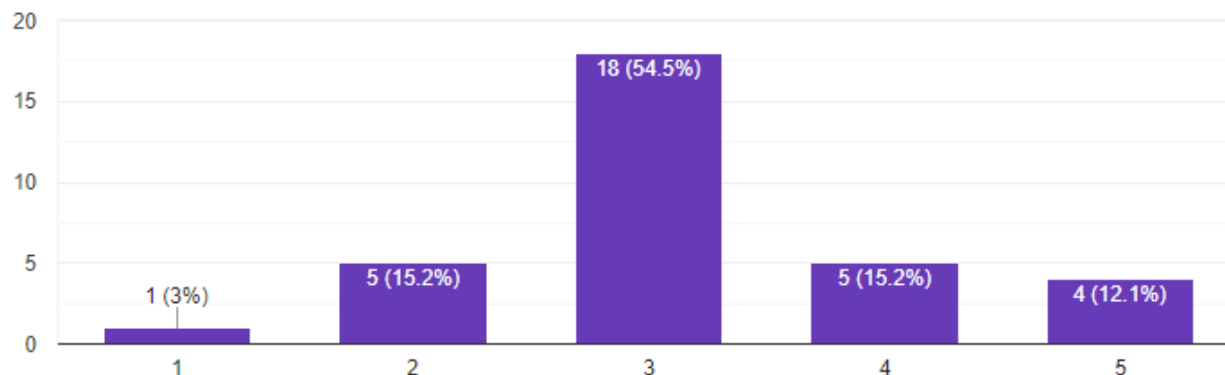


Figure 3. Likert scale response: How effective is the Good Behavior Game as a classroom management strategy?

The questionnaire also included two questions related to managing classrooms in urban environments, which invariably have a high percentage of minority students and thus more varied cultural backgrounds. As to whether different techniques were needed to manage classrooms in such an environment, an overwhelming majority (88%) believed they were necessary. Further, most teachers either always (42%) or frequently (36%) incorporate cultural differences in their classrooms, whether urban or elsewhere. Respondents were also asked about professional development and software utilized to help with classroom management. Unfortunately, only 33% in total received professional development one time a year (12%) or more than one time a year (21%). A classroom management software tool like Class Dojo was employed by nearly half of the respondents (46%). The final question was open and optional. Only four responded to this question of, “Any other comments you would like to add?” One of note was, “Effectiveness of any strategy depends on the child.” While this is logical and true, the survey does suggest the classroom management tools to favor if any teacher - new or otherwise - wants to prioritize their management techniques.

Discussion

While it is interesting to receive feedback from teachers as to their level of knowledge of theorists, the usage of actual techniques is of particular importance. The reality is that teachers have significant responsibilities and considerations such as their curriculum, daily lesson planning, and administrative demands. All of this becomes more challenging if their classrooms cannot be managed effectively, leading to lost instruction time and less effective teaching. Therefore, to simplify the challenge of classroom management, it is logical to prioritize several that are perceived to be best. Based on the survey findings, this suggests a toolbox that includes implementing consistent routines, establishing classroom rules (or expectations), using teacher movement purposely, rearranging student seating as needed, meeting the psychological needs of students, and utilizing positive rewards. Teachers may want to further simplify their individual toolbox so as not to overwhelm themselves with too many strategies. If a teacher were to focus on a select few, the survey suggests focusing on consistent routines, establishing classroom rules, purposeful teacher movement, and rearranging classroom seating. All four of these strategies were ranked in the top-two of the Likert scale by over 70% of the teachers.

The most obvious limitation of this study is the small sample size. With $n=33$, the results are not statistically significant. A large enough sample that generates a 95% confidence level would be ideal but was beyond the scope of this study. Another limitation of the study is that it solicited responses from a specific Facebook Group. As members of the group, they are more likely to be motivated teachers who have successfully practiced effective classroom management using several of the strategies covered herein. Also, it was not possible to determine the geographic distribution of the respondents. A related issue is that since the Facebook Group is focused on the United States, it was difficult to make even directional conclusions for international teachers. Furthermore, among those who responded to the survey, 85% noted teaching for more than five years. Newer teachers may have recently learned the latest in best practices through their teacher education program that more seasoned teachers, even with professional training, may not be aware of as potential classroom management techniques.

To solve for some of the limitations, a more robust outreach to obtain a statistically significant result would be helpful to increase the confidence of the results and generalize them to a larger audience. This could mean spending additional resources (time and money) to recruit a larger number of teachers from varied geographical regions, which might require hiring a professional research company that controls a large database of potential respondents.

It would also be advantageous to conduct live interviews with a representative sample of teachers. By doing so, a deeper understanding particularly of the perceived efficacy of the various classroom management strategies would be obtained, including helpful nuances. For example, while consistent routines and classroom rules were perceived as some of the most effective classroom management strategies, interviews might allow us to understand what routines work best.

Despite these limitations, directional feedback for current and future educators is evident. There is an abundance of strategies - particularly routines and rules, purposeful teacher movement, and seating arrangements - that teachers can use to help manage their respective classrooms. Teachers can select from this prioritized toolbox and feel confident that the ones perceived as effective should help manage their classroom so they can focus on delivering engaging lessons aligned with curriculum demands without classroom disruptions that might otherwise impede timely progress. Teaching is not an exact science, so the directional guidance as provided herewith can still be incorporated to help teachers become not just content experts, but adept at managing their classrooms as they deliver their content.

NOTE: The Survey on Perceptions of Effective Classroom Management utilized in this study may be obtained by contacting the author at rickmehler54@gmail.com.

References

- Alter, P., & Haydon, T. (2017). Characteristics of effective classroom rules: A review of the literature. *Teacher Education and Special Education*, 40(2), 114–127.
<https://doi.org/10.1177/0888406417700962>
- Anderson, C. M., & Spaulding, S. A. (2007). Using positive behavior support to design effective classrooms. *Beyond Behavior*, 16(2), 27–31.

- Back, L. T., Polk, E., Keys, C. B., & McMahon, S. D. (2016). Classroom management, school staff relations, school climate, and academic achievement: Testing a model with urban high schools. *Learning Environments Research*, 19(3), 397-410. <https://dx.doi.org/10.1007/s10984-016-9213-x>
- Bahceci, F. (2019). CLASSDOJO: The effects of digital classroom management program on students-parents and teachers. *International Online Journal of Educational Sciences*, 11(4), 160–180. <https://doi.org/10.15345/iojes.2019.04.012>
- Bucher, K. T., & Manning, M. L. (2001). Exploring the foundations of middle school classroom management. *Childhood Education*, 78(2), 84. <https://doi.org/10.1080/00094056.2002.10522709>
- Bucher, K. T., & Manning, M. L. (2013). *Classroom management: models, applications, and cases*. Boston: Pearson.
- Collier-Meek, M. A., Johnson, A. H., Sanetti, L. H., Minami, T., & Eckert, T. (2019). Identifying Critical Components of Classroom Management Implementation. *School Psychology Review*, 48(4), 348–361. <https://doi.org/10.17105/SPR-2018-0026.V48-4>
- Collier-Meek, M. A., Sanetti, L. M. H., & Boyle, A. M. (2019). Barriers to implementing classroom management and behavior support plans: An exploratory investigation. *Psychology in the Schools*, 56(1), 5–17. <https://doi.org/10.1002/pits.22127>
- Egeberg, H. M., McConney, A., & Price, A. (2016). Classroom management and national professional standards for teachers: A review of the literature on theory and practice. *Australian Journal of Teacher Education*, 41(7), 1-18.
- Englehart, J. (2012). Five Half-Truths about Classroom Management. *The Clearing House*, 85(2), 70-73.
- Hagermoser-Sanetti, L. M., Williamson, K. M., Long, A. C., & Kratochwill, T. R. (2018). Increasing in-service teacher implementation of classroom management practices through consultation, implementation planning, and participant modeling. *Journal of Positive Behavior Interventions*, 20(1), 43-59.
- Herman, I. R. (2019). Study on the impact of the continuous training program classroom management - effective strategies. *Journal Plus Education / Educatia Plus*, 25(2), 155–163.
- Jones, V. F. (2015). *Practical Classroom Management*. Upper Saddle River, NJ: Pearson.
- Kennedy, M. J., Hirsch, S. E., Rodgers, W. J., Bruce, A., & Lloyd, J. W. (2017). Supporting high school teachers' implementation of evidence-based classroom management practices. *Teaching and Teacher Education*, 63, 47-57.
- Korpershoek, H., Harms, T., de Boer, H., van Kuijk, M., & Doolaard, S. (2016). A meta-analysis of the effects of classroom management strategies and classroom management programs on students' academic, behavioral, emotional, and motivational outcomes. *Review of Educational Research*, 86(3), 643-680.
- Kwok, A. (2019). Classroom management actions of beginning urban teachers. *Urban Education*, 54(3), 339–367. <https://doi.org/10.1177/0042085918795017>
- Lester, R.R., Allanson, P.B., & Notar, C. E. (2017). Routines are the foundation of classroom management. *Education*, 137(4), 398–412.
- Long, A. C. J., Renshaw, T. L., & Camarota, D. (2018). Classroom management in an urban, alternative school: A comparison of mindfulness and behavioral approaches. *Contemporary School Psychology*, 22(3), 233-248. <http://dx.doi.org/10.1007/s40688-018-0177-y>

- Mitchell, B. S., Hirn, R. G., & Lewis, T. J. (2017). Enhancing effective classroom management in schools: Structures for changing teacher behavior. *Teacher Education and Special Education, 40*(2), 140–153. <https://doi.org/10.1177/0888406417700961>
- Moore, T. C., Wehby, J. H., Oliver, R. M., Chow, J. C., Gordon, J. R., & Mahany, L. A. (2017). Teachers' reported knowledge and implementation of research-based classroom and behavior management strategies. *Remedial and Special Education, 38*(4), 222-232.
- Nagro, S. A., Fraser, D. W., & Hooks, S. D. (2019). Lesson planning with engagement in mind: Proactive classroom management strategies for curriculum instruction. *Intervention in School and Clinic, 54*(3), 131–140. <https://doi.org/10.1177/1053451218767905>
- Oliver, R.M., Wehby, J.H., and Nelson, J.R. (2015). Helping teachers maintain classroom management practices using a self-monitoring checklist. *Teaching and Teacher Education, 51*, 113-120. <https://doi.org/10.1016/j.tate.2015.06.007>
- Sieberer-Nagler, K. (2016). Effective classroom-management & positive teaching. *English Language Teaching, 9*(1), 163-172.
- Van Tartwijk, J., den Brok, P., Veldman, I., & Wubbels, T. (2009). Teachers' practical knowledge about classroom management in multicultural classrooms. *Teaching and teacher education, 25*(3), 453-460.

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Investigating the Journal Impact Factor of Special Education Journals Indexed in the Social Sciences Science Edition from Web of Science

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Abstract

The purpose of this study is to investigate the impact factors of special education journals indexed in the “Education, Special (ES)” category of the Social Sciences Citation Index (SSCI) (Web of Science, WoS) as well as considering some bibliometric indicators. As an alternative metric of the journal impact factor (JIF), JIF quartiles were considered, finding that high impact factor journals (Q1) publish more papers than expected (max: 54.76% -min: 38.67%), whereas low impact factor journals (Q4) publish less papers (max: 21.28% -min: 14.97%) in the period 2014-2018. In addition, it is found that the share of self-citations among journal quartiles are almost on the same level and there is no significant relationship between the impact factor and the journal self-citation ($r=0.005$, $p>0.05$). The impact factor is strongly positive correlated ($r=0.854$: for 5-year JIF) with the citedness of the median journal paper and with the journal h-index ($r=0.718$ for 5-year JIF). Furthermore, it is found a strong positive correlation between h-index and the number of published articles in journals ($r=0.723$). However, even the impact factor is a valuable indicator for citations of a paper, it is still far to be the perfect indicator for the expected citations of a paper in a journal due to the high degree of skewness of the citation's distribution of papers in a journal. It has been found that citation distributions over 80% of special education journals exhibit high degree skewness ($\text{skewness}>1$) without significant differences by journal quartiles. During the period 2014-2018 the impact factor of the special education journals has increased linearly while the journal-self citation rates have decreased in a similar way. The results obtained for special education have been compared with other fields and compatible/incompatible situations have been discussed.

Keywords: citation analysis, journal impact factor, journal quartiles, special education journals.

Investigating the Journal Impact Factor of Special Education Journals Indexed in the Social Sciences Science Edition from Web of Science

Academic journals play a primary role among the official communication languages of science in the process of building, disseminating and using knowledge. However, in Social Sciences, a significant part of the academic research is still not published in international journals but in national journals, book chapters, or monographs (Sivertsen & Larsen, 2012). In Educational Research, a discipline at the interface of social sciences and humanities, for example, the books are still widely used as a communication tool (Hicks, 2012; Nederhof, 2006). However, the

greater interaction of the area with other disciplines, the broadening of the topics studied, and the dissemination of the research produced in international collaboration, has made academic journals more and more prominent in the area (Engels, Ossenblok, & Spruyt, 2012; Henriksen, 2016; Larivière, et al., 2006; Pajić, 2015; Rowlinson, et al., 2015). The competitive environment created by the increasing number of academic journals in the field of education and the idea, as in other fields, of “publish or perish” among the researchers and the question of “quality or quantity?” in the studies conducted came up (McGrail, Rickard, & Jones, 2006). Therefore, it is becoming more and more important to follow the publications produced in academic journals in the field of education and to analyze the citation relationship networks between the publications based on various criteria.

Nowadays, articles published in journals in the Science Citation Index (SCI), Social Sciences Citation Index (SSCI) and Arts & Humanities Citation Index (AHCI) citation indexes in the Web of Science (WoS) database are widely accepted in the academic community as quality research. Apart to be an abstract database, WoS is a citation database, which calculates the citations received by every single paper indexed in the database. From these citations, several citation indexes are created, the most popular is the journal impact factor (JIF). JIF is defined as the number of citations in the current year to items published in the previous two years, divided by the total number of scholarly citable items published in those same two years (Garfield, 1972). In other words, JIF is a prediction for the average number of citations that an article can expect to receive. The JIFs are calculated and published annually in the Journal Citation Report (JCR) published by Clarivate Analytics (formerly part of Thomson Reuters).

Although the journal impact factor is the most widely used bibliometric indicator to assess the quality of a paper, it has several limitations: the different citation culture in different disciplines, the two-year citation window, the highly skewed distribution of citations among the papers published in a journal, the inclusion of journal self-citation in the calculation or the definition of the citable documents used in the calculation, which makes possible their manipulation as a result of editorial policies (for a detailed discussion see: Archambault & Larivière, 2009; Hammarfelt & Rushforth, 2017; Larivière & Sugimoto, 2019; Peters, 2017; Seglen, 1997). After all these criticisms, evaluating the articles published in journals by looking only at the impact factors can be really “mortal sin” (as quoted by Van Noorden from Van Rann, 2010). However, the concern that evaluation of the research can be subjective among peers, and the opinion that high impact journals in the WoS database accept articles only after being accepted by expert referees in the field, lead to accept more and more the evaluation criteria based on bibliometric indicators. In fact, such trends we see, can be interpreted as being caught up in the “fatal attraction” of bibliometric methods (Van Raan, 2005). Despite the inherent limitations of the journal impact factor, bibliometric tools in countries where nepotism prevails can provide an objective and consistent assessment for researchers and allow making fast, fair and transparent decisions (Tang & Hu, 2018). The JIFs are simple and easy to calculate and produce, under some circumstances, accurate results for the evaluation of journals, researches or researchers, because of these reasons and above all, because none of the alternative bibliometric indicators suggested was successful, make JIF the most used bibliometric indicator (Tregoning, 2018).

Although there is a great interest in journal impact factor within the research ecosystem, the skewness in citation distribution, the inclusion of the journal self-citation, and the citation

window limited to 2 years, make that the use of JIF is still intensely discussed. As a result of this discussion, the five-year journal impact factors and journal impact factors without self-citations have been calculated and are now available in the JCR. However, the two-year journal impact factor including self-citations continues to be the dominant form and remains the gold standard (Larivière & Sugimoto, 2019). Meanwhile, Clarivate Analytics has begun to create reports that show highly self-cited or abnormal citation patterns as a precaution against efforts to increase journal impact factor, which has been called “journal impact factor engineering” (Reedijk & Moed, 2008). Fortunately, and probably as a result of these reporting practices, cases of citation stacking have decreased over time (Clarivate Analytics, 2020a). Regarding the criticism that a limited number of cited articles in journals may increase the impact factor of the journal, a median impact factor approach has been proposed to replace the citations received by all articles published in the journal (Rousseau, 2005; Sombatsompop, Markpin, & Premkamolnetr, 2004). The main approach considered is the idea that the median article is equidistant from the most cited article and the least cited articles (Garfield & Pudovkin, 2015). However, the study conducted by Garfield and Pudovkin (2015) for different categories in the SCI and SSCI, found that there is a very high correlation between (traditional) journal impact factors and the citedness of the median journal paper (Pearson's correlation coefficient is r , close to 1).

On the other hand, new indicators (such as h-index, SCImago Journal Rank, Eigenfactor, etc.) have been developed to be used as an alternative or in combination with JIF (Cai et al., 2019; Larivière & Sugimoto, 2019). Among these alternative indicators, perhaps h-index is the most popular (Hirsch, 2005), which was originally developed for evaluating researchers and attracted a great interest in the literature in a very short time (Schubert & Schubert, 2019). According to the definition by Hirsch (2005), "A scientist has index h if h of his or her N_p papers have at least h citations each and the other ($N_p - h$) papers have $\leq h$ citations each" (p.16569). After a short time, Braun et al. (2006) proposed a h-index for evaluating the scientific impact of journals. The journal h-index can be calculated as follows "Retrieving all source items a given journal form a given year sorting them by the number of times cited, it is easy to find the highest rank number which is still lower than the corresponding times cited value. This is exactly the h-index of the journal for given year" (Braun, Glänzel, & Schubert, 2006, p.170). Since the h-index has been considered to be a robust metric for evaluating journals, correlation between journal impact factors and h-index values has been a subject of many studies in various fields (for a detailed discussions see: Bar-Ilan, 2010; Bornmann, Marx, & Schier, 2009; Harzing & van der Wal, 2009; Hodge & Lacasse, 2011; Liu & Wan, 2012; Liu, 2020 Stern, 2014; Yuen, 2018). Most of these studies find strong positive correlations between the journal impact factors and journal h-index.

The field of Education in WoS is represented by two categories in SSCI, “Education, Special” and “Education and Educational Research” and one in SCI “Education, Scientific Disciplines”. While the “Education, Scientific Disciplines” category focuses on education-related studies in scientific disciplines such as Medicine, Engineering, Nutrition and Biochemistry, the “Education and Educational Research” category has broad spectrum of publications and includes all kinds of educational research. On the other hand, “Education, Special” (ES) is a more specific category compared to the other two and covers resources that are concerned with the education and development of people with special needs, including the gifted as well as those with learning disabilities.

As known, bibliometrics is an effective method to analyze the research trend of a specific field and is an important tool to explore the impact of scientific field, the impact of researchers, and the impact of articles (Pritchard, 1969). Therefore, there is a significant growing interest in educational researches due to the increase in internationalization and interdisciplinary work, and as a natural consequence of this, academic journals have become progressively more important (Engels, Ossenblok, & Spruyt, 2012; Henriksen, 2016; Larivière, et al., 2006; Pajić, 2015; Rowlinson, et al., 2015). On the other hand, as emphasized by Liu (2020), bibliometric research about special education journals is inadequate and the systematic evaluations of journals in the ES category appear to be rare and outdated (Sabatino, 1981; Swanson, et al., 2013; Summers, 1986; Togia & Tsigilis, 2006; Zurita, Merigó, & Lobos-Ossandón, 2016). It should not be forgotten that although the ES category is a more thematic category of the education field, it is an important branch of education (Rumrill, Cook, & Stevenson, 2020). For example, the National Center for Education Statistics reported that seven million students, whose ages vary between 3 to 21, (14 percent of all public students) in the US had special services, and 34% of them had specific learning disabilities (NCES, 2019). Therefore, it is very important to have the evaluation of the quality of academic journals for researchers, administrators, and academic libraries. Also, these qualified academic journals are increasingly used to publish research results and share ideas and best practices in this field (Liu, 2020). Thus, it is crucial to cover the entire field of special education since there is a gap in research exploring the validity of JIF in this area. Furthermore, this study will contribute to the literature on the bibliometric research on special education journals.

The Purpose of the Research

Based on the previous discussions on the journal impact factor, the following questions were answered, considering the impact factors of special education journals in the ES category in the SSCI:

- **RQ1:** What is the share of papers published, the average citation values per paper, the journal self-citation rates and the uncitedness share of papers by journal quartiles?
- **RQ2:** What is the relationship between journal impact factor and: i) the number of citations received by the journal's median article, ii) the journal self-citation rates, and iii) the journal h-index values?
- **RQ3:** At what level is the skewness in the citation distribution of the journals? Are there any significant differences of the skewness by quartiles?
- **RQ4:** What is the trend and temporal stability of impact factor values and journal self-citation rates between 2014 and 2018?

Methodology

Data were extracted from special education category of SSCI (WoS database) in January 2020. Only “articles” and “reviews” document types were considered, named “papers” through the study.

For RQ1, RQ2 and RQ3, the reference year was 2014. In 2014, 1,714 documents were indexed in the ES category. Of these, 1523 are articles (84.25%) and reviews (4.61%), representing 88.86% of all documents. Other important document types were editorial material (4.32%) and book reviews (3.91%). There are 39 journals indexed in the category in that year. However, since there is no data from these journals for "Volta Review" for 2014 and later years and the journal "International Review of Research in Developmental Disabilities" is published in book series format, both journals were excluded from the evaluation. The remaining 37 journals were indexed regularly between 2014-2018. The publishers of these journals are exclusively from two countries: 25 from the USA (67.6%) and 12 from the UK (32.4%). The publication language of all these journals is English.

For RQ1, RQ2 and RQ3, the journals were grouped by 2014 JIF quartiles. Briefly, the journals under the same category are ranked from the highest impact factor to the lowest and divided into its quartiles. Those in the first quartile are classified as Q1 (within the top 25% of journal impact factor among a certain category), the ones in the second quartile as Q2, those in the third quartile as Q3, and finally those in the fourth quartile as Q4 (within the lowest 25% of journal impact factors) among a certain category (Clarivate Analytics, 2020b; Orbay, Miranda & Orbay, 2020). For RQ4, the research was extended to the period 2014-2018. Although 41 different journals were indexed in the special education category during this period, only 37 journals were considered, those indexed in all the years of the 2014-2018 period, to avoid missing data. The publication language of all these journals is English.

Findings and Discussion

In this section, findings related to research problems were given and the results were discussed with relevant literature.

Findings and Discussion for RQ1

Table 1 shows the share of papers, the average citation per paper, the percentage of uncited papers, the average impact factor and journal self-citation rate by journal quartiles in 2014.

Table 1

Bibliometric Indicators by Journal Quartiles Journals of the ES Category

Journals	Q1	Q2	Q3	Q4	All quartiles
Papers (% papers)	834 (54.76)	245 (14.84)	234 (12.60)	210 (17.79)	1523 (100.00)
Average citations per paper	14.70	12.64	8.53	7.19	12.38
Average JIF	2.007	1.407	0.824	0.458	1.154
Uncited papers (% uncited papers)	23 (2.76)	10 (3.98)	12 (4.17)	22 (9.96)	66 (4.00)
Journal self-citation rate	16.62	13.69	11.47	14.92	14.20

Note: Papers published in 2014 and citations counted at January 2020.

As shown in Table 1, the journals with high impact factors publish much more than the 25% theoretically expected. In order to check the robustness of this fact for the ES category, the share of papers published by journal quartiles were examined for a longer period of time, from 2014 to 2018. Similar results were obtained, the share of papers published in Q1 varying from 38.67% to 54.76% in the period 2014-2018 while the share of papers published in Q4 varied from 14.97% to 21.28%. Based on this data, it can be concluded that journals with the highest impact factors publish much more papers than journals with the lowest impact factor in ES category.

This conclusion is in agreement with previous studies in the literature. Liu et al. (2016), for example, analyzed 8,506 journals from the 2015 JCR Science Edition, and calculated the share of articles and reviews published by quartile journals in each subject category. For journals associated with more than one quartile of different categories, the specific journal and publications published in this journal were allocated to only one quartile to avoid the double counting problem using both the "optimistic mode (this journal is allocated to the higher quartile)" and the "pessimistic mode (this journal is allocated to the lower)". Under these assumptions, it was found that 45% of papers were published in Q1 in the optimistic mode and still over one-third papers in pessimistic mode. Similarly, Miranda and Garcia-Carpintero (2019) analyzed the share of articles and reviews published in each quartile in the 25 largest research categories in SCI-E (covering more than 50% of total publications in the database) and found that the average share of articles and reviews in Q1 was 38.4%, although varying largely from 17.1 to 88.9%, depending on the category. Liu et al. (2018) carried out a similar study using the optimistic mode for the 2016 JCR SCI and SSCI sections, again considering only articles and reviews. They obtained similar share of papers published in Q1 in Science Edition (44%) but found this share of papers in Q1 is slightly lower in the case of SSCI journals (33%) but still much higher than the 25% theoretically expected.

According to the literature, the share of papers published in Q1 in ES category (from 38.67% to 54.76% in the period 2014-2018) are in line with the results obtained for Science journals but much higher than expected for Social Sciences journals. Although the ES category is included in SSCI, it shows similar features with SCI journals.

As expected, the average citation rates by papers published in Q1 journals were higher than in other quartiles. In particular, the average citations of papers published in Q1 journals was double than the citations of papers published by Q4 journals (14.70% vs. 7.19%). However, the differences in citations among quartiles are much lower than in other scientific areas previously studied, especially using the JCR Science Edition. The citations received by papers published in Q1 were 1.17, 1.72 and 2.04 times greater than in Q2, Q3 and Q4 journals. In the study carried out by Miranda & Garcia-Carpintero (2019) for the 25 largest SCI categories, it was found that the citations of papers published in Q1 were 2.5, 4.1 and 7.3 times greater than in Q1, Q2, Q3 and Q4 journals. In a previous study of the authors focused on Education and Educational Research, the citations received by papers published in Q1 journals were 1.62, 2.19 and 4.23 times higher than papers published in Q2, Q3, Q4 journals, respectively (Orbay, Karamustafaoglu & Miranda, 2021). Thus, even considering Social Sciences categories and related categories, the differences in average citations received by papers published in Q1 are much lower in ES than in other categories.

Similarly, there are not large differences in the journal self-citation rates by quartiles, varying from 11.47% to 16.62%, and without any clear trend. In the previous study of carried out by the authors focused on Education and Educational Research, the journal self-citation rate was slightly higher (average 19.50% considering all quartiles), and increased with the journal quartiles, from 16.28% in Q1 to 18.09% in Q2, 19.43% in Q3 and 24.19% in Q4 (Orbay, Karamustafaoglu & Miranda, 2021). The values obtained for ES are similar to a large-scale study carried out by Larivière Sugimoto (2019). They obtained an average of the self-citation rates for all disciplines of the 2016 JCR of around 12% but varying largely among the disciplines. In particular, the greatest journal self-citation rates were found in the field of Arts and Humanities (20-25%), then decreased in Social Sciences categories (around 14%) and the lowest values were obtained for Clinical Medicine and Biomedical Research (between 5 and 10%). To analyze the impact of the journal self-citation percentages on the quartiles where the journals were grouped, a new grouping of the journals excluding the self-citation rate was carried out. As a result, 29 of the 37 journals (78.38%) remained in the same quartile, which means the effect of journal self-citation is not much important in JIFs and grouping of journals by JIF quartiles.

Even the uncitedness was evaluated 5 years since publication, the uncitedness rates are surprisingly much lower than in other research areas, especially in Q3 and Q4, probably due to the lower differences in the average citations per paper in the different journal quartiles commented before. For example, in Education and Educational Research category (papers published in 2015 and uncitedness evaluated 4 years since publication), the average uncitedness of papers was 2.45% in Q1 and 5.07% in Q2 but was as high as 10.43% in Q3 and 27.95% in Q4. Correspondingly, in a large and comprehensive study of the 25 largest SCI categories (papers published in 2015 and uncitedness evaluated 3 years after publication), the uncitedness rate was found as 1.7% for Q1 and 6.2% in Q2, but again much higher in Q3 and Q4: 13.0% in Q3 and 27.5% in Q4 (Miranda & Garcia-Carpintero, 2019). A global 4.0% of uncited papers in ES category 5 years since publication demonstrates the use of papers published in academic journals indexed in SSCI is very high in the scientific community.

Although the uncitedness rates are not very high in ES category, at least 5 years since publication, it is also important to comment that uncited papers do contribute academically to science or can be used by academic communication channels outside the WoS database (Garg & Kumar, 2014). In addition, papers with little or no citation should not be overlooked by the distinguished editorial reviews and reviews of competent referees in their fields (Garfield & Pudovkin, 2015).

On the other hand, it is interesting to comment papers published in journals in SCI are cited in a very short time, while studies published in journals in SSCI are known to be cited longer (Archambault & Larivière, 2010; Miranda & Garcia-Carpintero, 2018). However, 96.0% of papers published in SE area were cited 5 years since publication, which is a high value in Social Sciences and even for Sciences journals. The average citation values of papers published in journals in the category of ES in the period 2014-2018 are given in Table 2. As seen in Table 2, the average number of citations received by articles increases regularly every year. Therefore, articles with little or no citation in the ES category have the potential to be cited in the future. In addition, the fact that the average citation rate for the ES category is increasing steadily over time and supports the idea that it may be more appropriate to use impact factors calculated by

using the five-year citation window rather than the two-year citation window, especially in the social sciences (Archambault & Larivière, 2010).

Table 2

The Changing of the Average Citations of Papers for the ES Category Over Time.

Year	2014	2015	2016	2017	2018	2019	Sum
2014	0.38	1.27	1.90	2.37	2.44	2.83	11.19
2015	---	0.34	1.20	1.97	2.18	2.79	8.48
2016	---	---	0.34	1.14	1.85	2.63	5.96
2017	---	---	---	0.39	1.16	2.15	3.70
2018	---	---	---	---	0.35	1.50	1.85

Findings and Discussion for RQ2

One of the most argued limitations on the impact factors is that the journal self-citation rates can be high, and this may increase journal impact factors artificially. Based on the 2014 data, the correlation between journal impact factor and journal self-citation rates for journals in the ES category was investigated and no significant relationship was found between them ($r=0.005$, $p>0.05$). In order to test the robustness of this data, the correlation was also tested separately for each year between 2014 and 2018 and again it was found that there was not significant relationship between these variables. In the literature, there are some examples from large-scale studies on this subject. McVeigh (2002), for example, found a very weak negative correlation ($r=-0.192$) between impact factor and journal self-citation rate in her study covering 4816 journals in SCI. Likewise, Larivière, & Sugimoto (2019) found a very weak negative correlation ($r=-0.312$) in their study using the 2016 JCR data. On the other hand, the relationship between impact factor and journal self-citation rates has often been the subject of studies for different categories, and there were cases where there was negative, positive or no significant relationship was obtained (for a detailed discussions see: Frandsen, 2007; Heneberg, 2016; Huang & Lin, 2012 and references therein).

As previously emphasized, other of the important criticism points on impact factor is the potential high degree of skewness in the citation distributions of the papers published in a journal. In other words, a limited number of articles in a journal can influence largely the value of the impact factor and thus, the impact factor being only a poor predictor of the expected citation of a paper published in a journal as it is based on the average citations of papers published in the journal. Therefore, it is obvious that the journal impact factor will be far from representing all the articles in the journal. Based on these discussions, instead of taking the average citation value, if all the articles published in the journal are ranked from the highest cited article to the lowest cited article and we focus on the median citations of the articles published in the area, this concern is partially avoided (Garfield & Pudovkin, 2015). Namely, the article with the median citations of the articles published in a journal is equally distant from the limited number of articles that is likely to be highly cited and the articles with little or no citation. A strong positive correlation ($r=0.762$) was found between the two-year journal impact factor and the citedness of the median journal paper for journals in the ES category using the 2014 JCR data. On the other hand, a higher positive relationship ($r=0.813$) was found between the five-year journal impact factors of the same journals and the citedness of the median journal paper (Figure 1). Although the behavior of ES is slightly different from other social sciences, it is well known

that articles in the social sciences are rarely cited and these articles can only reach their citation peak ten years later after they are published, while articles in SCI are cited immediately after they are published in the journals and then the citations rate goes down rapidly (Archambault & Larivière, 2010). In SE area, most of the articles were cited but they followed a different trend than in Sciences, i.e. they were more gradually cited within the five years since publication cited, the citations did not go down rapidly after the first two years since publication. Therefore, the five-year window can be the minimum requirement to determine the effect of social sciences publications, as recognized previously by other authors (Archambault & Larivière, 2010; Glanzel & Moed, 2002; Miranda & Garcia-Carpintero, 2018).

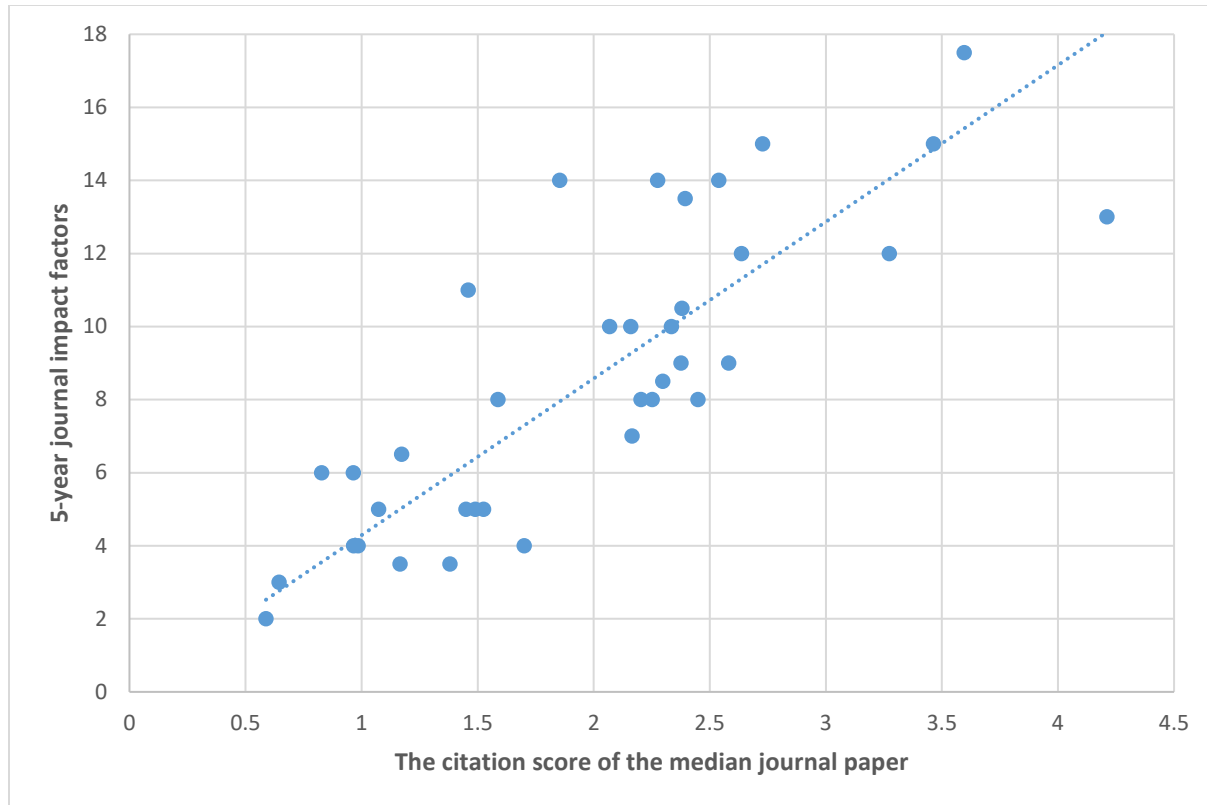


Figure 1: Correlation Between Journal Impact Factor and the Citation Score

Note: Correlation between the five-year journal impact factor and the citation score of the median paper for papers published in 2014 in the ES category.

These data are in agreement with previous literature. For example, it was a similar strong positive relationship ($r=0.864$) between the 2-yr JIF and the citedness of the median journal paper in a previous study focused on Education and Educational Research (Orbay, Karamustafaoglu & Miranda, 2021). Garfield & Pudovkin (2015) in their study for five different categories also found a very high positive correlation of over 0.9 for the categories in science between the JIF and the median citation of papers published in a journal. On the other hand, they emphasized that the correlation coefficient for the "Information Science & Library Science" category in SSCI was a very strong positive relationship ($r=0.879$), but it was partially low

compared to science fields, for example 0.994 for the “Physics, Condensed Matter” category and 0.990 for the “Genetics & Heredity” category in SCI.

However, the fact that there is a strong positive correlation between the impact factors of the journals and the median citedness of the papers in a journal does not mean that there is no skewness in the citation distributions of the journals. Therefore, this situation was discussed in detail in RQ3.

Table 3 summarizes the correlation values between the impact factor (2-yr and 5-yr) with other bibliometric indicators for the 2014 reference year. As seen in Table 3 and Figure 2, there is a positive correlation ($r=0.636-0.718$) between 2-yr and 5-yr JIFs and h-index values. In a similar study (Liu, 2020) on the fifty-seven special education journals selected inside and outside of SSCI, it was found that there was a strong positive correlation (Spearman’s rho $p=0.842-0.865$) between 2-yr and 5-yr JIFs and h-index values. This result is also consistent with the present study.

On the other hand, when the quartile groupings of the journals were made separately according to the 5-year journal impact factors and then the 5-year h-index (h5-index) values in 2018, only 20 of the journals (54.05%) remain in the same quartile, while 9 journals go to the upper group, 7 journals fall into one subgroup and 1 journal into two subgroups. While the journals in Q1 and Q4 quartiles are less affected in the rankings, inter-group transitions are mostly seen among the journals in Q2 and Q3 quartiles. Such a trend is in line with similar studies in the literature (Haghdoost, Zare & Bazrafshan, 2014; Nieuwenhuysen & Rousseau, 1998; Pajić, 2015). Although highly correlated, the groupings made according to journal impact factor and h-index values show some differences. One of the main reasons for this difference can be explained by the fact that journals that publish a limited number of articles during the year have naturally low h-index values (Bar-Ilan, 2010; Harzing & van der Wal, 2009). Based on this interpretation, it is observed that there is a strong positive correlation ($r=0.723$) between the h-index values of the journals and the number of papers published by the journals for the ES category. Eliminating the advantages (disadvantages) caused by the high (low) h-index values for journals publishing a large (limited) number of papers, the h-index values calculated for each journal are divided by the number of papers published by the journals in that period, and the relative h-index values are calculated (Orbay, Karamustafaoglu & Oner, 2007; Rousseau, 2006). In this new case, it is found that there is a moderate positive correlation ($r=0.505$) between five-year journal impact factors and relative h-index values. This level correlation better explains why groupings made according to journal impact factors and h5-index values show differences.

Table 3

Pearson Correlation Matrix Among Some Bibliometric Indicators for Published Papers in the ES Category.

Bibliometric indicators	A	B	C	D	E
A 2 Year journal impact factor-2016	1	0.826*	0.762*	0.829*	0.636*
B 5 Year journal impact factor		1	0.813*	0.854*	0.718*
C The citation score of the median journal paper			1	0.908*	0.586*
D Average citations per paper				1	0.632*
E h-index					1

Note: Significantly correlated when the significance level is set at 0.01 (two-tailed)

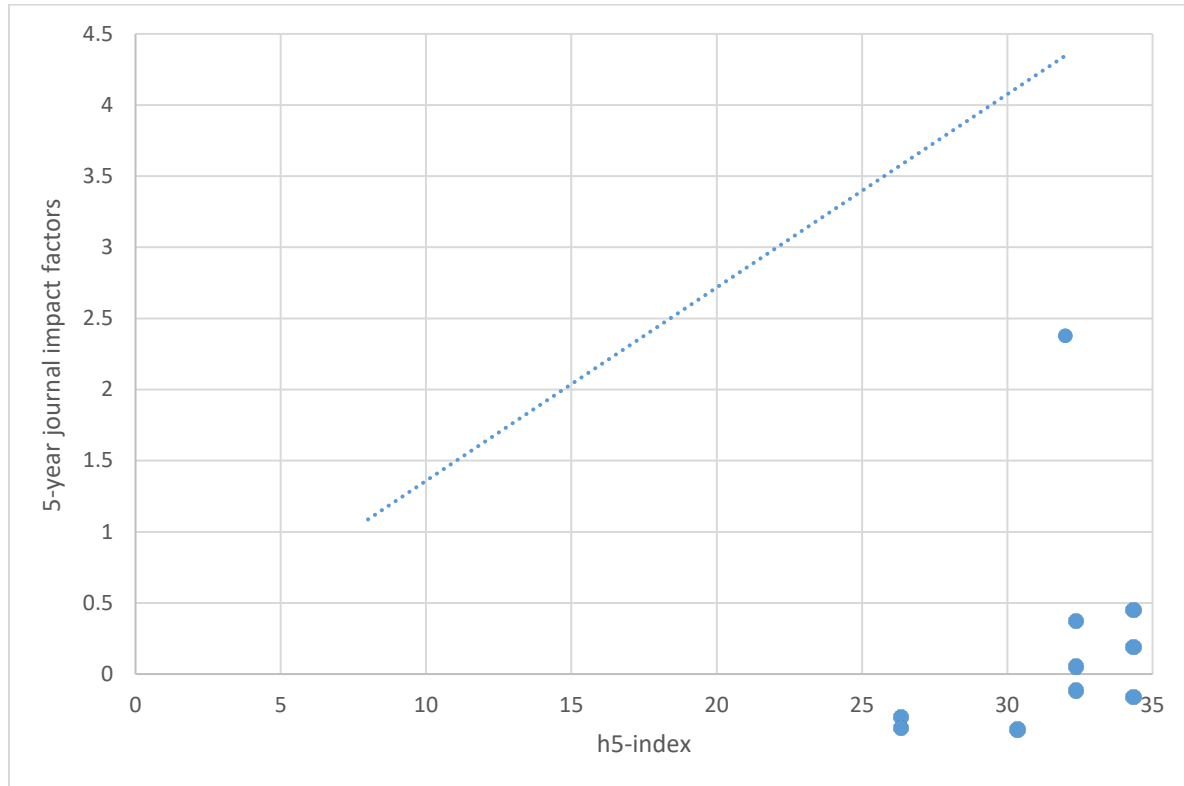


Figure 2: Correlation Between Journal Impact Factor and h5-Index

Note: Correlation between 5-year journal impact factors and h5-index values for the ES category from 2014 to 2018.

Findings and Discussion for RQ3

To study the degree of skewness of the citation distributions in journals, the skewness of the citation distributions by papers published in 2014 in each of the 37 journals was analyzed (citations counted in January 2020). As expected, in all the journals but one “Learning Disability Quarterly” (skewness=-0.176 and kurtosis=-1.032: negative-skewed distribution), positive-skewed distributions were obtained, the skewness ranging from -0.176 to 3.537, which means the distribution of citations in the journals is skewed to the right and has a long right tail. The average value for the 37 journals analyzed is 1.498 (median=1.272). Most of the journals (30 out of 37, 81.08%) have highly skewed distribution of citations (skewness>1), five journals (13.51%) have moderately skewed distributions (0.5<skewness<1) and only one journal “Reading & Writing Quarterly” (skewness=0.492) has an approximate symmetric distribution of citations (skewness<0.5). The degree of skewness of the citations distributions in ES is lower than in Education and Educational Research, according to a previous study following the same methodology (Orbay, Karamustafaoglu & Miranda, 2021). In this case, the average skewness for the 231 journals in the Education and Educational research area was 2.00 (median =1.65). Kurtosis varied from -1.032 to 15.030, with an average value of 2.878 (median=1.267).

Meanwhile, as expected, it was found a very strong correlation between skewness and kurtosis ($r=0.972$) due to the skewness and kurtosis of a probability distribution are not independent. If k is the full kurtosis of a distribution and γ is the skewness, $k \geq 1 + \gamma^2$.

As seen in RQ2 section, although there is a clear correlation between the impact factor and the median citations received by the papers, this does not mean the impact factor is the perfect indicator of the expected citations of paper published in a journal as a high skewness in the distribution curves for citations has been observed. Some important deviations in citation rates can still be found in journals having similar JIFs. If we look further in detail the data in Figure 1, we can observe that for several journals having a similar impact factor, i.e. ~ 2.25 , the citation score of the median paper varies largely from around 7 to 14.

Another approach to study the skewness of the citations distributions is to analyze the percentage of citations received by the most cited papers, i.e. the top 5%, top 10% and top 20%. Table 4 shows the share of citations received by the most cited papers in the ES category by years in the period 2014-2018.

Table 4

The share of Citations Received by the Top 5%, Top 10% and Top 20% Papers for the ES Category.

Year	2014	2015	2016	2017	2018
5%	20.19	21.29	22.67	21.36	25.46
10%	32.96	33.21	35.12	34.26	40.70
20%	50.88	50.63	53.34	53.33	60.80

As seen in Table 4, the top 10% cited papers receive 35.25% total citations (average in the period 2014-2018). However, the degree of skewness in ES is lower than in other scientific fields, e.g. Albarrán & Ruiz-Castillo (2011) found that, on average in 22 scientific fields, the 9-10% most cited articles account for about 44% of all citations. Similarly, Orbay et al. (2021) found that the 10% most cited papers in Education and Educational Research Area received 41.0% total citations. In this aspect, it is interesting to mention the results from Bornmann & Leydesdorff (2017) who found a decreasing share of total citations received by the top 10% cited papers in a large-scale study in Social Sciences from 75.6% in 1990, to 56.4% in 2000 and 45.1% in 2010. Although decreasing the share of citations received by the top 10% cited papers in Social Sciences, it seems ES has a lower degree of skewness than other Social Sciences research areas.

Meanwhile, it was investigated if there were significant differences in the skewness or kurtosis obtained by different JIF quartiles (Table 5). However, using the Kruskal Wallis test, no significant differences were obtained. Only the skewness and kurtosis from Q2 journals showed a marked different behavior compared to others: the skewness and kurtosis of Q2 journals are significantly lower (1.146 and 0.713, respectively) compared to the average of Q1, Q3 and Q4 (of Q2 journals is 1.611 and 3.56, respectively).

Table 5

The Kruskal-Wallis Test Results for Skewness and Kurtosis among the Journal Quartile in 2014

	Skewness Mean	Kurtosis Mean
Q1	1.604	3.409
Q2	1.146	0.713
Q3	1.631	3.344
Q4	1.598	3.927
Chi-Square	1.624	2.365
p	0.654	0.500

Findings and Discussion for RQ4

Descriptive statistics for the impact factors of journals in the category of ES between 2014-2018 are given in Table 6. As seen in Table 6, the journal impact factors in the ES category increased from 1.154 (median=1.118) to 1.460 (median=1.525) during the studied period.

Table 6

Descriptive Statistics of the Impact Factor for the ES Category from 2014 to 2018.

Year	Paper Count	Average number of references used by papers	M	Me	SD	Max	Min
2014	1523	46.9	1.154	1.118	0.634	2.745	0.239
2015	1304	48.0	1.128	1.071	0.619	2.796	0.197
2016	1293	48.9	1.222	1.206	0.571	2.714	0.412
2017	1274	48.1	1.361	1.186	0.631	3.340	0.500
2018	1289	49.1	1.460	1.525	0.663	2.854	0.447
Overall		48.2	1.265	1.221	0.613	2.890	0.359

Note: M=Mean, Me=Median, SD=Standard Derivation, Max=Maximum, Min=Minimum

In a similar study (Togia & Tsigilis, 2006) for the ES category, covering the period 2000-2005, it was observed that the journal impact factor increased from 0.643 (median=0.617) to 0.793 (median=0.655). If we consider the previous study (Togia & Tsigilis, 2006) and the current study together, the journal impact factors of journals in the ES category have increased approximately twice. This is actually expected because the journal impact factor can vary depending on the field characteristics and time, which are good arguments to use journal quartiles instead of the absolute value of JIF. This is called journal impact factor inflation (Althouse, et al., 2009). The main causes for this factor inflation are the following: the growth of the field, the growth in the average number of citations used per paper or the lower average citation age, the increase in the collaboration with other disciplines, the increased rate of citation for journals included in the WoS database, the increase in international collaborations and the increase in the number of authors of a paper are the main factors (Althouse, et al., 2009).

One of the main reasons for large JIF increase with time is usually the field growth, however, the JIFs in ES category increased largely even the number of the papers indexed in the category decreased significantly (15% decrease, from 1,523 to 1,289). To explain this behavior, it is important to comment that the ES category has a very close relationship with other disciplines. In fact, only 7 of the 37 journals in the ES category are only in the ES category (18.9% of journals),

while 22 journals are in two (59.46%), 7 journals are in three (18.92%) and 1 journal in four categories at the same time (2.70%). ES category is related to 8 different categories, especially the following three: Rehabilitation, Psychiatry, and Psychology-Developmental categories. In fact, if we consider the subject categories of the citing papers to papers of SE area, it was found that only 22.79% were from Education Special area but 23.60% papers from Rehabilitation category, 13.11% from Psychology Developmental, 12.40% from Education and Educational Research, 8.66% from Psychology Educational and 8.57% from Psychiatry. If we study the increase in the number of papers published in these areas, the increase in the number of articles and reviews increased largely from 2014 to 2018: a 12.94% in Rehabilitation, 24.95% in Psychology-Developmental, 27.20% in Education and Educational Research, 27.34% in Psychology Educational and 30.05% in Psychiatry. This is a strong argument supporting the increase in the citing sources to papers published in ES area and thus, the field growth, despite the number of papers published in ES category decreased from 2014 to 2018.

Other factor contributing the JIFs increase could be the increase in the number of references (citing sources) for the papers published in the area. In this sense, after examining the JCR and the WoS data for the ES category, we can observe that the average number of references used by papers increased only slightly, from 46.9 in 2014 to 49.1 in 2018. Another factor explaining this behavior could be an important increase in open-access papers published in the area was observed. If only 2.13% of the papers of the SE area were published as open-access in the period 2000-2005 (Togia & Tsigilis, 2006), the share of papers published as open-access increased to 16.09% in the period 2014-2018. And it is a well-known fact that papers published as open access are more cited than regular papers (restricted access) (Piwowar et al., 2018; Swan, 2010).

Another well-known factor increasing the number of citations received and thus the JIFs is the international collaboration. The international cooperation rate, however, maintained almost constant in the period 2014-2018. The international collaboration for the 10 most productive countries was 36.96% in 2014, 38.06% in 2015, 38.82% in 2016, 33.77% in 2017 and 36.61% in 2018 (average 36.56% in the period 2014-2018).

Similarly, the fact that team studies come to the forefront rather than individual studies in education researches also influences increasing the journal impact factor. A scale that can be counted as an important criterion of teamwork is the number of authors in the researches. Henriksen (2016), in his research covering the sub-disciplines of social sciences, found that researches in the field of special education were published as two authors between 1980-2005 and three authors (median value) since 2010-2013. As a result of our examination for the 2014-2018 range, the average number of authors and median values per paper are given in Table 7. As seen in Table 7, the average number of authors in the ES category has reached the limit of four authors. Therefore, we can say that the lone scholar in the ivory tower is a rare phenomenon in the special education field, as well as observed in most areas of Social Sciences (Ossenblok, Verleysen, & Engels, 2014).

Table 7

The Average and Median Number of Authors Per Paper for the ES Category.

Year	2014	2015	2016	2017	2018
Average Author Count	3.79	3.87	3.86	3.79	3.88
[Median]	[3]	[4]	[3]	[3]	[3]

The changes in the journal self-citation rate of the journals in the ES category between 2014 and 2018 were analyzed and it was observed that this rate had significantly decreased from 14.20 (median=12.05) in 2014 to 10.54 (median=8.50) in 2018. Descriptive statistics values for the period 2014-2018 are given in Table 8.

Table 8

Descriptive Statistics of the Journal Self-citation Rates for the ES Category from 2014 to 2018

Year	M	Me	SD	Max	Min
2014	14.20	12.05	11.14	46.17	0.00
2015	16.52	14.61	13.43	62.18	0.00
2016	14.16	13.16	11.59	55.86	0.00
2017	11.78	9.70	7.06	26.69	0.00
2018	10.54	8.50	8.51	34.97	0.00
Overall	13.44	11.60	10.35	45.17	0.00

Note: M=Mean, Me=Median, SD=Standard Derivation, Max=Maximum, Min=Minimum.

The trend analysis method (Tolmie, Muijs, & McAteer, 2011) is used to determine whether there is a special form of journal impact factors and journal self-citation rates increase or decrease in the ES category. As a result of the investigations, it was found that the journal impact factor tended to increase linearly ($F_{1,36}=20.706$, $p<0.001$, $\eta^2=0.365$), while the journal self-citation rate linearly decreased ($F_{1,36}=8.361$, $p=0.006$, $\eta^2=0.188$) for the ES category during that period (Significance level $p=0.05$ and Confidence Intervals-CI are 95%).

It is generally desirable that impact factors should not excessively fluctuate from a year to another one (Aguillo, 1996; Glänzel & Moed, 2002; Smart, 1983; Pajić, 2015; Sutter & Kocher, 2001; Togia & Tsigilis, 2006). In previous study, Smart (1983) focused on education journals, utilized Pearson's correlation coefficients in order to estimate such fluctuations and found the impact factor was stable. However, from a technical point of view, the use of Pearson correlations coefficients for quantifying such fluctuations may not be appropriate due to the fact that yearly impact factor datasets are longitudinal, hence, yearly observations are nested within the previous year's observations (McGraw & Wong, 1996). As an alternative method of quantification, McGraw & Wong (1996) suggested using intraclass correlation coefficient (ICC) that is a quantity which shows the level of agreement among observations. This quantity may take values between 0 and 1: the highest values (close to 1) being preferred. Values less than 0.5 are indicative of poor reliability, values between 0.5 and 0.75 indicate moderate reliability, values between 0.75 and 0.9 indicate good reliability, and values greater than 0.90 indicate excellent reliability (Koo & Li, 2016).

Journals in ES category had an ICC estimate of 0.755 (95%CI=0.632 to 0.852) for their impact factors over time, meaning that journals in this category had stable impact factors. On the other hand, Togia & Tsigilis (2006) evaluated the stability of impact factors of ES category journals for the time interval of 2000 and 2005, and they estimated the ICC as 0.640 (95%CI=0.471 to 0.802) which indicated that there were more fluctuations at the ES category journal impact factors at that time.

With the same logic, research could examine the stability of self-citations over time. The results of this study indicated that the ICC estimate for the self-citations was 0.516 with a 95% confidence interval of (0.369, 0.669). A stable self-citation over time would be more desirable. In fact, it may not be possible due to the fact unique researcher self-citation behavior as well journal specific editorial policies may have systematic impact on that ICC.

Conclusions

In recent years, academic journals have started to become the primary communication instrument among researchers in social sciences and taken a central role in constructing, disseminating, and using the knowledge. In academic specialties such as education research, many stakeholders in the profession have an interest in reliable and accurate measurements of the quality of academic journals. Therefore, bibliometrics are often used to guide readers, academic institutes and researchers to analyze academic excellent of research and individual journals. A number of bibliometric indicators has been developed but none of them has gained enough popularity to become a real alternative factor to the journal impact factor. Thus, the journal impact factor is the most used indicator in determining of prestige, reputation, and quality of the academic journals. For this reason, it was necessary to carry out a comprehensive study of the JIF and JIF quartiles in the area to predict the expected citations of a paper published in a journal and compare the main strengths and limitations of this indicator in comparison to other related areas.

First, the production of papers for ES category by journal quartiles was studied. It was found that high impact journals (Q1) publish more papers than expected (55% total papers), whereas low impact factor journals (Q4) publish less papers than expected. The share of papers published in Q1 journals is slightly higher than in Sciences but much higher than in Social Sciences. Q1 journals published papers with higher average citations per paper and lower uncitedness rates, however, the differences among quartiles are lower than in other research areas. In addition, it is found that the share of self-citations among journal quartiles are almost on the same level and there is no significant relationship between the impact factor and the journal self-citation ($r=0.005$, $p>0.05$).

The impact factor is strongly positive correlated ($r=0.854$: for 5-year JIF) with the citedness of the median journal paper and with the journal h-index ($r=0.718$ for 5-year JIF). Even the journal self-citation rates and the degree of skewness of the citations distributions in ES area is lower than in other research areas, the JIF is still far to be the perfect indicator to predict the citations of a paper. In fact, it was found that citation distributions over 80% of special education journals exhibit high degree skewness ($\text{skewness}>1$) without significant differences by journal quartiles.

Within only five years (2014-2018), the impact factor of the special education journals increased 26.52% (from 1.154 to 1.460), even the number of papers published in the area decreased 15%. Although the growth of collaborative works and open access can have an influence, the main factor explaining this fact seems to be the strong interaction of ES area with other research areas. As commented earlier, only 22.79% of citing papers to papers published in the ES area were from journals indexed in SE area. In these related areas, the number of papers published had increased 25-30% in the period 2014-2018, which justify the increase in citing sources and field growth, even the number of papers indexed in ES category decreased.

To understand the relative rank of the journals in the ES category, intraclass correlation coefficients were calculated for journal impact factor and self-citations, which demonstrated the impact factors remained relatively stable (no changes in the journal rank by quartiles), but the change of self-citations fluctuated.

The bibliometric findings for the ES category may be useful to enrich the discussion about the journal-based evaluation system and debate whether the use of journal quartiles is appropriate for comparisons among researchers. The validity and usefulness of impact factors depend largely on the research area. According to the presented results, in ES area, the journal self-citation rates and the skewness of the citations distributions are lower than in other research areas. Although the JIF is still not the perfect indicator of expected citations, and despite its limitations, the use of journal impact factor is probably the first stage to start using bibliometric tools to provide objective and consistent assessment of researchers in countries or research areas with less experience in evaluating the science and researchers.

Limitations

We are aware that this study has a few limitations. First, because of the comprehensive coverage of special education which covers emotional, cognitive, behavioral, or physical disabilities and intellectual giftedness, this study only examined the ES category journals in the SSCI which all of them are in English language. Important special education journals in other languages (such as German, Chinese and French) are not included. Second, we analyzed only "articles and reviews" published in the ES category journals (these two document types representing 88.86% total publications), since we think that the dataset predominantly represents the industry standard, even so other datasets are emerging. Finally, bibliometric indicators based on citation number are time-dependent indicators and can change over time.

References

- Aguillo, I. F. (1996). Increasing the between-year stability of the impact factor in the Science Citation Index. *Scientometrics*, 35(2), 279-282.
- Albarrán, P., & Ruiz-Castillo, J. (2011). References made and citations received by scientific articles. *Journal of the American Society for Information Science and Technology*, 62(1), 40-49.
- Althouse, B. M., West, J. D., Bergstrom, C. T., & Bergstrom, T. (2009). Differences in impact factor across fields and over time. *Journal of the American Society for Information Science and Technology*, 60(1), 27-34.

- Archambault E., & Larivière V. (2009). History of the journal impact factor: Contingencies and consequences. *Scientometrics*, 79, 635-649.
- Archambault, É., & Larivière, V. (2010). The limits of bibliometrics for the analysis of the social sciences and humanities literature. *World Social Science Report*, 251-254.
- Bar-Ilan, J. (2010). Rankings of information and library science journals by JIF and by h-type indices, *Journal of Informetrics*, 4(2), 141-147.
- Bornmann, L., & Leydesdorff, L. (2017). Skewness of citation impact data and covariates of citation distributions: A large-scale empirical analysis based on Web of Science data. *Journal of Informetrics*, 11(1), 164-175.
- Bornmann, L., Marx, W., & Schier, H. (2009). Hirsch-type index values for organic chemistry journals: A comparison of new metrics with the journal impact factor, *European Journal of Organic Chemistry*, 10, 1471-1476.
- Braun, T., Glänzel, W., & Schubert, A. (2006). A Hirsch-type index for journals. *Scientometrics*, 69(1), 169-173.
- Cai, L., Tian, J., Liu, J., Bai, X., Lee, I., Kong, X., & Xia, F. (2019). Scholarly impact assessment: a survey of citation weighting solutions. *Scientometrics*, 118(2), 453-478.
- Clarivate Analytics. (2020a). Title Suppressions. Retrieved January 16, 2020 from <https://help.incites.clarivate.com/incitesLiveJCR/JCRGroup/titleSuppressions.html>
- Clarivate Analytics. (2020b). Journal Impact Factor Quartile. Retrieved January 16, 2020 from <http://help.incites.clarivate.com/inCites2Live/indicatorsGroup/aboutHandbook.html>
- Engels, T. C. E., Ossenblok, T. L. B., & Spruyt, E. H. J. (2012). Changing publication patterns in the Social Sciences and Humanities, 2000-2009. *Scientometrics*, 93(2), 373-390.
- Frandsen, T. F. (2007). Journal self-citations-Analysing the JIF mechanism. *Journal of Informetrics*, 1(1), 47-58.
- Garfield, E. (1972). Citation analysis as a tool in journal evaluation. *Science*, 178, 471-479.
- Garfield, E., & Pudovkin, A. (2015). Journal impact factor strongly correlates with the citedness of the median journal paper. *Collnet Journal of Scientometrics and Information Management*, 9(1), 5-14.
- Garg, K. C., & Kumar, S. (2014). Uncitedness of Indian scientific output. *Current Science*, 107(6), 965-970.
- Glänzel, W., & Moed, H. (2002). Journal impact measures in bibliometric research. *Scientometrics*, 53(2), 171-193.
- Haghdoost, A., Zare, M., & Bazrafshan, A. (2014). How variable are the journal impact measures? *Online information review (Print)*, 38(6), 723-737.
- Hammarfelt, B. & Rushforth, A.D. (2017). Indicators as judgment devices: An empirical study of citizen bibliometrics in research evaluation. *Research Evaluation*, 26, 169-180.
- Harzing, A. & van der Wal, R. (2009). A Google Scholar h-index for journals: An alternative metric to measure journal impact in economics and business, *Journal of the American Society for Information Science and Technology*, 60(1), 41-46.
- Heneberg, P. (2016). From excessive journal self-cites to citation stacking: analysis of journal self-citation kinetics in search for journals, which boost their scientometric indicators. *PloS one*, 11(4), e0153730.
- Henriksen, D. (2016). The rise in co-authorship in the social sciences (1980–2013). *Scientometrics*, 107(2), 455-476.

- Hicks, D. (2012). One size doesn't fit all: On the co-evolution of national evaluation systems and social science publishing. *Confero: Essays on education, philosophy and politics*, 1(1), 67-90.
- Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National academy of Sciences*, 102(46), 16569-16572.
- Hodge, D. R. & Lacasse, J. R. (2011). Ranking disciplinary journals with the Google Scholar h-index: A new tool for constructing cases for tenure, promotion, and other professional decisions. *Journal of Social Work Education*, 47(3), 579-596.
- Huang, M. H., & Cathy Lin, W. Y. (2012). The influence of journal self-citations on journal impact factor and immediacy index. *Online Information Review*, 36(5), 639-654.
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine*, 15(2), 155-163.
- Larivière, V., Archambault, É., Gingras, Y., & Vignola-Gagné, É. (2006). The place of serials in referencing practices: Comparing natural sciences and engineering with social sciences and humanities. *Journal of the American Society for Information Science and Technology*, 57(8), 997-1004.
- Larivière V., Sugimoto C.R. (2019) The Journal Impact Factor: A Brief History, Critique, and Discussion of Adverse Effects. In: Glänzel W., Moed H.F., Schmoch U., Thelwall M. (eds) Springer Handbook of Science and Technology Indicators. Springer Handbooks. Springer, Cham.
- Liu, F., Guo, W., & Zuo, C. (2018). High impact factor journals have more publications than expected. *Current Science*, 114(5), 955-956.
- Liu, W., Hu, G., & Gu, M. (2016). The probability of publishing in the first quartile journals. *Scientometrics*, 106, 1273-1276.
- Liu, Z. (2020). Evaluating Special Education Journals with H-type Indices and Journal Impact Factors. *Library Philosophy and Practice (e-journal)*, 1-14.
- Liu, Z., & Wan, G. (2012). Comparing Journal Impact Factor and H-type Indices in Virology Journals. *Library Philosophy and Practice (e-journal)*, 891.
- McGrail, M. R., Rickard, C. M., & Jones, R. (2006). Publish or perish: A systematic review of interventions to increase academic publication rates. *Higher Education Research & Development*, 25(1), 19-35.
- McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, 1(1), 30-46.
- McVeigh, M.E. (2002). Journal self-citation in the Journal Citation Reports – Science Edition. Retrieved January 16, 2020 from <http://wokinfo.com/essays/journal-self-citation-jcr/>
- Miranda, R., & Garcia-Carpintero, E. (2018). Overcitation and overrepresentation of review papers in the most cited papers. *Journal of Informetrics*, 12(4), 1015-1030.
- Miranda, R., & Garcia-Carpintero, E. (2019). Comparison of the share of documents and citations from different quartile journals in 25 research areas. *Scientometrics*, 121(1), 479-501.
- National Center for Education Statistics (2019). "Children and youth with disabilities" in The Condition of Education. Retrieved January 16, 2020 from https://nces.ed.gov/programs/coe/indicator_cgg.asp
- Nederhof, A. J. (2006). Bibliometric monitoring of research performance in the social sciences and the humanities: A review. *Scientometrics*, 66(1), 81-100.

- Nieuwenhuysen, P., & Rousseau, R. (1988). A quick and easy method to estimate the random effect on citation measures. *Scientometrics*, 13(1-2), 45-52.
- Orbay, M., Karamustafaoglu, O., & Miranda, R. (2021). Analysis of the journal impact factor and related bibliometric indicators in Education and Educational Research area, *Educational for Information*, (Preprint), 1-22.
- Orbay, M., Karamustafaoglu, O., & Oner, F. (2007) What does Hirsch index evolution explain us? A case study: Turkish Journal of Chemistry, *Biblios*, 27(8), 1-5.
- Orbay, K., Miranda, R., & Orbay, M. (2020). Building Journal Impact Factor Quartile into the Assessment of Academic Performance: A Case Study. *Participatory Educational Research*, 7(2), 1-13.
- Ossenblok, T. L., Verleysen, F. T., & Engels, T. C. (2014). Co-authorship of journal articles and book chapters in the social sciences and humanities (2000–2010). *Journal of the Association for Information Science and Technology*, 65(5), 882-897.
- Pajić, D. (2015). On the stability of citation-based journal rankings. *Journal of Informetrics*, 9(4), 990-1006.
- Peters, G.J.Y. (2017). Why not to use the journal impact factor as a criterion for the selection of junior researchers: A comment on Bornmann and Williams (2017). *Journal of Informetrics*, 11, 888-891.
- Piowar, H., Priem, J., Larivière, V., Alperin, J. P., Matthias, L., Norlander, B., Farley, A., West, J., & Haustein, S. (2018). The state of OA: a large-scale analysis of the prevalence and impact of Open Access articles. *PeerJ*, 6, e4375.
- Pritchard, A. (1969). Statistical bibliography or bibliometrics. *Journal of Documentation*, 25(4), 348-349.
- Reedijk, J. & Moed, H.F. (2008). Is the impact of journal impact factors decreasing? *Journal of Documentation*, 64(2), 183-192.
- Rousseau, R. (2005). Median and percentile impact factors: A set of new indicators. *Scientometrics*, 63(3), 431-441.
- Rousseau, R. (2006). A case study: Evolution of JASIS' Hirsch index. *Science Focus*, 1(1), 16-17.
- Rowlinson, M., Harvey, C., Kelly, A., Morris, H., & Todeva, E. (2015). Accounting for research quality: Research audits and the journal rankings debate. *Critical Perspectives on Accounting*, 26, 2-22.
- Rumrill Jr, P. D., Cook, B. G., & Stevenson, N. A. (2020). *Research in Special Education: Designs, Methods, and Applications*. Charles C Thomas Publisher.
- Sabatino, D. A. (1981). A 5-year analysis of four selected special education periodicals. *The Journal of Special Education*, 15(3), 373-388.
- Schubert, A. & Schubert, G. (2019). "All Along the h-index-Related Literature: A Guided Tour." In W. Glanzel, H. Moed, U. Schmoch, and M. Thelwall, eds., *Springer Handbook of Science and Technology Indicators*. Cham: Springer.
- Seglen, P.O. (1997). Why the impact factor of journals should not be used for evaluating research. *BMJ*, 314, 498-502.
- Sivertsen, G., & Larsen, B. (2012). Comprehensive bibliographic coverage of the social sciences and humanities in a citation index: An empirical analysis of the potential. *Scientometrics*, 91(2), 567-575.
- Smart, J. C. (1983). Stability of education journal characteristics: 1977-1980. *Research in Higher Education*, 19(3), 285-293.

- Stern, D. I. (2014). High-ranked social science journal articles can be identified from early citation information. *PloS one*, 9(11).
- Sombatsompop, N., Markpin, T., & Premkamolnetr, N. (2004). A modified method for calculating the Impact Factors of journals in ISI Journal Citation Reports: Polymer Science Category in 1997-2001. *Scientometrics*, 60(2), 217-235.
- Summers, E. G. (1986). The information flood in learning disabilities: A bibliometric analysis of the journal literature. *Remedial and Special Education*, 7(1), 49-60.
- Sutter, M., & Kocher, M. G. (2001). Tools for evaluating research output: Are citation-based rankings of economics journals stable? *Evaluation Review*, 25(5), 555-566.
- Swan, A. (2010). The Open Access citation advantage: studies and results to date. Technical Report, School of Electronics & Computer Science, University of Southampton. Retrieved January 16, 2020 from https://eprints.soton.ac.uk/268516/2/Citation_advantage_paper.pdf
- Swanson, E., Wanzek, J., Haring, C., Ciullo, S., & McCulley, L. (2013). Intervention fidelity in special and general education research journals. *The Journal of Special Education*, 47(1), 3-13.
- Tang, L., & Hu, G. (2018). Evaluation woes: metrics beat bias. *Nature*, 559, 331.
- Togia, A., & Tsigilis, N. (2006). Impact factor and education journals: A critical examination and analysis. *International Journal of Educational Research*, 45(6), 362-379.
- Tolmie, A., Muijs, D., & McAteer, E. (2011). *Quantitative methods in educational and social research using SPSS*. McGraw-Hill Education (UK).
- Tregoning, J. (2018). How will you judge me if not by impact factor? *Nature*, 558, 345.
- Van Noorden, R. (2010). Metrics: A profusion of measures. *Nature*, 465(7300), 864-866.
- Van Raan, A.F.J. (2005). Fatal attraction: conceptual and methodological problems in the ranking of universities by bibliometric methods. *Scientometrics*, 62(1), 133-143.
- Yuen, J. (2018). Comparison of impact factor, eigenfactor metrics, and SCImago journal rank indicator, and h-index for neurosurgical and spinal surgical journals, *World Neurosurgery*, 119, e328-e337.
- Zurita, G., Merigó, J. M., & Lobos-Ossandón, V. (2016). A bibliometric analysis of journals in educational research. In *Proceedings of the World Congress on Engineering*, 1, 403-408.

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