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***The Effects of Mass Trials versus Distributed Trials During a Shared Story Reading
for Students with Moderate to Severe Disabilities***

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Abstract

This study used a single-subject alternating treatment design across students to compare mass discrete trials and distributed mass trials distributed in a shared story reading on the acquisition of functional skills for students with Autism. The results of this study examined a functional relationship between the interventions on the acquisition of skills and decrease in interfering behaviors. Two early childhood students in a self-contained classroom were the participants for the study. The results of the study indicated that both instructional strategies were effective in supporting the acquisition of the target skills. However, the interfering behaviors of the two students were different in both instructional settings. The results suggest that students were able to generalize better using the distributed trials. Also, using the shared story reading allowed the students to access the general education literacy curriculum and exposed the students to emergent literacy skills that are typically taught to their peers in the general education classes. Results and conclusions are discussed in terms of future research and implications for including children with moderate and severe disabilities in general education classes.

Keywords: Mass Trials, Embedded Instruction, Distributed Trials, Shared Story Reading, Autism.

Literature Review

Improving literacy skills for students with autism and significant cognitive disability (SCD) has received increased attention in recent years (Individuals with Disabilities Education Improvement Act, 2004; No Child Left Behind, 2001). Yet providing quality instruction for students with autism can be a challenge. Researchers have identified several evidence-based practices for teaching students with autism academic skills (Wheeler, Mayton, & Carter, 2015). One such intervention used to enhance the literacy skills for students with autism and SCD is the use of shared stories (Browder, Mims, Spooner, Ahlgrim-Dezell, & Lee, 2008; Hudson & Test, 2011; Mims, Hudson, & Browder, 2012). Specifically, shared stories have been utilized to

improve listening comprehension skills in students with autism and SCD (Mims et al., 2012; Browder et al., 2008).

Shared Stories

One benefits of utilizing a shared story intervention is that it allows students who may not otherwise be able to access the general curriculum to participate in an inclusive setting (Browder et al., 2008). Shared stories have been successfully used in literacy, science, and math instruction. Courtade, Lingo, and Whitney, (2013) examined adapted, grade-level read-alouds to increase academic engagement for students with intellectual disabilities, autism and fragile X syndrome in the general education classroom. The results suggest that both special education and general education teachers were able to reliably create adapted read-alouds and implement them successfully in the general education classroom. Additionally, using read-alouds increased the academic engagement time of students from baseline to intervention in the general education classroom. Hudson, Zambone, and Brickhouse, (2015) successfully utilized individually adapted scripted lessons, math story read-alouds, and manipulatives to increase the acquisition of early numeracy skills for three participants with severe multiple disabilities. Shared stories were also used to study the effects of an adapted book on the reading comprehension in a fourth-grade science curricula. Hudson, Browder, & Jimenez (2014) used peer tutoring. The student participants returned to the general education classroom for science instruction later in the day. There, the students received the science instruction. The results indicate that all students showed an increase in level from baseline to intervention. This study contributes to the research on peer-delivered instruction. It also adds to the literature of shared stories, adapted grade level readings, and using a system of least prompt to enhance learning and comprehension.

Shared stories often have repeated story lines, phrases, words, and pictures that are paired with words. These strategies have been effective in supporting and fostering emergent literacy skills for typically developing students, at-risk students, students with mild and profound disabilities, and English language learners (Hudson & Test, 2011). To implement shared readings, teachers read a story aloud to a student while delivering support for the student to interact with the reader about the story. Then, students are given opportunity to develop a variety of literacy skills, from basic text understanding to determining important details in a text (Browder et al., 2008; Mims et al., 2012).

Systematic Instruction/ Embedded Instruction

Another evidence-based practice that has been employed for students with students with ID is systematic instruction. As shared stories have gained an evidence base, especially for students with intellectual disabilities, incidental and naturalistic teaching methods have been utilized more frequently with students with autism. These naturalistic teaching methods have the added benefits of promoting the generalization of newly learned skills as well as increasing opportunities to maintain these same skills (Bryson, 2007; Koegel, Bimbela & Scheribman, 1996). While these strategies have been used in early childhood classrooms for years, many argue that they can also effectively learn skills using systemic instruction.

Systematic instruction (SI) has been effectively used with students with SCD to teach literacy, science, and math (Jimenez & Kamei, 2015) and SI can be implemented using mass discrete trials (i.e., the same learning trials are presented quickly and immediately following each other);

or distributed trials (i.e., the learning trial is given randomly throughout the lesson or day). Conducting distributed trials in an inclusive setting is referred to as embedded instruction (Jimenez & Kamei, 2015). Jameson, McDonnell, Johnson, Reisen, and Polychronis (2007) described embedded instructions as “a strategy that can be used to provide students with developmental disabilities systematic instruction within the typical routines of general education classrooms”. Embedded Instruction allows the teacher to “systematically control all the instructional procedures” (p. 24). Similar to embedded instruction, distributed trials are when instruction is presented to students in the form of discrete trial training distributed along the duration of a lesson, book, or day. When trials are presented in the general education setting they are referred to as embedded instruction. However, when trials are presented in the special education setting, they are referred to as distributed trials (Jimenez & Kamei, 2015).

Sigafoos et al. (2006) used a single subject alternating treatment design (i.e., ABABA) across behaviors to compare the effects of embedded instruction and discrete trial training on the self-injurious behaviors, correct responding, and mood levels of a 12-year-old boy with autism. During phase one, discrete trials, consisting of imitation trial and receptive labeling trials, were implemented in the self-contained classroom. Throughout the imitation trials the teacher would say “Brendan, look at me” to get his attention, then “do this.” Then when engaged in the receptive labeling phase, the teacher would get his attention, show him two objects, and then ask him to point to one object. The teacher would prompt the student until he got the response, using least to most prompt sequence. While in the embedded instruction phase opportunities to respond were integrated into each of the three activities during a music activity in the corner of the classroom. The results of the study suggest that the embedded instruction intervention was more effective with less self-injurious behaviors, more correct responses, and higher mood levels for the student.

In a related study Geiger et al., (2012) used an alternating treatment design to compare the effects of traditional discrete trials and embedded discrete trials to teach receptive skills to two 4-year old students with autism. For the traditional discrete trial intervention, students receive instruction at a desk in their self-contained classroom. During this instructional phase the student was asked to point to the discriminative stimulus (SD). When switching to the distributed instruction phase (DT), the two students had different settings, for Sawyer, the DT phase was conducted in the exact same setting as the MT phase, (i.e., at his desk), whereas the other student received instruction at a table in a different area of the classroom. When considering duration of intervention, the students’ acquisition among both interventions varied and did not show a specific model to be a better fit for both. However, when reviewing the results of the negative affect during the intervention, the students had higher negative affect behaviors during the MT phase than during DT. The results of the study show that both participants made gains during the intervention, thus suggesting that Embedded Instruction is an effective hybrid of MT and naturalistic teaching.

Parallel to the previous studies, Majdalani, Wilder, Greif, Mathisen, and Saini (2014) compared the effects and usefulness of mass trials, distributed trials, and interspersals to teach expressive labeling on five children, ages 4 to 5 years, who have autism spectrum disorder in a therapy center and bedrooms of the participating students. The researchers used an alternating treatment design embedded in two multiple baselines across participants to examine a functional

relationship between the independent and dependent variables. Mass trials, distributed trials, and task interspersal were three independent variables (IV) that were compared together. The results of the study indicate that five of the six students reached mastery using the Mass Trial intervention, and one student reached mastery using distributed trials. During the maintenance probes, the results varied for the intervention or condition that produced the best results among the students. The results suggest that mass trials were the most successful intervention for teaching tacting skills for students with moderate to severe disabilities.

Purpose/ Research Questions

The aforementioned studies are highlights of the research to date that compares both discrete trial and embedded or distributed instruction strategies for students with Autism and ID. This study aimed to replicate the idea of comparing both distributed trials and discrete trial teaching as methods for intervention for students who have Autism and ID. This study also aimed to examine the effects of both instructional phases on the behavior of the students. Therefore, the purpose of this study was to compare the effects of mass discrete trials (MT) and distributed discrete trials in instruction (DT) on functional skills for students with Autism and ID. The study investigated the difference between the independent variables and their effect on the dependent variables. More specifically, the following research questions were examined.

1. Was there a difference in the acquisition of a skill when using trials presented in mass format (MT) versus using trials distributed in instruction (DT), to teach skills to students with Autism and ID?
2. What was the effect of using MT and DT on the possible interfering behavior of the students?

Method

Description of Participants

To be included in the study, students needed to (a) have autism and an IQ of 55 or less, (b) be attending an elementary school in a self-contained classroom that uses MT, (c) have limited verbal skills, and (d) have a history of interfering behaviors during instructional settings as described by the teacher and/ or in the IEP. The participants were chosen using non-probability convenience sampling. The first participant, Mark, was a 4-year-old boy in the early childhood autism program in a local public school. Exhibiting verbal skills that were behind his age level, Mark would often cry if he did not get an object of desire. The second participant, Kevin, was also 4 years old with autism and in the same classroom as the first participant. Kevin had no verbal skills and would try to escape when asked to complete a less desired task.

The classroom teacher was an early childhood autism teacher, who had over 10 years of experience in the classroom. Throughout the school day, the teacher used mass discrete trials (MT) with her students. This study did not consider gender, race, or social economic status of students in the education classrooms. However, the school was an urban school with diverse student demographics. The students at the school came from different cultural, linguistic, and socio-economic backgrounds.

Description of Setting

The study was conducted in the students' special education classroom. An area was designated in the classroom for the study. This setting was chosen due to its familiarity to the students and the teacher in the study to avoid confounding variables. To avoid disruption to the students' instructional time, study took place during the time allotted by the classroom teacher to work on the MT instruction. However, due to some of the challenges the teacher had with administering the intervention with the two participating students during instruction time, she chose to conduct it during afternoon recess, which often ran into afternoon snack and free play time.

The materials needed for this study included (a) shared story books created by the author specific to each participants' needs, (b) MT pictures, (c) reinforcements, (d) frequency chart, (e) procedural check list chart, and (f) a timer. The stories were built within a PowerPoint program and included approximately 10-20 words per page, a picture that corresponded to the topic on the page, and the picture used for the MT (see Figure 1). The PowerPoint was printed out, bound, and presented as a reading book.

He saw that his friend Mary didn't
didn't know what to do with her
empty bag of chips.

He said: "Throw it in the trash."



"Show me in the trash"
student points. If not in 5 seconds,

Teacher uses least to most
prompting;

Point, model, and hand over hand.

"Good job"



Figure 1. Sample of book page.

Research Design

A single subject alternating treatment across skills design (Barlow & Hayes, 1979) was used with the participants selected. A pre-test was conducted with the participants, asking them to demonstrate different skills, (e.g., sit down, pick up, point to, etc.). Then, based on the needs of each of the students, the teacher selected targeted vocabulary words. Once the dependent variables were established, the students were randomly assigned to determine the order in which each student was to begin the intervention, alternating both instructional methods: discrete trial training (MT) and distributed trials (DT) starting with the distributed trials.

Dependent Variables/ Measurement

The dependent variables measured in this study included (a) the number of correct responses occurring of the words taught, and (b) the frequency of the interfering behaviors occurring within a session. Frequency data were collected every time the student emitted a correct response that was not prompted as well as each time the participants displayed interfering behaviors during the intervention. Correct responses were counted when the student emitted the response, unprompted, within 3 seconds of the discriminative stimulus. If a student did not respond within 3 seconds, the teacher prompted the student using least-to-most prompting. The student was given verbal praise and social reinforcement following every trial. Behaviors were considered interfering if the student tried to escape, pushed the book or card away, tried to get up, moaned, cried, hit, or scratched. The researcher and the teacher kept a research log noting events that occurred during the intervention phase. This research log provides context for some of the data results that is discussed later in this manuscript.

Research Procedure

Pre-intervention phase. Once the participants were selected, the author asked the teacher how MT was done in her classroom, to make sure that it correlated with the procedural checklist proposed by the researcher. The researcher also trained the teacher on conducting the DT. The teacher and the author met for three sessions and discussed the study, practiced the procedures of the intervention and data collection, to ensure reliability and fidelity of both. The classroom teacher has worked with the students every school day since the beginning of the school year. Because of the rapport already established between the teacher and the participants, the teacher was the one who delivered the intervention.

After this, the researcher worked with the teacher to determine target behaviors. An informal observation of three skills that the student had not been previously introduced was observed and determined. Once the specific skills were determined for each student, the author wrote three shared storybooks (one story per target behavior) that the teacher used to read with the students. The mass trials were distributed within the shared story. These books were also used to assist the teacher in planning for antecedent strategies to make sure the student had 10 opportunities to respond to each skill addressed during the DT phase. It was important for the internal validity of the study that the MT and DT instruction in this study mirror each other (Ledford & Gast, 2018).

Mass trial phase. When conducting MT training, the teacher included all four of the following components in order: (a) the antecedent (what the researcher says at the start of a new trial), (b) the response, (c) the consequence (the delivery of the verbal praise immediately after the learner

responds), and (d) the intertrial interval (closing the trial; Ghezzi, 2007) utilizing the following steps:

1. The teacher first presented the student with a picture, on a notecard, of desired item. The teacher probed the student by saying, “point to juice”. Only one notecard was provided in the acquisition stage. After three consecutive days on of 100% per that skill, the teacher added another notecard and ask the student to “point to juice”.
2. When the student pointed to the picture, the teacher said “good job” or any other form of verbal praise.
3. If the student did not respond within 3 seconds or emitted an incorrect response, the researcher prompted the student using least-to-most prompts until a correct response was emitted.
4. Student received social reinforcement following each trial.
5. The teacher repeated this process for 10 trials and recorded the frequency data on the recording sheet.
6. At the end of 10 trials, the student received the reinforcement that he was working toward, (e.g., spinning toy, noise maker, bubbles, or kitchen center).

Distributed trial phase. The following steps were used in the DT phase: (a) the teacher used the shared storybooks prepared to conduct the training; each of the books included the same picture used on the notecard for the MT phase, however, this picture was embedded within a text and in the form of a story. There were 10 pages, each of that particular picture, to have the same number of response opportunities as in the MT phase. (b) the teacher delivered the DT intervention skills to the students using a shared storybook with distributed trials; (c) the student had the opportunity to respond to each skill 10 times during an instructional setting, but the trials were random and distributed in the instruction; d) the student received social praise after every correct response; and (e) the student received the reinforcement he was working for after 10 trials.

During the intervention stage, the teacher alternated the use of both treatments. During both treatment conditions, all correct responses were reinforced with social praise (i.e., pats on the back, high fives, smiles, and verbal praise). In both conditions, the DT and MT, if the student emitted an incorrect response, or did not respond within 3 seconds of the discriminative stimulus or directive, the teacher used least-to-most prompting to teach the student the correct response. The researcher was an observer and collected data along with the teacher. Both data from the author and the teacher were measured for inter-rater reliability. Notes were make anecdotally by the teacher and the author about the behaviors that were observed during the intervention. These behaviors were recorded in a journal.

Generalization assessment procedures. Generalization occurred when the target behavior was emitted in the presence of new stimulus conditions; different from the stimulus condition under which the student was trained (Cooper, Heward, & Heron, 2007). When the student can generalize a behavior, then the behavior is emitted more frequently and can therefore be maintained with greater success. In alternating treatment designs, generalization can be assessed by changing the treatment to other condition (Cooper, et al, 2007).

The researcher tested for generalization once the student mastered the skill taught during the acquisition phase. To do so, the student was given a generalization probe to examine if he could generalize the learned skill to other settings (e.g., in the classroom). Generalization was assessed after the student reached mastery criterion for three consecutive days. Only Mark met the criterion and was assessed for generality.

Reliability

This study assessed the reliability of the measurement of the dependent variables using the following procedure: (a) the teacher recorded the students' correct and incorrect responses; (b) if incorrect, the teacher recorded substitutions and/or number and type of prompt given; (c) inter-observer data was collected simultaneously by the researcher; and (d) frequency data taken by the teacher and the experimenter was compared at a later time and an inter-observer agreement (IOA) and calculated by using this formula: $\text{smaller number} / \text{larger number} \times 100 = \text{percent of agreement}$. The researcher, who also served as an interrater observer for both the reliability of the data and the fidelity of the procedure observed 33.3% of the intervention. A score of minimum 97.2% reliability was obtained. To ensure reliability the first author operationally defined the behaviors measured (i.e., correct response). This allowed the teacher and the observer to assess the same behaviors more accurately.

Procedural Fidelity

Procedural fidelity data were collected across all experimental conditions. A checklist was provided to the teacher for the procedures for both the DT and the MT instructional phases. The teacher was trained on the procedures with 100% accuracy during practice sessions before implementing the intervention. To maintain procedural fidelity, the first author and the teacher utilized a check list ensuring each step of the research process was followed in the same manner each day. The researcher observed 33.3% of the sessions. At the end of each session, the researcher compared the checklist with the teacher and used the formula to calculate the percentage of interrater agreement, (i.e., the number of observed behaviors divided by number of planned behaviors and multiplied by 100; (Ledford & Gast, 2018). If agreement on one session fell below 100%, the researcher and the teacher went over the procedures together. The teacher and the interobserver agreed 100% of the time on the fidelity of the procedure.

Results

Data Analysis

Frequency data for all the dependent variables were charted on graphs to show results (see Figures 2-3). Descriptive statistics included the mean of the percentage of the correct responses. Kevin had higher percentages during the mass trial for all three targeted skills (e.g., 60/80; 57.5/63.75; 64.3/70). Mark had higher means during the Mass trials, (i.e., "in the trash" and "juice") in two of the three targeted skills (e.g., 97.5/100; 97.5/ 100; 96.7/ 93.3). However, for the "on the table" skill, Mark had a higher mean of correct responses using the distributed trial intervention (i.e., 96.7/ 93.3). Both students made gains with both interventions and the percentages of the correct responses using both instructional strategies went up (see figures 2-3). The mean duration of the DT ranged from an average of 2 minutes to 4 minutes for each instructional concept while the mean duration to complete the MT ranged from 30 seconds to 1 minute. Therefore, total time to complete the DT each day, ranged from 6 minutes to 12 minutes. Total time to complete the MT ranged from 1 1/2 to 3 minutes. These times have been calculated

by taking the range of times each instructional strategy took to complete, multiplied by the number of instructional concepts being taught during each intervention time. The use of the mass trials took less time however, the distributed trials took longer because the teacher was reading a book to the student and distributing those discrete trials within the text of the story. Reading the story took more time, not the actual trials.

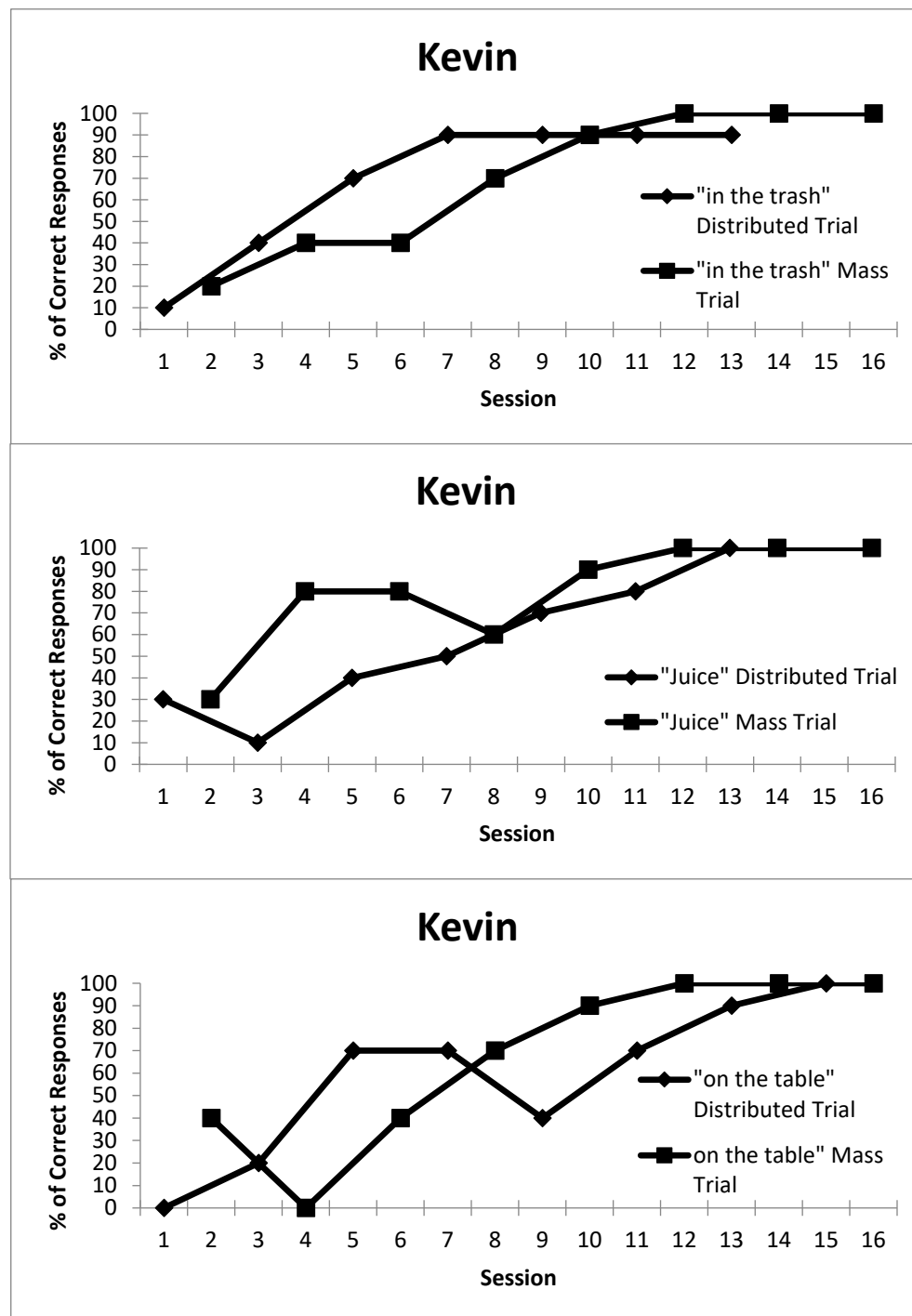


Figure 2. Mass Trial vs. Distributed Trial for Mark for “in the trash,” “juice,” and “on the table.”

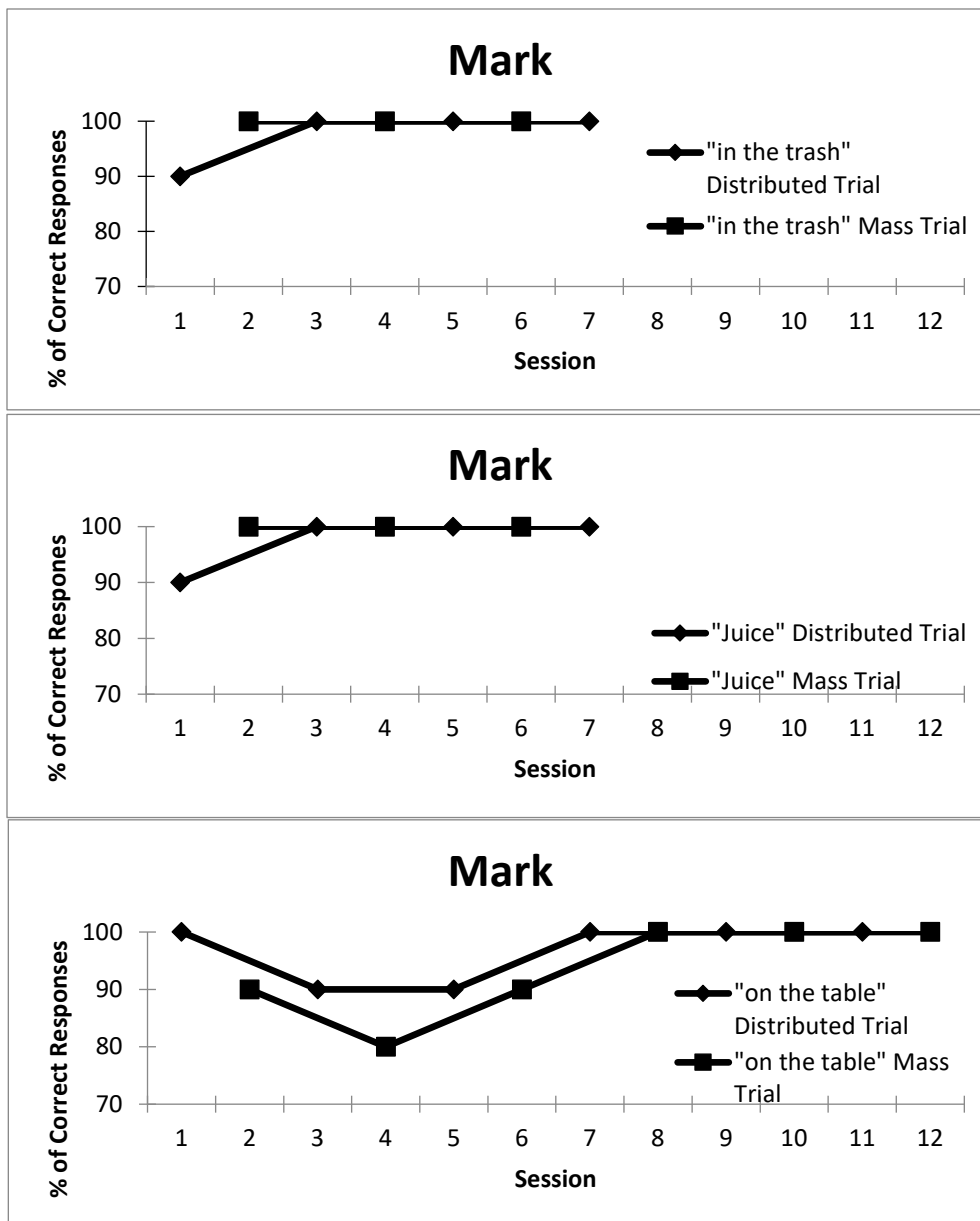


Figure 3. Mass Trial vs. Distributed Trial for Mark for “in the trash,” “juice,” and “on the table.”

Social Validity

Social validity was assessed following the completion of the study in the form of a survey (i.e., Likert scale) that determined the level of satisfaction in the intervention of the special education teacher. The survey included questions for the teacher with regards to the two interventions and addressed the following social validity criteria: (a) whether the dependent variables were socially significant for the participants, (b) if the procedures were practical and cost effective, and (c) if the dependent variable could be maintained over time (Horner et.al., 2005; Storey & Horner, 1991). Moreover, social validity data indicated that the teacher enjoyed implementing the distributed trials. She indicated that while it took more time to prepare and administer the distributed trials intervention, she preferred using that intervention because it included many skills that allowed the students to access the preschool curriculum; such as emergent literary skills. She indicated that she will continue to use the distributed trials in a shared story format in her classroom and with all her students.

Discussion

In this study, the students made gains with both instructional strategies. Although, both students overall had higher correct percentages during the MT, the interfering behaviors were more frequent during the MT phase. Based on researcher field observations, Kevin was less responsive to the directives during the MT phase. He attempted to flop the floor and cried, began to demonstrate vocal angry and escape behaviors, was kicking his feet, spun around in his chair and acted silly (i.e., laughing), and exhibited interfering behaviors such as crying, kicking, and attempting to elope. Interestingly, the researcher's research journal captured an instance when the teacher presented MT to Kevin and he verbalized no to the teacher and pointed to the DT story books and stated "this one." Additionally, he pushed the MT materials away and reached for the DT book.

Although Mark had higher percentages in MT, in two out of three skills, his scores were very close on both strategies. Mark seemed to master the skill right away, but the results varied for the intervention condition that produced the best results among the students. With time being a possible deterring factor for the use of distributed trials Instruction, additional benefits for its use should be considered. The use of shared story readings is a strategy that could easily be linked to content area and academic content standards. Additionally, distributed discrete trials instruction could be further expanded to encompass additional Pre-K academic areas of Effective Writing (PK Content Standard 5.0), Types of Writing (PK Content Standard 6.0), Listening (PK Content Standard 7.0) and Speaking (PK Content Standard 8.0), allowing the students more access to the general education curriculum.

Limitations and Future Recommendations

As with all research done in the natural environment, there are limitations that should be noted. The first is the small number of participants. In order to establish external validity, the study will need to be replicated among other participants and settings. A second limitation is that both instructional strategies may have contributed to the overall acquisition of the skills. The targeted skills were identical in both interventions, and by alternating both strategies, acquisition may have carried over from one day to the next and built on preceding sessions. Next, the intervention was planned to take place during the typical instructional time, however, when the teacher was

delayed, she would pull the students at alternate times. Finally, the DT had more variables and more distractions on the page for the student; whereas, during the MT, there was only one picture for the student to choose. This could possibly be why the students had higher correct responses mean during MT than during DT.

Despite the limitations, this research shows promise for future years. The data suggest that the use of a distributed trials in a shared story reading is effective either alone or as a hybrid with Mass trials. This instructional strategy allows students to access the general curriculum and may be generalized into the general education classroom. As teachers consider more naturalistic interventions that may be able to promote the generalization of skills, they may want to consider distributing trials throughout learning activities rather than isolating the skill in a discrete trial format. Finally, the students and teacher involved in this study indicated they preferred the distributed trial format. Future recommendations include study replication while trying to minimize the variables mentioned as limitations and using the shared stories with DT in a general education inclusive setting for the class, as a whole.

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A Pilot Study of a Self-Determination Curriculum on Secondary Students

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Abstract

Special educators routinely help students develop their self-determination skills. One way this has been achieved is to provide instruction to the student on how they can lead aspects of their individualized education program (IEP) meeting. A pre-post-post single group design was used in this study to examine if, and to what degree, the implementation of the Choicemaker (Martin et al., 1996) modified self-directed IEP curriculum impacted self-determination levels for nine high school students diagnosed with various disabilities such as specific learning disabilities, other health impairments, and mild intellectual disability. This study addressed students in rural communities who received special education services through a variety of service delivery formats. These students were taught how to lead and participate in their IEP meetings. Two measures of overall and subscale aspects of self-determination were used along with a global teacher rating of student participation. The results conveyed an increase in self-determination levels after students participated in their IEP meetings.

Keywords: student involvement; individualized education program; student-directed planning; self-determination

A Pilot Study of a Self-Determination Curriculum on Secondary Students

Historically, for students with intellectual disabilities, competitive employment, independent living, and access to community activities have been problematic (Wagner, Newman, Cameto, Garza & Levine, 2005). Students with intellectual disability are less likely to be employed, live in more supervised and isolated settings, and participate less in community activities (Wehmeyer & Palmer, 2003). The concept of self-determination has been recognized as being an important contributor to positive post-school outcomes for students with disabilities (Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997). Self-determination was originally defined as “acting as the primary causal agent in one’s life and making choices and decisions regarding one’s quality of life free from undue external influence or interference” (Wehmeyer, 1996, p. 22). But more recently it was reconceptualized and re-defined within the construct of causal agency theory. Shogren and her colleagues re-defined self-determination as “... a dispositional characteristic manifested as acting as the causal agent in one’s life. Self-determined *people* (i.e., causal agents) act in service to freely chosen goals. Self-determined *actions* function to enable a person to be the causal agent in his or her life” (Shogren, Wehmeyer, Palmer, Forber-Pratt, Little & Lopez, 2015, p. 258).

Literature Review

While researchers have delineated the expected skills and performance one is likely to see in a person who is self-determined (Wehmeyer & Kelcher, 1995), self-determination could be viewed as a larger issue of social justice and the expression of individual rights by virtue of the intersection of behaviors, personal characteristics, goal-oriented actions, self-advocacy, and contextual features such as environments, opportunities, and supports (Shogren, et al., 2015). From this perspective, the idea of teaching self-determination to individuals with disabilities might be seen as an important self-advocacy and social justice issue, for without the skills associated with self-determination, the ability to be a contributing member of a group or society may be limited. Perhaps this was best described by Shogren and Broussard (2011) who interviewed persons with disabilities and found that the participants' perspectives often emphasized larger aspects of rights, autonomy and self-sufficiency. For example, one participant referred to self-determination as being able to live independently and choose whether to get married. Another participant defined self-determination as deciding where to live and work (Shogren & Broussard, 2011). Thus, self-determination can be viewed as an important ability and opportunity to determine the direction that contributes to a personally satisfying life (Field, Sarver & Shaw, 2003).

From a functional standpoint, self-determination is comprised of multiple components or skills such as, "choice making and decision-making skills, problem-solving skills, goal setting and attainment skills, self-management skills, self-advocacy skills, positive perceptions of control and efficacy, and self-knowledge and self-awareness" (Wehmeyer, Agran & Hughes, 2000, p. 59). While these skill sets are important for all students, they are even more important for students with disabilities (Benz, Lindstrom & Yovanoff, 2000). Helping students with disabilities increase their self-determination skills, and actively involving students in planning for their future is considered best practice and a necessary focus of transition services (Field, Martin, Miller, Ward & Wehmeyer, 1998; Shogren, Villarreal, Lang & Seo, 2017).

The positive outcomes associated with the development of self-determination skills are widespread. Student self-determination is one of the key pieces to successful post-school transition (Martin, Marshall, Maxson & Jerman, 1996). Self-determination skills can enhance students' learning experiences and quality of life (Lee, Wehmeyer, Soukup & Palmer, 2010; Reeve & Jang, 2006; Wehmeyer, Sands, Doll & Palmer, 1997). Lee, et al. (2010) found that academic performance was positively impacted by increased self-determination skills. Additionally, self-determination skills can predict positive employment and independent living outcomes as well as quality of life (Benz, Yovanoff & Doren, 1997; Shogren, Wehmeyer, Palmer, Rifenbark & Little, 2015; Wehmeyer & Palmer, 2003; Wehmeyer & Schwartz, 1997, 1998). In addition, students who learn to be self-determined contribute more actively to their education and transition planning (Cavendish & Connor, 2017; Hagner, Kurtz, Clouteir, Arakelian, Brucker & May, 2012; Martin, Van Dycke, Christensen, Greene, Gardner & Lovett, 2006; Mazzotti, Kelley & Coco, 2015) and also experience more postsecondary involvement (Field et al., 2003).

Teachers have stated that self-determination is an important curricular consideration and that their students can benefit from learning these skills (Agran, Snow & Swaner, 1999; Grigal,

Neubert, Mood & Graham, 2003; Mason, Field & Sawilowsky, 2004; Wehmeyer, Agran & Hughes, 2000). Special education teachers are often unsure of how best to teach self-determination skills to their students (Mason et al., 2004; Wehmeyer et al., 2000). Nevertheless, there are multiple ways to teach these skills. Students with specific learning disabilities, other health impairments, and intellectual disability can learn self-determination skills through a variety of instructional strategies (Algozzine, Browder, Karvonen, Test & Wood, 2001; Cobb, Lehmann, Newman-Gonchar & Alwell, 2009; Wood, Fowler, Uphold & Test, 2005). One important aspect of teaching self-determination is to pair direct instruction of the skills within the context of IEP or transition plan development (Hagner, et al., 2012). With direct instruction, students learn specific skills which allow them to identify goals, keep track of their progress, solve problems, monitor their behavior, utilize internal reinforcement, and evaluate their progress. Using these skills within the active involvement of the IEP process gives students more control and more responsibility (i.e., more self-determination).

Teaching self-determination in the IEP process provides an excellent opportunity for IEP student involvement (Algozzine et al., 2001). Several curricula can be used to facilitate instruction and involvement such as the National Gateway to Self-Determination (n.d.) or the Zarrow Center for Learning Enrichment (n.d.). For students with disabilities, IEP development provides another chance to practice ownership of their learning (Chan, Graham-Day, Ressa, Peters & Konrad, 2014). However, “despite national interest in promoting self-determination and active involvement in IEP planning, available data suggest that many students have little involvement in these activities” (Agran & Hughes, 2008, p. 69). These authors found that junior and senior high school students often did not speak during their IEP meetings. Most students were not taught the skills to actively participate or lead their IEP meetings. Close to half of the students did not attend their IEP meetings and most had no understanding of the IEP process. These findings are consistent with Martin et al. (2006) who observed 130 IEP meetings and found that students with disabilities talked less than 6% of the time at their meeting while special education teachers talked approximately 48% of the time. It was also noted that students did not have a leadership role in their meeting. This is in direct conflict with IDEA, which mandates that students are to be active participants in the creation of their IEP (IDEA, 2004). These findings are disappointing because IEP meetings provide an excellent opportunity for students to practice self-determination skills. It is crucial that students learn these skills while in school to become better self-advocates and to experience a higher quality of life.

Student involvement in the IEP process positively impacts self-determination levels. Test, Mason, Hughes, Konrad, Neale and Wood (2004) conducted a review of literature focused on increasing students’ involvement in their IEPs and found that one way to improve self-determination skills is to involve students in IEP planning. Simply attending an IEP, however, does not significantly impact self-determination (Shogren, Wehmeyer, Palmer, Soukup, Little, Garner & Lawrence, 2007). When students take leadership in their IEP meetings, self-determination is positively impacted. Williams-Diehm, Wehmeyer, Palmer, Soukup and Garner, (2008) stated “the relationship between self-determination and student involvement is, likely, reciprocal; enhanced student involvement and greater student involvement would, presumably, lead to enhanced self-determination” (p. 35).

Students should also participate in the larger IEP process. This can increase their ability to select and express their IEP goals (Cross, Cooke, Wood & Test, 1999; Snyder & Shapiro, 1997), help educate others about their disabilities and identify appropriate accommodations (Danneker & Bottge, 2009), as well as help draft their own IEP (Konrad & Test, 2004). Procedures have been identified to help prompt students to participate at their meetings (Hawbaker, 2007; Mason, McGahee-Kovac, & Johnson, 2004), however research indicates the real impact on self-determination comes with leading the IEP meeting (Mason, McGahee-Kovac, Johnson, & Stillerman, 2002; Shogren et al., 2007).

Just being at the IEP meeting does not necessarily increase self-determination. Research has shown that opportunities to exhibit self-determination skills are necessary to increase self-determination levels (Hughes, Cosgriff, Agran & Washington, 2013; Shogren, Plotner, Palmer, Wehmeyer & Paek, 2014). The idea of opportunities is inherent in the Shogren, et al., 2015 causal agency theoretical perspective of self-determination, but at a more practical level, it is necessary for good instruction and mastery development. Further, opportunities for self-determination align with components of positive psychology and can serve to enhance feelings of capability and competence, self-worth, and fulfillment in life.

While the student-led IEP process can promote participation in education and transition planning, the work of Seong, Wehmeyer, Palmer and Little (2015) stands out as an example of how specific instruction in skill development combined with opportunities impacts self-determination. These authors found that using the *Self-Directed IEP* curriculum had a positive impact on students' levels of self-determination and increased knowledge of the transition process after using it in school settings for a period of about one year. Teacher notations suggested that self-determination skill opportunities increased for these students.

This study serves to extend Seong (2015) and her colleagues' work. While many studies have examined self-determination in students who are in urban or suburban schools, this study specifically addressed students in rural communities and in a variety of service delivery formats typical of those communities. Further, this study used specific measures of student skill development and teacher perception ratings in conjunction with overall and subscale SDS scores to determine the impact of the work. The purpose of this study was to examine if, and to what degree, the implementation of the modified Self-Directed IEP curriculum affected the self-determination levels (as defined by Wehmeyer, Agran & Hughes, 2000), specific skill development, and teacher perceptions of self-determination of high school students with disabilities in a rural central plains state.

Method

Participants

The participants for this study were high school students with specific learning disabilities, other health impairments, and intellectual disability in a rural central plains state. A description of the student sample is presented below.

Student sample. Nine high school students from five different high schools in a rural central plains state participated in this study. Student participants had specific learning disabilities, other

health impairments, and mild intellectual disability. Student participants were on an IEP and between the ages of 15 to 21. Teachers recruited the students by first contacting parents to explain the study. If parents were interested, the teachers met with students to explain the study and obtain assent. Consent forms were mailed or sent home for parents to sign and return prior to the beginning of the study.

The student demographic information is shown in Table 1. All students lived in communities of 2,500 to 40,000 residents and all spoke English as their primary language. Two students (22.2%) required extensive services and supports from their school team, while the remaining seven (77.8%) required limited supports. It is important to note that this designation of level of support was provided by the primary teacher and does not necessarily correlate to more typical terminology used by the American Association on Intellectual and Developmental Disabilities (AAIDD) or through the Supports Intensity Scale (SIS) terms. For this study, extensive services and supports were defined as one-on-one assistance and supervision for the majority of the day. Limited supports were defined as less than one-on-one supports throughout the day. This included drop-in services to a resource room or a similar support situation.

Of the nine students, five were male and four were female. One student identified as Native American and eight students identified as white. The students had disability labels across four categories, including intellectual disability, visual impairment, emotional disturbance and Autism. All but three students received most of their instruction in the general education classroom with a variety of pullout, resource room, or community-based learning experiences offered.

Design

This study used a pre-post-post single group design. The phases of the study included a pre-instruction assessment, skill instruction in leading IEPs, a post-instruction assessment, participation in an IEP, and then post-IEP assessment of self-determination skills. While there was no comparison group in this design, the comparisons of pre-instruction, post-instruction, and post-IEP results can be used to determine if there are effects of instruction and of IEP participation when using specific non-parametric statistical tests.

Instruments/Measures

The specific focus for this study was whether instruction of students with disabilities in a self-directed IEP curriculum, and subsequent participation in leading an IEP meeting, would positively impact self-determination scores. The instruments chosen measured teacher perceptions of self-determination and IEP involvement, and direct assessment of student self-determination.

While there are many options for instructional curricula for student IEP involvement, the independent variable in this study was the *Self-Directed IEP* (Martin, Marshall, Maxson & Jerman, 1997) and was selected because it addresses important components in the IEP process such as starting and ending meetings, expressing goals, and asking for feedback (Martin, et al., 1997). Further, there is a body of evidence that this curriculum can lead to improvements in IEP participation, self-determination, transition goal setting and empowerment (Allen, Smith, Test,

Flowers & Wood, 2001; Agran & Hughes 2008; Arnt, Konrad & Test, 2006; Kelley, Bartholomew & Test, 2013; Snyder & Shapiro, 1997).

Finally, studies of the *Self-Directed IEP* materials have been used in conjunction with two variables of interest, the *Choicemaker* curriculum assessment and the *Arc Self-Determination Scale* (SDS). Using these measurement variables allowed the researchers to compare study results more directly to previous research.

IEP Participation. The researchers were interested in actual skill demonstration and opportunities for self-directed IEPs. A two-part instrument was utilized to measure these features. The first part of the instrument was Part I: Section 2 of the *ChoiceMaker Self-Directed IEP Assessment Tool* (Martin et al., 1996). With this tool, teachers rated 11 questions on students' demonstration of IEP leadership skills. This included measures of students' reporting of interests, skills, and goals, along with the level of opportunity offered for students to perform these skills. The second portion of the survey was comprised of one Likert-type question, which was developed for this study where teachers assessed the overall level of student participation in the IEP process, ranging from 1 (*no involvement*) to 6 (*high involvement with student-led IEP meeting*).

Self-Determination. Researchers selected *The Arc's Self-Determination Scale* (Wehmeyer & Kelchner, 1995) as a global measure of self-determination. The *Arc's Self-Determination Scale* is a 72-item student self-report measure designed for use by adolescents with mild intellectual and learning disabilities (Wehmeyer & Kelchner, 1995). The scale assesses the overall level of self-determination, along with the four essential characteristics of self-determination; autonomy, self-regulated behavior, psychological empowerment, and self-realization. The *Arc's Self-Determination Scale* was normed on students with cognitive disabilities and has adequate reliability (Cronbach's $\alpha = .90$) and adequate construct validity based on multiple means (Wehmeyer & Kelcher, 1995). The *Arc's Self-Determination Scale* was administered to each student at the beginning of the study (before curriculum implementation), in the middle of the study (following curriculum completion) and at the end of the study (following the IEP meeting/transition meeting). The *Arc's Self-Determination Scale* was administered directly by the teachers and scored by researchers.

Procedures

The University Institutional Review Board provided approval for this study. The recruitment process began with the first author presenting the study to special education professionals (i.e., special education teachers and rural special education unit directors) at their respective statewide meetings. Additionally, all authors followed-up with any teachers who expressed interest or with any leads that were provided by special education unit directors.

After teacher participants were recruited, the following 6-step process was followed: 1) researchers taught the modified Self-Directed IEP curriculum (modified from the *Choicemaker Curriculum* materials, Martin et al., 1996) and assessment protocol to the selected teachers; 2) teachers conducted pre-instruction self-determination assessments with the targeted students; 3) teachers implemented the Self-Directed IEP curriculum; 4) teachers conducted post-instruction self-determination assessments; and 5) students participated in their own IEP or transition team

meeting using the Student-Led IEP curriculum skills; 6) Teachers administered the final self-determination assessments. This process took between three and six months.

Teacher Training and Instructional Materials. The modified Self-Directed IEP curriculum training consisted of a 15-hour training conducted over two or three days. Because of the location of the teachers and schools, and the timing of final selections, three separate teacher trainings were held. Each training session was divided into three sections: basic information about self-determination; implementation of the *ChoiceMaker* Self-Directed IEP curriculum; and administration techniques of the student assessment instruments. Teachers were provided with a packet of information containing curriculum and assessment material, consent and assent forms for student participants, study protocol and instructions, contact information for the research team, and additional articles focused on self-determination concepts and research. Teachers were also given the opportunity to obtain graduate credit for their participation in the training and curriculum instruction.

Assessment and Instruction Procedures. After the training was completed and the teachers returned to their schools, the teachers recruited student participants and obtained parent/guardian consent and student assent. At this point, the teacher and the research team set a timeline for steps 2-6 in the study process. Each implementation timeline varied to avoid long breaks between the curriculum instruction and IEP meeting. As part of the study protocol and the individualized teacher timeline, the teachers were instructed to send completed demographic forms and questionnaires/assessment protocols to the researchers. The researchers monitored the timelines and when necessary, reminded the teachers about items that had not been submitted to the research team.

Following the development of the process timeline, the teachers completed the pre-instruction assessments with student participants. Teachers then began the curriculum instruction step of the process. Teachers utilized the Student-Directed IEP curriculum as the study intervention with the permission of the primary author of the curriculum. The Student-Directed IEP curriculum was a modified version of the *ChoiceMaker: Self-Directed IEP* curriculum. The curriculum as originally designed provided instruction in specific skills for leading IEPs, such as stating the purpose of the meeting, introducing participants, and reviewing prior IEP goals. The curriculum was modified by condensing 11 lessons into 9 lessons. Teachers scheduled instructional time for delivering the curriculum in approximately 50 minute sessions. To accommodate these schedules, lessons 1 and 2 and lessons 9 and 10 were combined into single lessons. Further, the materials were modified by enlarging the print for students who had visual impairments. Each teacher implemented the nine lessons with their students over a five to six-week period. While designed for group instruction, the lessons were delivered in either small groups or with individual students. At the completion of all lessons, the teachers were directed to conduct the post-instruction assessment of student participants.

Following the post-instruction step, teachers then scheduled an IEP meeting to allow each student to demonstrate the skills learned during the *ChoiceMaker: Self-Directed IEP* curriculum instruction. These were naturally occurring IEP meetings and involved the entire IEP team. The scheduled IEP meetings were held from one to six weeks following instruction. The final

administration of the *IEP Participation Survey* and the *Arc's Self-determination Scale* was completed following the IEP meeting.

Analytic Procedures. The Friedman's Two-Way Analysis of Variance by Ranks procedure was used to analyze the Arc SDS scores. This test produced Median Interquartile Range (IQR) scores to reflect the mean ranks between each intervention point, indicating how the groups differ. Friedman's analyses were appropriate because of the ability to handle varying numbers of participants across the three data collection points. A Friedman's Two-Way Analysis of Variance by Ranks test was conducted to investigate the impact of the Choice Maker curriculum on student's level of self-determination, total scores and all sub score data were investigated. A post hoc analysis with Wilcoxon signed-rank tests was conducted to determine where the differences were present in the intervention sequence. Finally, the overall ratings of IEP participation were analyzed with the Friedman's Two-Way Analysis of Variance by Ranks test.

Results

The purpose of this study was to examine if, and to what degree, the implementation of the modified Self-Directed IEP curriculum impacted self-determination levels in rural high school students with disabilities. The results listed in this section are based on an overall n of 9, however due to issues with inventory completion in both the pre-instruction and post-instruction phases, the n value for each calculation listed in Table 3 is provided. Overall, this study had complete data from all three phases for five participants for the Arc's Self-Determination Scale (for detailed individual score data see Table 2). Table 3 shows the Arc's Self-Determination Scale Median IQR scores and ranges for the students at each of three points. A significant difference was found in the total Arc's Self-determination scale scores, $\chi^2(2) = 8.316, p = 0.016$. Post hoc analysis with the Wilcoxon signed-rank test showed there was no significant difference between the pre-instruction and post-instruction scores ($Z = -0.368, p = 0.713$). There were significant differences, however, between the pre-instruction and post-IEP scores ($Z = -2.207, p = .027$), and between post-instruction and post-IEP scores ($Z = -2.023, p = 0.043$).

Analyses of the Arc's subscale scores showed a significant difference in the Autonomy Subscale scores of the Arc's Self-determination scale pre-post-post scores, $\chi^2(2) = 6.000, p = 0.050$. Post hoc analysis with Wilcoxon signed-rank tests showed no significant differences between the pre-instruction and post-instruction ($Z = -1.761, p = 0.078$), or between post-instruction and post-IEP ($Z = -1.761, p = 0.078$). There was a significant difference, however, between pre-instruction and post-IEP ($Z = -2.201, p = .028$). Subsequent analyses of the self-regulation, empowerment and self-realization scores yielded no significant differences across or between any of the study phases.

Table 4 shows the pre-instruction, post-instruction and post-IEP meeting scores on the Choice Maker assessment and teacher ratings of students' IEP participation. A significant difference was found in the total Choice Maker pre-instruction, post-instruction and post-IEP participation scores, $\chi^2(2) = 6.000, p = 0.050$. Post hoc analyses conducted with a Wilcoxon signed-rank test showed no significant differences between the pre-instruction and post-instruction ($Z = -1.826, p = 0.068$) or between post-instruction and post-IEP ($Z = -0.365, p = 0.715$). There was a

significant increase, however, in the total Choice Maker Self-determination score between pre-instruction and post-IEP ($Z = -2.668, p = 0.008$).

Furthermore, there was a significant difference in the skills subscale of the Choice Maker pre-instruction, post-instruction, and post-IEP scores, $\chi^2(2) = 7.600, p = 0.022$. Post hoc analysis with Wilcoxon signed-rank tests yielded no significant differences between the pre-instruction and post-instruction ($Z = -1.841, p = 0.066$) or between post-instruction and post-IEP ($Z = -1.604, p = 0.109$). There was, however, a significant increase in the total Choice Maker Skill subscale scores between pre-instruction and post-IEP ($Z = -2.668, p = 0.008$). Subsequent analyses of the opportunity subscale scores yielded no significant differences across or between scores.

A significant difference in the overall rating of IEP participation scores at pre-instruction, post-instruction and post-IEP were found, $\chi^2(2) = 7.000, p = 0.030$. Post hoc analysis with Wilcoxon signed-rank tests was conducted showing no significant differences between the pre-instruction and post-instruction ($Z = -1.604, p = 0.109$) or between post-instruction and post-IEP ($Z = -1.633, p = 0.102$). There was, however, a significant increase in scores between pre-instruction and post-IEP ($Z = -2.684, p = 0.007$).

Discussion

The purpose of this study was to examine if, and to what degree, the implementation of the modified self-directed IEP curriculum impacted self-determination levels for high school students with disabilities. The large amount of research and attention to self-determination and the accompanying components indicates that these skills for participating and leading IEPs are critical for progress for transition-age students and for young adults with disabilities (Martin et al., 1996). In this study, the authors used a modified version of the *ChoiceMaker* curriculum (Martin et al., 1996), specifically the Student-Led IEP section. Teachers were trained to deliver the curriculum to high school students with disabilities, while measuring their self-determination prior to instruction, immediately after instruction and then immediately after participating in an IEP meeting. Two measures of overall and subscale aspects of self-determination were used, and a global teacher rating of student participation were obtained on the students.

Results suggest that overall the significant changes occurred in *Arc's Self-Determination Scale* scores between pre-instruction and post-IEP phases, and between post-instruction and post-IEP phases. The only *Arc's* subscale which produced statistically significant results was in the Autonomy subscale, with the difference between the pre-instruction and post-IEP phases. The *ChoiceMaker* overall assessment scores yielded a significant increase in self-determination between pre-instruction and post-IEP. The Skills subscale scores increased significantly between pre-instruction and post-IEP. Finally, the teacher ratings of student participation in the IEP once again showed a significant increase between the pre-instruction and post-IEP phases.

In general, these results suggest that global measures of self-determination as measured by the overall *Arc's Self-Determination Scale*, the overall *ChoiceMaker* assessment, and overall teacher ratings of IEP participation increase primarily after the students engage in actual IEP meetings. There were no significant differences in scores between the initiation of the study and the end of classroom training phase. These results appear to verify previous research that suggests that

opportunities to exhibit self-determination and engagement at the leadership level positively impacts self-determination (Mason, McGahee-Kovac, Johnson, & Stillerman, 2002; Shogren et al., 2007). This seems to suggest that teachers need to not only teach the skills, but they need to give students opportunities for participation and have them provide leadership. The IEP process offers multiple opportunities for this to occur, and the capstone is the IEP meeting itself.

Limitations. This study has several limitations that influence the ability to generalize these results to larger populations. First, there were very small numbers of teachers, and subsequently students with disabilities who participated in the study. Due to the sample size, the results are not as powerful or as generalizable. Other studies, such as Allen et al., (2001) and Shogren et al., (2007) used much larger samples and thus their studies yield more power regarding the results.

Second, there were data collection problems that resulted in varying numbers of participant scores being available for analyses. There were communication difficulties with some teachers that impacted the collection of pieces of data at different periods of time during the study. The lack of complete data for this study required the use of non-parametric statistics that may not have the strength or controls necessary for more rigorous examinations of effect. In addition, the Wilcoxon signed ranks test which were used for post-hoc analyses, may be too liberal. At times the Bonferroni adjustment is used to decrease the p value for which post-hoc analyses are determined to be significant. The authors, however, thought the reduced p value level of $p \leq 0.017$ was substantially lower than typically expected in educational research. The use of $p \leq 0.05$ seemed in line with most studies reviewed. Thus, while the results appear to be statistically significant, the strength or power of the results (related again to small numbers of participants) may not be widely applicable to similar participants.

Student and teacher participants in this study were not randomly selected, nor were there control groups used for comparisons. The authors believe that the teachers were likely motivated and pre-disposed to being involved in the study due to their interest in assuring that their students gained self-determination skills. A large participant sample, random selection of participants, and use of control groups would have added greater rigor to the study.

Finally, the issue of fidelity needs to be addressed. Although curriculum monitoring was completed, the evidence of missing data emphasizes the complexity of a multistage intervention and data collection procedure. This highlights that the limitation likely lies on teachers being able to complete the entire research process rather than incorrect implementation of curriculum.

Future Considerations. There is no question that self-determination is an important and viable component of school, post-school transitions, and adult success for youth and young adults with disabilities. While self-determination is a large concept with linked components and features, being able to participate in goal setting and program planning activities such as IEPs is one important activity that can be used to develop person-centered plans that are directed by individuals with disabilities. This study adds to the literature by showing that a relatively short duration and straightforward instruction processes for teaching IEP leadership skills to students with disabilities can influence their participation levels in IEPs and affect some measures of self-determination.

Future research should expand upon this work by increasing the sample pool, by using students from a wider range of disability categories, and by using other more refined measures of self-determination. While the results here seem to indicate both statistical significance (by virtue of the analyses of global self-determination measurement data) and clinical significance (by virtue of teacher overall ratings of IEP participation), more work should be done on the durability of these effects. Additionally, a comparison of whether students who participate in the IEP process without direct instruction also see gains. This would help to better understand if it is the participation, direct instruction, or both that is making an impact on students' self-determination. Measurements of the lasting effects of the instruction and IEP participation at longer periods after the IEP meeting, and in subsequent IEP meetings, should be examined. Also, student perceptions of their leadership and self-determination might add valuable information as to the essential features of the curriculum and meeting participation that might have impacted the results.

Table 1
Student participant demographics

Variable	n	%
Gender		
Male	5	55.6
Female	4	44.4
Age		
15	2	22.2
16	2	22.2
17	2	22.2
18	1	11.1
19	1	11.1
20	1	11.1
Primary Disability		
Autism	1	11.1
Intellectual Disability	5	55.6
Visual Impairment	2	22.2
Emotional Disturbance	1	11.1
Educational Setting		
Consultative/Direct	2	22.2
General education with pullout	4	44.4
Community-based	2	22.2
Self-contained class	1	11.1
Level of Support		
Limited	7	77.8
Extensive	2	22.2

Table 2
Arc self-determination individual student score

Student	Total Arc Score	Autonomy Subscale	Self-regulation Subscale	Empowerment Subscale	Self-Realization Subscale
Student 1					
Pre	73	75	43	81	93
Post	-	-	-	-	-
Post	82	91	33	100	80
Student 2					
Pre	59	49	52	100	87
Post	65	55	62	100	93
Post	66	55	71	100	93
Student 3					
Pre	62	56	62	81	80
Post	-	-	-	-	-
Post	54	52	33	62	87
Student 4					
Pre	55	44	95	62	67
Post	61	51	95	81	60
Post	65	54	95	88	67
Student 5					
Pre	-	-	-	-	-
Post	-	-	-	-	-
Post	65	52	90	94	80
Student 6					
Pre	-	-	-	-	-
Post	-	-	-	-	-
Post	77	80	57	88	73
Student 7					
Pre	-	-	-	-	-
Post	-	-	-	-	-
Post	62	61	43	100	53
Student 8					
Pre	47	42	57	62	53
Post	52	52	38	56	67
Post	54	49	62	69	60
Student 9					
Pre	64	50	76	94	100
Post	64	57	48	94	93
Post	72	68	57	100	93

Table 3

Students' Arc Self-Determination Scale Median IQR scores.

Arc score	Pre-instruction Median (IQR) n=6	Post instruction Median (IQR) n=5	Post IEP meeting Median (IQR) n=9
Total Arc Score	60.5 (53 to 66.25)*	61.0 (53 to 64.50)	66.0 (63.5 to 74.5)*
Autonomy Subscale	49.0 (43 to 53)*	52.0 (51.50 to 56)	55.0 (51.5 to 67.5)*
Self-regulation Subscale	59.5 (49.75 to 80.75)	48.0 (35.5 to 78.5)	57.0 (43 to 80.5)
Empowerment Subscale	81.0 (59.0 to 97.0)	81.0 (62.0 to 95.5)	94.0 (84.50 to 100.0)
Self-Realization Subscale	83.5 (63.5 to 94.75)	87.0 (63.5 to 93.0)	80.00 (63.5 to 90.0)

* $p \leq 0.05$

Table 4
ChoiceMaker Individual Student Score

Student	Total Skills/Opp Score	Skills Subscale	Opportunity Subscale	Rating of Student IEP Participation
Student 1				
Pre	29	8	21	1
Post	-	-	-	-
Post	71	30	41	3
Student 2				
Pre	20	10	10	1
Post	-	-	-	-
Post	86	42	44	5
Student 3				
Pre	4	0	4	1
Post	42	15	27	8
Post	46	17	29	12
Student 4				
Pre	25	7	18	2
Post	56	23	33	2
Post	76	40	36	6
Student 5				
Pre	33	0	33	1
Post	-	-	-	-
Post	40	7	33	2
Student 6				
Pre	38	5	33	2
Post	-	-	-	-
Post	47	14	33	3
Student 7				
Pre	42	5	37	2
Post	68	26	42	3
Post	65	26	39	3
Student 8				
Pre	57	13	44	2
Post	73	29	44	4
Post	71	30	41	5
Student 9				
Pre	25	13	12	1
Post	-	-	-	-
Post	80	36	44	5

Table 5

Choice Maker Assessment Results and Teacher Ratings of Students' IEP Participation.

Choice Maker Score	Pre-Instruction Median (IQR) n=9	Post-Instruction Median (IQR) n=4	Post IEP Meeting Median (IQR) n=9
Total Score	29.0 (22.5 to 40.0)*	63.0 (45.5 to 72.25)	71.0 (46.5 to 78.0)*
Skills subscale	7.0 (2.5 to 11.5)*	24.5 (17.0 to 28.25)	30.0 (15.5 to 38.0)*
Opportunity subscale	21.0 (11.0 to 35.0)	38.5 (28.5 to 44.0)	39.0 (33.0 to 42.5)
Rating of Students' IEP Participation	1.0 (1.0 to 2.0)*	3.5 (2.25 to 7.0)	5.0 (3.0 to 5.5)*

* $p < 0.05$ **References**

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Student Voices: A Qualitative Self-Awareness Study of College Students with Disabilities

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Abstract

Requesting accommodations in postsecondary settings requires students to understand their disabilities and needs and describe those needs to higher education faculty and staff. Young adults often have limited accurate knowledge and understanding of their abilities and disabilities. This qualitative study used in-depth semi-structured interviews to gain insight into the disability awareness process and development of six university students with disabilities. The six themes that emerged during this study include: (a) self-awareness, (b) disability awareness, (c) strengths and weaknesses, (d) identity and attitude, (e) differences and similarities, and (f) postsecondary experiences. Findings inform K-12 and higher education professionals about critical skills that might increase the abilities of students with disabilities to successfully advocate for accommodations in postsecondary settings.

Keywords: disability, advocacy, self-awareness, disability-awareness, accommodations, and college

Student Voices: A Qualitative Self-Awareness Study of College Students with Disabilities

The number of college freshmen with documented disabilities attending higher education programs increased from 2.6% in 1978 to 9% in 1996 (Cameto, Newman, & Wagner, 2006). According to National Longitudinal Transition Study 2 (NLTS2, 2009) findings, this trend has continued with nearly 15% of secondary students with disabilities enrolling at a postsecondary institution upon high school graduation (NLTS2, 2009) and over 50% of students with disabilities attending a college or university within six years of leaving high school (Sanford, Newman, Wagner, Cameto, Knokey, & Shaver, 2011). Thirty-seven percent of the students with disabilities who enrolled at a college or university enrolled in 2-year community colleges, 15% enrolled in 4-year colleges and 28% enrolled in a vocational, business or technical school (Sanford, et al, 2011). Despite these increases, youth without disabilities are still four and one-half times more likely to attend a four-year college than youth with disabilities (Wagner, Newman, Cameto, Garza, & Levine, 2005). Research also indicates some difference in the completion rates of college programs for students with disabilities compared to the completion rates of students without disabilities. Thirty percent of students with disabilities completed 2-

year college programs within six years of leaving high school compared to 14% of students without disabilities. Thirty percent of students with disabilities completed 4-year college programs within six years of leaving high school, compared to 42% of students without disabilities (Sanford, et al, 2011).

The Individuals with Disabilities Education Act (IDEA) protects educational rights of students with disabilities in K-12 settings, while the Americans with Disabilities Act (ADA), and Section 504 require colleges and universities to provide access to education for students with disabilities. Additionally, over the last two decades, increasing numbers of high school students with disabilities have enrolled in more demanding academic classes compared to previous years (Wagner, Newman, Cameto, Levine & Marder, 2003). The combination of legislative mandates and increased academic rigor for students with disabilities has contributed to the increased pursuit of postsecondary education by students with disabilities in recent decades.

The IDEA, ADA and Section 504 have helped ensure that students with disabilities have access to education at all grade levels. However, there are fundamental differences between the ADA and Section 504 and IDEA. These differences often result in confusion for students and families during the transition from secondary to postsecondary education settings. Unlike elementary and secondary school, where students have little involvement in the accommodation and modification process, students in postsecondary schools are responsible for requesting and obtaining appropriate accommodations. IDEA places responsibility on the K-12 schools to identify and serve students with disabilities, while ADA and Section 504 place the responsibility on the student. Thus, college and university students must document and disclose disabilities before qualifying for accommodations (Hamblet, 2009). For example, students with learning disabilities typically need current evaluation data to document a disability and students with ADD or ADHD may need documentation from a physician to qualify for accommodations. Providing adequate disability documentation is necessary in the accommodation process for all types of disabilities.

Expecting college and university students to seek out services, provide disability documentation, and request necessary accommodations at postsecondary settings may result in only a few students seeking out necessary services. Data from the NLTS2 indicate that only 45% of students identified as having a disability during secondary school continued to identify themselves as having a disability while pursuing postsecondary education. Of the 45% that still identified themselves as having a disability, 37% disclosed their disability to their postsecondary school (Newman, Wagner, Cameto, & Knokey, 2009). Nearly 18% of students who did request accommodations reported that they did not receive the accommodations they requested (NLTS2, 2009).

Theoretical Framework

Students with disabilities often face difficulties when transitioning to higher education despite laws designed to provide opportunities for educational success. Many of these students are leaving home for the first time and do not have the skills necessary to advocate for themselves. As a result, these students are likely to have difficulty when they begin college. Because these students' transition to college is affected by many different factors, Schlossberg's transition theory (Goodman, Schlossberg, & Anderson 2006; Schlossberg, Waters, & Goodman, 1995) is

an effective framework for postsecondary professionals to use in examining the experiences of college students with disabilities. Schlossberg's transition theory, explained in Goodman et al., (2006), provides an examination of factors, the process and different forms of transition.

Goodman et al. (2006) stress the role of perception in transitions, noting that a transition exists only if the individual experiencing it identifies it as a transition. Coping with a transition is a process that extends over time (Evans, Forney, Guido, Patton, & Renn, 2010). The time needed for a successful transition varies with the individual and the transition (Evans et al., 2010). Transitions can lead to growth; however, decline is also possible, and transitions may be viewed with ambivalence (Evans et al., 2010). According to Goodman et al. (2006), transitions can be characterized as a series of phases: "moving in," "moving through," and "moving out." Four major sets of factors, known as "the 4 S's," influence a person's ability to cope with a transition: situation, self, support, and strategies (Goodman et al., 2006). A person's effectiveness at managing transition depends on his assets and liabilities (Evans et al., 2010). The assets-to-liabilities ratio explains "why different individuals react differently to the same type of transition and why the same person reacts differently at different times" (Schlossberg et al., 1995, p. 57). A person's appraisal of a transition is an important determiner of the coping process (Goodman et al., 2006).

The 4 S's—*situation, self, support, and strategies*— (Goodman et al., 2006; Schlossberg et al., 1995) provide a framework that can help professionals better understand the challenges facing college students with disabilities. When considering the different *situations* of college students with disabilities, it is important to determine the trigger (i.e., the cause of the transition, such as leaving home for the first time), the person's skills in self-advocacy and time management, and the issues raised by creating a new identity for one's self. The transition's timing must be viewed in terms of the individual's social clock and whether the timing is favorable for a transition. For instance, consider a student with a disability who is less socially adept than other 18-year-olds, because her parents and teachers were overprotective. The timing of her own social development might make it difficult for her to transition to college right out of high school. Control of a situation depends on the person's perception. Is he in control of his reaction to it, or is the situation controlling him? The college experience may be the first time that a student with disabilities has control over important decisions. Other important factors are role change, duration, and previous experience with a similar transition, concurrent stress, and assessment.

Personal and demographic characteristics and psychological resources are important in relation to *self* and one's ability to cope with transition (Evans et al., 2010). Students with disabilities, like the general student body, enter college from diverse backgrounds. It is important for student affairs professionals to consider these characteristics. Some students with disabilities may be facing unique challenges related to health, culture, gender, age, and socioeconomics. At the same time, these students may have psychological assets such as optimism, self-efficacy, resiliency, commitment, and spirituality that aid them in overcoming obstacles (Evans et al., 2010).

Support is critical to the transition process. In Schlossberg's model, "support" refers to social support, and four types of such support are cited: intimate relationships, family units, networks of friends, and institutions and communities (Evans et al., 2010, p. 217). In transitioning to college, students with disabilities may be leaving family, friends, and significant others for the

first time. They may doubt their abilities to make new friends or to succeed in an unfamiliar environment. Student affairs professionals can assist students with disabilities by providing them with affirmation, aid, and honest feedback (Evans et al., 2010). Simply reassuring students with disabilities that they belong at the university may give them the confidence needed to pursue their goals, while others may need feedback to motivate them to achieve success (Evans et al., 2010).

Strategies for coping responses fall into three categories: “those that modify the situation, those that control the meaning of the problem, and those that aid in managing the stress in the aftermath” (Evans et al., 2010, p. 217). The individual may also employ four coping modes: information seeking, direct action, inhibition of action, and intrapsychic behavior (Evans et al., 2010). Postsecondary professionals may encounter students who have recently become disabled, such as a soldier returning from war. Other students may be experiencing health problems for the first time in their lives. In these situations, the students may not have the coping and/or self-advocacy skills needed for these transitions. Postsecondary professionals need to be prepared to provide information to students who are coping with various transition issues.

Literature Review

Accommodations

Teaching, learning, and assessment accommodations for students with disabilities in higher education settings have a significant impact on student success and perseverance. Access to effective services and accommodations, and the knowledge, support, and beliefs of university faculty, staff, and students each influence how students with disabilities perceive accommodation resources on college campuses. Their decisions to access those services and accommodations can be impacted by these issues.

Lee, Osborne, and Carpenter (2010) investigated the effects of academic testing performance, using computerized vs. paper-pencil testing formats and regular time vs. extended time for students with ADHD. The results indicated that most participants who requested accommodations understood their disabilities and clearly knew how to adjust or modify the environment, testing materials, and procedures to increase their academic performance. For example, participants believed that “extended time and a quiet environment were their primary concerns for managing their ADHD symptoms in a testing environment” (p.452). However, not all students request and receive accommodations successfully.

Moswela and Mukhopadhyay (2011) used in-depth interviews to examine challenges students with disabilities experienced in higher education. Participants in the study reported that the campus had failed to meet the diverse needs of the students who required accommodations. Some of the student reported barriers included difficulty obtaining accessible books, lack of flexible course plans, and access to necessary computer software. Participants also expressed concerns about the attitudes of lecturers, students, and counselors, toward disability and reported that such negative attitudes influenced their decision to request disability services, “people tend to judge disability...If you bring in the concept of disability it’s like you have ruined everything” (Moswela & Mukhopadhyay, 2011, p. 313). Results for Maswela and Mukhopadhyay’s (2011) study implied that students with disabilities require diverse accommodations and supports that

universities may not always provide. In addition to providing adequate equipment and services for students, some universities may need to address barriers created by the attitudes of non-disabled university faculty, staff, and students toward students with disabilities.

Zhang, Landmark, Reber, Hsu, Kwok, and Benz (2009) surveyed 206 faculty members about personal beliefs toward students with disabilities and education. Faculty members' legal knowledge and perceived institutional support were the two strongest predictors of faculty members' willingness to provide accommodations for students with disabilities. According to the results, faculty members typically rely on disability support offices for guidance and support during the accommodations process. This reliance on disability support offices emphasizes the need for disability support offices to provide effective services for students as well as faculty and staff. Zang et al. (2009) also found that faculty member attitudes directly influenced their willingness to provide reasonable accommodations and supports for college students with disabilities.

Self-Advocacy

According to Bersani, Hank, Gunnar, and Dybwad (1996), self-advocacy refers to: choice-making skills, the ability to speak out, and the act of controlling one's own life. It is crucial that students with disabilities have opportunities to learn and practice the knowledge and skills related to self-advocacy (Field, Martin, Miller, Ward, & Wehmeyer, 1998; Gilmartin & Slevin, 2010; Lachapelle, Wehmeyer, Haelewyck, Courbois, & Keith, et al., 2005). Effective self-advocacy requires students to have a well-developed self-awareness that includes knowledge and understanding of personal disability. Students who lack such skills and knowledge upon arrival to postsecondary campuses face additional challenges when accessing and navigating the postsecondary accommodation process.

A study by Janiga and Costenbader (2002) found that the two most common suggestions for improving a student's transition from high school to postsecondary settings included increasing student's self-advocacy skills and increasing their level of understanding regarding their disabilities. Thoma and Getzel (2005) conducted a qualitative study to identify the skills and beliefs of college students regarding self-advocacy and found that effective advocacy skills could help students persevere during college. In a study, by Gilmartin and Slevin (2010), participants reported that they increased their disability-awareness by participating in a self-advocacy group, which provided them opportunities to gain insight into their personal strengths and weaknesses, including those related to their disabilities.

Research supports self-advocacy as a beneficial skill for students with disabilities during college. But, many students lack self-advocacy knowledge and skill when they arrive on college campuses. Gilson, Dymond, Chadsey and Hsu (2007) conducted a survey of college students with visual impairments from across the United States to provide an understanding of how college students with visual impairments advocate for and obtain accommodations. Results demonstrated a lack of self-advocacy among participants and emphasized the importance of students understanding their disabilities and having the ability to explain their disabilities to others. Self-advocacy was not specifically discussed in the study but one may assume that most or all participants possessed some degree of self-advocacy skills, because each participant disclosed their disabilities and requested services from the campus disability office. Other studies

(Mull, Sitlington, & Alper, 2001; Pierangelo & Crane, 1997; Sarver, 2000; Stodden & Dowrick, 2000) support these findings, illustrating a need to prepare students with disabilities to self-advocate for appropriate accommodations while pursuing postsecondary education.

Self-Awareness

Brown and Ryan (2003) suggested that self-awareness is “knowledge about the self” (p.823). Such knowledge includes an accurate understanding of personal strengths, weaknesses, likes, and dislikes. For people with disabilities, self-awareness includes developing an accurate understanding of personal disability and learning how to incorporate that understanding into one’s life, without allowing it to dictate or consume his/her identity. Disability awareness development requires self-reflection and self-identification (Kling, 2000).

People typically identify themselves, to some extent, through social comparisons (Jenkins, 2004). As a result, most people identify themselves through social activities and their beliefs of how others perceive them. For individuals with disabilities, there is often social discrimination and social rejection, which may influence the development of self-awareness, self-identify and disability awareness. People with disabilities who have a well-developed self-awareness are more likely to attain success across the lifespan compared to people who lack self-awareness (Raskind, Goldberg, Higgins, & Herman, 1999; Goldberg, Higgins, Raskind, & Herman, 2003).

According to research, self-awareness and disability awareness development emerges from a young age (Kling, 2000) and is influenced by social comparisons and perceptions. Work by Cunningham and Glenn (2004) found that children as young as eight years old started making social comparisons and forming complex social categories about their own disabilities. Therefore, it is important for adults to guide students, from a young age, in the development of a healthy self-identity that is based on accurate self-awareness and disability awareness.

Some educators believe it is necessary for individuals with disabilities to discuss their own abilities and disabilities as a means to develop appropriate personal goals including career and education goals (Alley Deshler, Shumaker, & Warner, 1983; Linstrom, Johnson, Doren, Zane, Post, & Harley, 2008; Orzek, 1984; Tomlan, 1985). Despite this belief, some educators feel uncomfortable and/or unprepared to discuss disability with students. Educators frequently assume that the child’s primary caregiver will discuss and explain disability related issues with the child. However, in a study involving 77 young people with Down syndrome and their families, Cunningham, Glenn, and Fitzpatrick (2000) investigated how parents discuss this type of disability with their child. The results indicated that 43% of parents had not attempted to discuss disability with their child, 53% of parents did not think their child would understand, and 32% of parents thought discussing disability would have no affect their child’s life. Work by Davies and Jenkins (1997) also indicated that 42% of young people do not understand their personal disability or the impact the disability has on their lives.

As a field, we acknowledge the value of disability awareness and the impact it has on the self-awareness of a person with a disability. Despite evidence supporting a link between self-awareness and self-advocacy and success of individuals with disabilities, research indicates that the majority of individuals with disabilities have difficulties understanding their skills, strengths, and limitations (Carr, 1995; Davies & Jenkins, 1997; Cunningham & Glenn, 2004; Ryan, Nolan,

Keim, & Madsen, 1999). Perhaps much of this problem is related to disconnect regarding how students will obtain accurate disability information and who is responsible for guiding disability awareness development.

Purpose

The purpose of this study was to describe the college experiences of six students with disabilities and examine of how self-awareness and self-advocacy knowledge and skills influenced each participant's college experiences. Ideally, this study will provide insight into how students with disabilities, service providers, educators and students without disabilities can learn ways to increase student self-awareness and self-advocacy knowledge and skills.

This study involved a qualitative approach, including phenomenological analysis of interview data. The specific research questions included: (a) How do postsecondary students with disabilities define self-awareness?, (b) What self-awareness knowledge and skills do postsecondary students possess?, (c) How does self-awareness influence the accommodation process of postsecondary students?, and (d) What perceptions and attitudes do students have toward requesting and accessing accommodations during college?

Method

Participant Selection

To recruit participants for the study, purposeful criterion sampling was used (Patton, 1990) to select six full-time college students with documented disabilities who were registered with the Disability Resource Office (DRO) on their college campus. The participants included four males and two females from three 4-year college campuses located in the south-central United States. We contacted the campus DRO and requested that the DRO inform registered students about the research and solicit student volunteers. The DROs recruited five participants meeting the study criteria. Participants who were willing to join this study returned the consent form to the DRO. An additional participant was identified and recruited by a colleague of the researchers.

Jason, a 25-year old male student with a learning disability, was in his fifth and final year in the Fire Protection and Safety Technology Program. Anne, a 24-year old female graduate student who is legally blind, was majoring in human relations. Brian, a 23-year old male student with cerebral palsy was majoring in Journalism. Allie, a 29-year old female graduate student with ADHD, was an instructional psychology major. Aaron, a 23-year-old male undergraduate with dysgraphia and dyslexia, was majoring in finance. Jim, a 75-year old graduate student with a visual impairment, stood out from the other participants related to his age and the onset of his disability. Jim spent over half of his life without a disability, which allowed him to compare and contrast his experiences from the point of view from a person with a disability and a person without a disability.

Interview Procedures

Each student participated in a one-on-one recorded interview that lasted 45-60 minutes. We met participants on neutral grounds and kept an informal atmosphere during the interview process. One interview occurred in the home of the participant, three in the campus library, and two interviews at a campus multi-purpose building.

Phenomenological research involves an interactive process between the researcher and participants facilitated by open-ended questions (Moustakas, 1994). Therefore, open-ended questions that included background information, disability experience, transition issues, and accommodations on campus guided the interviews. At the conclusion of each interview, we transcribed the interview recordings verbatim.

Researcher Subjectivity

Epoche, a crucial step in phenomenological data analysis, requires researchers to identify and consider preconceived ideas and beliefs pertaining to the phenomenon under investigation. By identifying our personal judgments, we attempted to examine the phenomenon at hand without bringing in our existing judgments and beliefs (Moustakas, 1994).

We continually considered our experiences and beliefs during the research process. Experience teaching secondary special education led the researchers to believe that young adults with disabilities frequently have low self-awareness. Many of the students we previously taught lacked knowledge about personal disability, which made it difficult or impossible for the students to understand the impact disability had on their daily lives. Many of our former students were unable to identify and explain the accommodations they needed in classes and were often unwilling to discuss their needs with teachers. Experience with families of students led us to believe that many families unintentionally, but frequently, facilitate low self-awareness in students for fear of hurting the student's feelings. In our experiences, parents would sometimes exclude students from IEP meetings or discussions about special education and/or disability. High school students who had received special education since elementary school often had little or no knowledge about special education or disability and many did not know they had a disability or received special education services. We attempted to put aside each of our identified preconceived assumptions during the interview and analysis process of this study. These issues were continually revisited throughout the research process to avoid creating biases or omitting important information in the data as a result of our existing beliefs and experiences.

Data Analysis

After transcribing and studying participant interviews, the process of horizontalization (Moustakas, 1994) was used to identify invariant horizons. After identifying the initial horizons, we identified categories that were confirmed or modified by frequently comparing the cases in sequence. In addition, we used the strategy of "bracketing the data" throughout the case comparison of the interview transcripts. The participant's experience was "bracketed" by taking it out of that person's world and treating it as an example of the research topic. Next, we grouped the bracketed data were grouped as meaningful clusters, which eliminated unconnected data.

The process also involved coding, which allowed us to break the data into segments. After the initial list of horizons was identified, overlapping and repetitive statements were removed from the original list. The remaining statements were clustered into six themes. After reflecting on the identified themes, a textural description emerged for each participant to describe his/her experience. This method provided an account of the dynamics of the experiences of each participant (Moustakas, 1994). We then compared and contrasted the textural descriptions of each individual participant to develop a group composite textural description regarding the

examined phenomena. The invariant meanings and themes from each participant enabled us to describe the experiences of the group (Moustakas, 1994).

Findings

Analyses of initial horizons resulted in six themes related to participants' self-awareness, self-advocacy, perceptions of the accommodation process, and postsecondary success: The six themes that emerged during this study included: (a) self-awareness, (b) disability awareness, (c) strengths and weaknesses, (d) identity and attitude, (e) differences and similarities, and (f) postsecondary experiences. Behaviors, experiences, beliefs, and perceptions across all but one of the participants were similar. Jim, the 75-year-old graduate student, often had opinions that differed from the other participants.

Theme 1: Self-Awareness

When asked to describe self-awareness, all participants indicated disability knowledge and an understanding of their strengths and weaknesses as critical components of self-awareness. For example, Brian provided the following answer when asked to describe self-awareness.

I think it's being aware of what you're capable of and what you're not capable of and really realizing that the disability is not your fault. I have to make the best of my situation and not be afraid to try new things or afraid to experiment new things because my disability might limit me in some way... But, I think the biggest thing for somebody to become self-aware is the ability for them to experience new things. The more they experience new things the more they will learn about themselves.

Aaron provided a similar response but emphasized the need to compensate for personal weaknesses and identifying situations to avoid based on an accurate understanding of one's strengths and weaknesses. Aaron provided the following answer when asked his point of view on disability self-awareness.

Disability self-awareness for me...would be...you know where, knowing what your overall strengths and weaknesses are, I guess weaknesses more so. And, knowing how to compensate for them. And, knowing what type of situations to try and avoid. And, how to work through those situations that you are trying to avoid once you're in them.

Theme 2: Disability Awareness

Identifying and describing one's disability is a crucial initial step in the process of self-awareness and self-advocacy. The theme of disability identification and description required participants to use correct terminology to describe their disabilities such as dyslexia, cerebral palsy, blindness, or visual impairment. The depth and level that participants described and identified their disabilities appeared to evolve with life experiences and personal influences. While differences existed in the depth of descriptions, commonalities existed across the students' descriptions. All six participants used correct terminology to describe their disabilities and provided at least two key characteristics of their disabilities. For example, Jim described his level of visual impairment, the reason he had become blind and, the medications he took and the impact of those medications on his eyesight. Brian offered a concise yet accurate and clear description of

his disability. *“My disability is cerebral palsy, it affects my coordination and motor skills.”* Anne described her albinism clearly, *“ albinism is no pigment in the skin, so there is no color.... albinism affects your vision.... not everyone has severe vision [loss], I am in the worst category.”*

Theme 3: Strengths and Weaknesses

Each participant described at least one weakness or limitation they experienced due to their disabilities. The participants also identified their strengths. For example, Aaron who was diagnosed with dyslexia and dysgraphia, identified reading and writing as his biggest weakness, but also stated that working with people, organizing tasks in his head, and working hard as personal strengths that had played a significant role in his education. *“My strengths are my ability to work hard...my ability to see the big picture. I can always know what needs to be done and work it together in my head.”* Brian, who has cerebral palsy, clearly identified his strengths, weakness and interests.

I’m really good with people, I’m very verbal, social, and I want to be around people. I have very good oral and written skills, I love to write and I’m a very good communicator. My limitations are I’m not great at typing, I don’t move very fast.

Theme 4: Identity and Attitude

The participants in this study appeared to have incorporated personal disability into their lives by recognizing its impact but without allowing that impact to negatively dominate their identities. For example, Aaron stated:

I think for me it’s been understanding from a young age that this is an issue and it’s not going away. I can let it get the best of me or I can learn to cope with it. I know what I expect from myself, and I’m not going to let my disabilities get in my way.

Jim, the oldest of the participants, discussed the importance of recognizing the positive.

Understanding how I function, both positive and negative, not just the focus on the negative. I don’t think I would have gotten as far as I am today if I had focused on the negative. I would have probably been consumed with the identity of disability.

Theme 5: Differences and Similarities

The fifth identified theme referred to the ability of the participants to compare themselves to individuals without disabilities and to identify similarities and differences while recognizing that such differences do not make them inferior to their peers without disabilities. Four students identified high school and college as the time they began to actively notice and compare differences in themselves to their peers. One participant, Anne, indicated that she began this process at an earlier age, but felt that the visibility of her disability forced her to deal with this theme at an earlier age than people with invisible disabilities. Jim, the oldest of the participants experienced identification and comparison at a much older age than the other five participants. However, Jim did not acquire his disability until he was an adult while the other five participants were born with their disabilities. Allie described fully recognizing differences between her and others around age 26.

I, as an adult in my fourth year of my bachelors, had to figure it out for myself, saying 'oh my gosh it makes sense'. It all makes sense now, ok, how can I utilize this information? Now I understand how I function, I'm not going to stop here. How can I put this to my advantage?

Theme 6: Postsecondary Experiences

Anne provided an in-depth description of her experiences requesting and obtaining accommodations from professors at the university and from the community college she had previously attended. She reported that most professors typically reacted in an understanding way, but some professors' reactions created problems for her. For example, Anne described a situation where she requested the professor's PowerPoint file to enlarge the text since she is legally blind and could not see the presentation in class. When asked for the files, the professor's response included *"You are not legally blind...I don't want to take the extra time."* The professor's reaction illustrates a lack of understanding and knowledge regarding disability and failure to meet a reasonable student request.

Jim also indicated that most of his professors had been willing to provide necessary accommodations. However, he also had experienced occasions that professors either lacked knowledge or were not willing to provide necessary accommodations for him. Jim indicated that such experiences created difficulties for him in class and resulted in a lack of engagement. Specifically, Jim stated *"If I get into a situation where the professor is not accommodating or is nervous about being accommodating, then I just won't, I just won't engage."*

Both Jim and Anne emphasized the importance of registering with the disability office as a means of support during challenging situations with professors. Anne indicated that most professors appear understanding with students who are registered with the DRO and have the necessary documentation for obtaining services. Participants also indicated a need for accurately identifying situations that require accommodations, as well as the appropriate time to ask for accommodations. For example, Anne provided the following response when asked about requesting accommodations. *"I will bring it up, but I don't think you have to tell them automatically 'hey, I have a disability.' I think you bring it up when it is appropriate and when it's necessary. If it is not necessary, don't bring it up at all."*

Self-awareness appears to have played a significant role in the postsecondary success of all participants interviewed during this study. Each participant indicated that he/she needed to understand his/her personal disability, strengths, weaknesses, and needs. Participants emphasized the importance of learning how to compensate for their weaknesses in order to be successful. Advocacy also played a role in the success of each of the participants. For example, participants described the need for self-knowledge in order to advocate for their needs. Anne stated *"If you want something, you have to know yourself, you have to advocate for yourself. You can't always depend on other people to advocate for you."* She also reported that, based on her personal observations, many students with disabilities lack the knowledge to effectively advocate for themselves and some appear ashamed of their disability and therefore do not want to ask for accommodations. *"A lot of students...who have a disability seem ashamed of it, and don't wanna*

tell others and don't wanna ask for help...They want to do without help, they keep everything very minimum, hush, hush, you know, a secret."

Allie described a similar experience regarding shame but on a more personal level. *"I had some problems and I didn't want to tell...It was personal embarrassment, not so much that they [professors] would have judged me...I was embarrassed and didn't want to talk about it so I accepted the low grade."* For Allie, the embarrassment of requesting accommodations resulted in low grades and ultimately academic probation. Threat of suspension eventually forced Allie to either ask for help or leave the university.

Question 1: How do postsecondary students with disabilities define self-awareness?

The definitions of self-awareness were similar across all participants. According to participant responses, self-awareness refers to one's ability to identify personal strengths and weaknesses and includes the ability to compensate for those weaknesses. According to one participant, opportunities for new experiences are an essential part of self-awareness development. He emphasized the need to understand personal disability without allowing the disability to dominate every aspect of one's life.

Question 2: What self-awareness knowledge and skills do postsecondary students possess?

During the interviews, all participants correctly identified and described his/her disability and described how the disability affected his/her life. Participants reported that the visibility or invisibility of a person's disability may influence self-awareness development. Having a visible disability may have forced some participants to recognize and understand personal disability earlier in life than people with an invisible disability or a disability that was acquired during adulthood. In this study, five of the six participants' self-awareness development occurred during late adolescence.

Question 3: How does self-awareness influence the accommodation process of postsecondary students?

Each participant identified knowledge about personal disability as a crucial part of understanding personal needs and strengths in educational settings. Participants reported that having a well-developed self-awareness helped them overcome challenges they faced, while requesting and obtaining accommodations during college. Some participants appeared to have developed a stronger self-awareness after experiencing academic challenges at college. Participants also reported the need to request accommodations when needed. According to Anne, students need to disclose their disabilities only when it is going to affect the need for accommodations for the class.

An important consideration in this study should include the self-awareness of each participant. We may assume that all of the participants possessed appropriate levels of self-awareness because they each had registered with DRO and had requested accommodations during college.

Question 4: What perceptions and attitudes do students have toward requesting and accessing accommodations during college?

Participants in this study reported both positive and negative attitudes and perceptions toward the accommodation process at the DRO on their college campuses. Annie, Allie, and Jim

emphasized the importance of registering with the DRO as a means of support. Anne reported that, in her experience, most professors were more willing to provide accommodations to students who had registered with the DRO.

Aaron and Brian reported negative experiences with the DRO on their campuses. As a result, both young men chose not to utilize disability services, despite having registered with the office. Brian stated

I went there with my parents to register when I got to campus. We met with the person there and she was just rude and unprofessional. I was like wow...is this college or elementary school? I mean, I've got a disability that doesn't mean I'm stupid. That was my first and last time going to that office for help.

Later, Brian expressed concerns that no one working in the disability services office actually had a disability. He doubted the abilities of many of the employees in the office to truly understand the challenges and experiences of students who have disabilities.

Aaron reported similar experiences and concerns with the office on his college campus. As a result, Aaron chose to rely on friends and family for support instead of the disability support office. He stated

I feel bad asking my friends for so much help but my mom was a special education teacher so she gets it and helps me a lot. The bad part is that my mom can't really come up here and make people do the right thing...I just kinda have to figure out that kind of problem as it happens.

Discussion

The purpose of this study was to describe the experiences of six college students with disabilities and examine the influence of self-awareness and self-advocacy on each student's college experience. Our research questions focused on student definitions of self-awareness, students' self-awareness levels, and student perceptions and attitudes toward the accommodation process. Additionally, six themes emerged during this study: (a) self-awareness, (b) disability awareness, (c) strengths and weaknesses, (d) identity and attitude, (e) differences and similarities, and (f) postsecondary experiences.

As the number of students with disabilities enrolling at colleges and universities increases, so does the need for colleges and universities to appropriately meet the needs of postsecondary students with disabilities. Postsecondary schools must model and expect positive attitudes toward students with disabilities, ensure that faculty have the knowledge and skills to provide appropriate accommodations, and develop seamless support systems within the offices of disability resources to ensure students with disabilities receive appropriate accommodations. However, students must also take an active role in the accommodation process. Taking an active role does require students to understand personal strengths, weaknesses, and disability and effectively practice self-advocacy.

Limitations and Recommendations for Future Research

Readers and researchers should consider several limitations of this study before generalizing the findings to other universities and/or other students with disabilities. First, the sample is small and represents the views of only six students. Second, participants completed only one interview and additional data resources to support information collected during the interviews were not used. Third, this study included students from only three institutions of higher education in one state. Additional research with larger sample sizes and additional campuses is needed to gain greater insight to the findings of this study.

Future research is needed to further examine the effectiveness of services provided by disability resource offices. Such research could help campuses develop new programs and investigate the effects of those programs on student success and faculty members' willingness and ability to provide accommodations to students with disabilities.

Findings from this study support self-awareness and self-advocacy knowledge and skills as an important part of successful postsecondary experiences for students with disabilities. However, effective approaches to these findings should focus on teaching students, from a young age, the skills and knowledge that help students develop self-awareness and self-advocacy before arriving to postsecondary settings. This suggestion requires families and K-12 schools to provide opportunities and instruction that help students acquire and develop accurate disability awareness and self-awareness.

We strongly believe that disability awareness and self-awareness both play a crucial role in the successful postsecondary transition of students with disabilities. Developing self-awareness includes providing students with instruction and opportunities to gain knowledge of personal abilities and disabilities, build positive self-images, and increase self-advocacy skills and knowledge. This research provides a starting point for the development of a self-awareness model that might help postsecondary education institutions develop programs that enhance the self-awareness and self-advocacy skills and knowledge of students. The model might also provide guidance for increasing disability-awareness of faculty, staff and students without disabilities.

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Effects of Physical Activity on Executive Function of Children with ADHD

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Abstract

Children with ADHD are often described as experiencing deficits in executive function. Two key areas of concern are inhibition, the ability to refrain from a dominant response when needed, and updating, the ability to revise or update incoming information. The purpose of this manuscript is to combine disparate lines of research to help establish a positive link between moderate to vigorous physical activity, executive function, and ADHD. Neuroscience research suggests moderate to vigorous physical activity may increase allocation of attentional resources as evidenced by increases in P3 amplitude and reduce P3 latency in children with ADHD. Intervention studies employing moderate to vigorous physical activity have shown improvements in executive function for children with ADHD. Optimal stimulation and dopamine regulation are suggested as theoretical perspectives for the effects of exercise. Key variables and implications for teachers suggest moderate to vigorous physical activity may provide a quick and effective means of improving executive functioning of children with ADHD in the classroom.

Keywords: ADHD, executive function, physical activity, MVPA

Effects of Physical Activity on Executive Function of Children with ADHD

Core cognitive processes collectively termed ‘cognitive control’ or ‘executive control’ include inhibition, working memory, and cognitive flexibility (Diamond, 2006). The term Executive Function (EF) has been used to describe underlying cognitive processes that drive goal directed behavior and coordinate goal directed activities, such as reasoning, problem solving, and planning (Best & Miller, 2010), capacities allowing a person to be purposeful, independent, self-reliant and maintain an appropriate problem solving set to pursue future goals (Barkley, 2000; Welsh & Pennington, 1988).

ADHD is defined and diagnosed by the presence of observable behaviors representing three areas: inattention, hyperactivity, and impulsivity. Research suggests EF may underlie observed behavioral challenges for this group of children (Berlin, Bohlin, Nyberg, & Janols, 2004; Berlin, Bohlin, & Rydell, 2004; Weyandt, 2005). The purpose of this paper is to combine disparate lines of research to help establish a positive link between moderate to vigorous physical activity, cognitive control/ executive function, and ADHD.

Prevalence of Attention Deficit Hyperactivity Disorder (ADHD) is on the rise, reaching 11% of children in the United States (Visser et al., 2014). In school, children with ADHD are often unable to stay on task, fail to complete academic assignments, or simply fail to turn them in on time (Denisco, Tiago, & Kravitz, 2005). Children with ADHD are more likely to experience school failure, have intellectual impairments, repeat grade levels and score lower on measures of

intelligence as compared to typical children (Faraone et al., 1993; Kent et al., 2011). These issues often continue into adulthood, as half of children diagnosed in adolescence continue to meet criteria for ADHD as adults (Lara et al., 2009). Given these numbers, developing effective school-based interventions that positively affect both academic performance and classroom behavior for this population is very important. One intervention that shows promise in the literature is moderate to vigorous physical activity (MVPA) (Taras, 2005; Tomporowski, Davis, Miller, & Naglieri, 2008).

MVPA is physical activity or movement that is aerobic in nature and typically entails an increase in heart rate of 50-85% of maximum through such activities as running, walking or cycling (Nader, Bradley, Houts, McRitchie, & O'Brien, 2008). Recommendations for health benefits suggest school-age youth receive 60 minutes of MVPA per day (Strong et al., 2005). Physiological benefits resulting from regular exercise include diabetes prevention, weight management, and cardiovascular health. In addition to MVPA's impact on physical measures, laboratory based researchers have documented effects on attention to task, cognition, and brain function (Hillman, Erickson, & Kramer, 2008; Mahar, 2011). MVPA has also been shown to improve classroom behavior and academic engagement for children with ADHD, both on and off stimulant medication (Hart & Lee, in review).

Executive Function

Executive function is a construct described in different ways in the literature (Barkley, 2000; Miyake et al., 2000; Pennington & Ozonoff, 1996; Weyandt, 2005), however, one prominent framework suggests EF has three main components: inhibition, updating, and shifting (Miyake et al., 2000). While each variable shares some overlap, analysis by Miyake et al. (2000) demonstrates they are distinct constructs serving differing roles based on specific tasks.

Inhibition is the deliberate refraining from an automatic, dominant, or strong response when needed (Best & Miller, 2010; Miyake et al., 2000). *Updating* occurs when individuals monitor and/or revise incoming information regarding the current task (Miyake et al., 2000). Updating requires individuals to hold and manipulate information over short periods of time without the aid of external devices or cues (Best & Miller, 2010) and may support the ability to follow directions. *Shifting*, or "attention switching", is the ability to move from one task, rule set, or mental state to another (Miyake et al., 2000). This model, consisting of inhibition, updating and shifting, forms a leading theoretical framework of EF.

Cognitive Control/ Executive Functioning in Children with ADHD

Children with ADHD exhibit multiple deficits in EF, such as impairments in inhibition, updating, and processing speeds (Martinussen, Hayden, Hogg-Johnson, & Tannock, 2005; Pennington & Ozonoff, 1996; Weyandt, 2005). Using meta-analytic techniques Willcutt et al., (2005) examined 83 studies that utilized measures of EF to assess deficits in individuals with ADHD. Their analysis similarly showed that individuals with ADHD presented with deficits in all areas of EF, with the strongest effect sizes coming from measures of inhibition, updating, vigilance, and planning, all hallmarks of diagnostic criteria for ADHD. These areas align with those proposed by Miyake (2000) with vigilance and planning falling under the larger constructs of inhibition and updating respectively. In synthesizing these deficits, two become particularly clear in students with ADHD: inhibition (Barkley, 2000; Pennington & Ozonoff, 1996; Weyandt, 2005; Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005) and updating (Barkley, 2000; Martinussen

et al., 2005; Pennington & Ozonoff, 1996; Schreiber, Possin, Girard, & Rey-Casserly, 2014; Willcutt et al., 2005). Although there is some overlap in the underlying processes, updating and inhibition are distinct and employed differently based on the required task (Best, 2010).

Inhibition, or the ability to interrupt an ongoing dominant response, is a key characteristic of ADHD (Doyle, 2006). For example, while taking a test, a child with ADHD may not be able to refrain from calling out to a friend. Deficits in inhibition can lead to problems listening to instructions, compliance, task completion, and socialization with peers and adults; more serious and even life threatening problems can occur (Glanzman & Sell, 2013). Deferred gratification, and resistance to temptation (i.e., self-control) are also elements of inhibition children with ADHD lack (Barkley, 1997). This deficit in self-control may suggest a cause for the elevated risk of driving infractions and accidents for adolescents and adults diagnosed with childhood ADHD (Thompson, Molina, Pelham, & Gnagy, 2007).

Updating is the second major deficit associated with ADHD. Updating is emerging as one of the primary deficits in children with ADHD and helps explain academic problems observed in this population (Schreiber et al., 2014). Updating is the limited capacity system (i.e., short-term memory) for holding information in the mind and manipulating it to help guide complex behavior without external aids (Barkley, 2000; Best & Miller, 2010; Schreiber et al., 2014). Tasks that necessitate maintaining and manipulating information, such as remembering and manipulating multiple steps of a task, rely on more pre-frontal cortex control and executive involvement (Best & Miller, 2010).

MVPA and EF

Recent years have seen an increased interest in the relationship between physical activity (bodily movement that increases energy expenditure, Darst & Pangrazi, 2009) and cognitive function. It is well documented that bout(s) of MVPA are beneficial to overall brain health, through increased angiogenesis (Ide & Secher, 2000), neurogenesis, hippocampal growth and development (Colcombe, 2006), up-regulation of brain neurotransmitters (Cotman, 2007) and gray matter volume (Erickson et al., 2014). This research foci have grown substantially over the last 25 years since animal researchers (Isaacs et al., 1992) inadvertently discovered associations between MVPA and increased cognition in rodents. This led to a concentration of study designs with human participants (initially with senior adults, to adults, and finally, of late, with children). Although child-based research is the least well established, emerging literature indicates aerobic-based MVPA is linked with high order EF (Diamond, 2006, Chang et al., 2012). A growing body of research examining MVPA and brain function has provided some evidence, primarily in adults (Hillman et al., 2008), that MVPA has a positive impact on both EF and consequential behaviors (Hillman, Castelli, & Buck, 2005; Tomporowski et al., 2008). Although the trigger mechanism for increased EF is unknown, there are some suggestions that attempt to explain the relationship between the two variables.

Most research suggests MVPA effects neurotransmitter regulation and neurotropic factors that aid brain health. Cotman et al. (2007) suggests Brain-Derived Neurotropic Factor (BDNF), insulin growth factor (IGF), and vascular endothelial-derived growth factor (VEGF), are key growth factors that interact with the brain, and potentiate neurotransmitter release. Cotman et al. (2007) suggest these growth factors mediate effects of MVPA on the brain, enabling growth and

longevity of neural connections, more opportunity for wiring of cells, and longer healthy brain lifespan, through protection via a strengthened myelin sheath. Not only does PA encourage neurogenesis, there is also growing literature to suggest MVPA effects the uptake of dopamine, serotonin and norepinephrine (Hillman et al., 2008). These transmitters affect EF by regulating impulsivity, giving the learner improved focus, attention, vigor, and positive self-esteem, important elements in positive mental health. Spina et al. (1992) reported BDNF helps in survival of dopamine neurons, and Sauer et al. (1993) suggested BDNF aids in dopamine function, a regulator of motivation and attention. Mamounas et al. (1995) recognized BDNF promotes survival and growth of serotonin axons (upregulations of serotonin is a common form or antidepressants designed for mood regulation). Both serotonin and dopamine are important neurotransmitters explicitly addressed in mental health literature relating to conditions of attentional and impulsivity deficits, such as ADHD. Cotman et al. (2007) suggested benefits of MVPA on brain health include benefits on learning, depression, neurogenesis (birth of new neurons), and angiogenesis (growth of new capillary blood vessels). They suggested IGF and BDNF mediate behavioral improvements, and IGF and VEGF support exercise induced angiogenesis and neurogenesis, including an interactive cascade of signaling that reduces peripheral risk factors for cognitive decline. Ploughman (2008) suggested exercise may cause changes in behavior, cognition and EF by (a) increasing oxygen saturation in the brain, (b) increasing neurotransmitters such as serotonin and norepinephrine, and (c) up-regulating neurotrophins.

In summary, there is seemingly little consensus regarding underlying mechanisms that may facilitate or inhibit EF. However, it is highly unlikely there is a single source, but instead an interaction or cascade of factors at work. While the conclusions from the research are strong for adult populations (Hillman et al., 2008), an understanding of effects of MVPA on cognition and behavior of adolescent children, particularly those with or at risk for disabilities remains largely unclear (Allison, Faith, & Franklin, 1995; Allison & Keays, 1995; Tomporowski, 2003a).

EF is a construct vital to academic performance (Hillman et al., 2012, St-Clair Thompson & Gathercole, 2006), but there are indications EF skills may be on the decline (Smirnova & Gudareva 2004). This is concerning as EF skills can be a better predictor of school readiness than entry-level reading or math scores (Blair, 2007). In children, the MVPA-EF relationship is not linear in terms of increased cognition. Rather it is multi-factorial, and different cognitive benefits, from MVPA, should be expected. This seems likely related to diverse rates of pre-frontal cortex development in children, especially in terms of plasticity (Shaw et al., 2006), and hippocampus growth (Pfluger et al., 1999). It is salient to suggest however that students who have the most to gain, in terms of fitness levels, and academic performance, gain the most (Phillips et al., 2015).

Yet, there has been little effort to investigate how MVPA relates to cognition and EF of children with special needs (Tomporowski et al., 2008). Although included within samples, data for individuals at risk for or already identified with disabilities have not been disaggregated from typical performing students (Archer & Kostrzewa, 2012; Best, 2010; Chang, Labban, Gapin, & Etnier, 2012; Etnier, Nowell, Landers, & Sibley, 2006; Gapin, Labban, & Etnier, 2011; Taras, 2005; Tomporowski, 2003a; Tomporowski, 2003b; Tomporowski et al., 2008; Welsh & Labbé, 1994). Changes in EF have provided a means for showing effects and benefits of MVPA

(Hillman et al., 2008; Sattelmair & Ratey, 2009). For the purpose of this paper, the few studies that have examined effects of MVPA on EF with students with ADHD come from two bodies of research: those that examine neurological indicators of EF and those that examine behavioral indicators.

Neuroscience Studies and the Impact on EF of Students with ADHD

One means of determining if MVPA affects EF processes is through research that examines event related potential (ERP) data. ERP research involves presenting a stimulus to a participant wearing an array of electrodes on the head and recording electric impulses that occur. The electric impulses produce waves with peaks and troughs that are graphically displayed and compared. Research has identified one element, the P3 waveform, as a possible indicator of attentional, inhibitory, and updating processes (Polich, 2007; Polich & Lardon, 1997). It has been theorized P3 amplitude is sensitive to the amount of attentional resources engaged during task performance (Polich, 2007). That is, the stronger the amplitude of the P3 waveform, the more attentional resources are utilized on a given task. Thus, increases in magnitude are indicative of increased attention and inhibition (Higashiura et al., 2006; Polich, 2007; Yagi, Coburn, Estes, & Arruda, 1999).

ERP research with typical college and elementary-age students has shown differences in P3 amplitude after performing MVPA, suggestive of an increase in attentional resources during tasks (Hillman et al., 2009; Hillman, Snook, & Jerome, 2003; Kamijo et al., 2004; Magnié et al., 2000). Prior research suggests reductions in P3 latency in response to presented stimuli represent mental function speed, in that shorter latencies are related to superior cognitive performance, or improvements in updating (Polich, 2007; Yagi et al., 1999). Again, with non-ADHD participants, reductions in P3 latency suggest improved mental processing speed (Hillman et al., 2009; Hillman et al., 2003; Magnié et al., 2000).

Three studies have examined MVPA effects on P3 waveform in students with ADHD (Table 1). The first study examined magnitude and latency of P3 to assess changes in EF for participants with ADHD (Pontifex, Saliba, Raine, Picchiatti, & Hillman, 2013). Forty children ages 8 - 10 participated in a single bout of treadmill running at a moderate pace (65-75% maximum heart rate) for 20 minutes. Participants then performed an Eriksen Flanker task to measure changes in P3 magnitude and latency. The Eriksen Flanker task is a response inhibition task that assesses the ability to suppress a dominant response in favor of a target response (Eriksen & Eriksen, 1974). After exercise, increased arousal levels were observed, including areas implicated in EF, compared to a non-exercise (i.e., seated reading) condition. More specifically, there was an increase in P3 amplitude and a decrease in P3 latency at all recording sites after the exercise phase only. Additionally, participants exhibited greater response accuracy after MVPA. Results support previous research, and extend it to an ADHD population, suggesting a single bout of MVPA has an enhancing effect on allocation of attentional resources (P3 amplitude) and improved processing speed (P3 latency). Drollette et al. (2014) combined data from the above study (Pontifex et al., 2013) and an earlier study (Hillman et al., 2009) to compare ADHD and non-ADHD participants. Results are distinctive in demonstrating that children with ADHD showed a differential effect from a single bout of MVPA. These data suggest children who have reduced inhibitory control may benefit more than their typical peers after a single bout of MVPA (Drollette et al., 2014).

Table 1
ADHD ERP Studies

Study	n	Age	Task	EF	MVPA	Dur	P3 Findings
Chuang et al. (2015)*	19	8-12	-Go/No-Go	-RI	Treadmill	30	-Latency
Hillman et al. (2014)**	221	7-9	-Eriksen Flanker Task -Color Shape Task	-RI -U	Aerobic games	70m	+ Magnitude - Latency
Pontifex et al. (2013)	40	8-10	-Eriksen Flanker Task	-RI	Treadmill running	20m	+ Magnitude - Latency

Note. RI=Response Inhibition. U=Updating. S=Shifting. Dur=Duration of exercise

*Chuang et al. did not look at P3 but rather CNV **ADHD comprised 43% of sample.

A second study consisted of a 9 month randomized controlled physical activity intervention with 222 seven to nine year old children. Results showed only the MVPA intervention group (n=109) increased P3 amplitude and decreased P3 latency after exercise (Hillman et al., 2014). Taken as a whole for both children without ADHD as well as children with ADHD, data from the P3 waveform suggest MVPA increases allocation of attention resources (magnitude), mental functioning (latency), and response accuracy related to superior cognitive abilities, that results in enhanced attention.

A third more recent study looked at contingent negative variation or CNV. This is partially related to motor preparation and is represented by a negative deflection prior to the P3 positive wave form, and has been used in similar research on response inhibition (Luck, 2014). This study suggests children ages 8-12, with a 30 minute bout of treadmill running supported appropriate response preparation and helped maintain stable motor preparation prior to a go/no-go task (Chuang, Tsai, Chang, Huang, & Hung, 2015).

Intervention Studies and the Impact on EF

In addition to evidence provided by neuroscience studies, a search of the literature identified eleven classroom intervention studies that document effects of MVPA on EF in children with ADHD (Table 2). These studies examined variables such as participants' ages, stimulant medication use, and types of tasks used to measure the two key variables related to EF: inhibition and updating.

Table 2
ADHD Intervention Studies

Study	n	Age	Task	EF	MVPA	Dur	Findings
Chang et al. (2012)	40	8-13	-Stroop -WCST	-S -RI	Treadmill running	30m	-Positively impacting set shifting and response inhibition
Chang et al. (2014)	27	5-10	-Go/No-Go	-RI	Swimming	90m	-Significant improvements in inhibition control

Gapin & Etnier (2010)	18	8-12	-Tower of London -CPT-II -Digit Span	-U -RI	Overall activity levels	NA	-Significant predictor of planning and inhibition
Gawrilow et al. (2013)	47	8-13	-Go/No-Go	-RI	Trampoline Jumping	5m	-Improved inhibition and increased sustained attention
Kang et al. (2011)	28	6-10	-Trail Making -Digit Symbol	-U -S	Varied activities	90m	-Improved updating, shifting, and social skills
Memarmoghaddam et al. (2016)	40	7-11	-Go/No-Go -Stroop	-RI -S	Varied activities	90m	-Improved inhibition and behavioral inhibition
Medina et al. (2010)	25	7-15	-CPT-II	-S -RI	Treadmill running	30m	-Decreased impulsivity, increased surveillance, improved reaction times.
Pan et al. (2015)	30	7-12	-Stroop -WCST	-RI -S	Table Tennis	70m	-Tentative evidence of improvements
Piepmeier et al. (2015)*	32	K-12 m=10.7	-Tower of London -Stroop -Trail Making	-U -S -RI	Stationary bike	30m	-Improvement in speed of processing, inhibitory control. -No improvement in planning or set shifting.
Smith et al. (2013)	16	5-8	-Game: Red Light/Green Light	-RI	Varied activities	26m	-Improvements in Response Inhibition
Verret et al. (2010)	21	7-12	-Test of Everyday Attention	-U	Aerobic games	45m	-Improved information processing and visual search

Note. RI=Response Inhibition. U=Updating. S=Shifting. Dur=Duration of exercise *only 14 of the 32 participants had a diagnosis of ADHD

Exercise produced effects that are robust across many variables. Participants ranged from 5-18 years, and all demonstrated a positive shift in elements of EF. However, one pilot study showed only tentative benefits; the table tennis intervention used in this study was sustained over multiple weeks, but there was little indicative of MVPA reflecting a difference from the other studies included (Pan et al., 2015).

Also noteworthy is the effects of MVPA are independent of effects of stimulant medication. In a clinical setting, 25 children diagnosed with ADHD participated in a single episode of MVPA and demonstrated significant improvements in response time and on measures of shifting and inhibition (Medina et al., 2010). Participants in this study taking stimulant medication had similar results to those who were not taking the medication. To further examine the role of stimulant medication, a randomized controlled trial involving 28 children with ADHD had all medication naive participants start taking stimulant medication at the onset of the study (Kang,

Choi, Kang, & Han, 2011). Results showed only the MVPA intervention group improved on measures of shifting and updating. These results suggest MVPA benefits can be supportive and similar to those of stimulant medication. Across studies, various tasks were used to assess changes in EF, but most tended to be clinical research tools (e.g. Stroop task, Wisconsin Card Sorting Task, Tower of London Task). The variables highlighted help to emphasize potential differences in the areas of inhibition and updating.

Inhibition. Nine of eleven studies used tasks related to inhibition. For example, Chang and colleagues (2012) asked children with ADHD ages 8-13 years to participate in treadmill running for 30 minutes. These researchers found children had an improved allocation of attentional resources as assessed by measures of inhibition after exercise (Chang, Liu, Yu, & Lee, 2012). Perhaps the most significant applied finding from this study was that a single 5-minute bout of MVPA improved EF. In a similar study, children with ADHD jumped on a mini-trampoline for 5 minutes at a vigorous rate (Gawrilow, Stadler, Langguth, Naumann, & Boeck, 2013). This single 5 minute bout of MVPA resulted in improved response inhibition and fewer errors on a sustained attention task. In a descriptive study, Gapin and Etnier (2010) found overall activity levels predicted children's planning (a sub-component of updating) and response inhibition. This study did not alter activity levels but used accelerometer data from 18 children ages 8-12 to determine how well MVPA predicted improvements in EF. Results suggested MVPA improved EF in both children without disabilities and those with ADHD (Piepmeyer et al., 2015). A final study in this area looked at response inhibition, and found a selected exercise program was effective for children with ADHD (Memarmoghaddam, Torbati, Sohrabi, Mashhadi, & Kashi, 2016).

Updating. Updating and monitoring of working memory representations is the second major deficit in EF for children with ADHD (Best & Miller, 2010; Schreiber et al., 2014). Improvement in updating was demonstrated in three studies (Chang, Liu, et al., 2012; Kang et al., 2011; Verret, Guay, Berthiaume, Gardiner, & Béliveau, 2010). In one study, children diagnosed with ADHD participated in a 10 week MVPA program, and showed improvements in updating, including enhanced information processing and faster visual search, leading to improvements in sustaining attention (Verret et al., 2010). Significant to educators, both parents and teachers reported enhanced behavior after physical activity. Similarly, latency of responding was reduced on an updating task compared to the non-MVPA control group in two additional studies (Chang, Liu, et al., 2012; Chang, Hung, Huang, Hatfield, & Hung, 2014). A study conducted in Korea found a 6-week program of MVPA for children with ADHD, compared to a non-MVPA ADHD control group, improved updating as measured with a trail-making task (Kang et al., 2011). Results of these studies suggest MVPA improved measures related to updating for children with ADHD.

Theoretical Implications

Taken together these intervention studies show MVPA can improve measures of EF and improve classroom behavior. These studies corroborate neuroscience studies showing MVPA can improve measures of updating and inhibition: the two major deficits of EF for children with ADHD. Given these observations, an understanding of the mechanism(s) that govern effects of MVPA on EF is important for theory, intervention development, and future research.

Optimal stimulation theory (OST) has been suggested as a theoretical framework for examination of MVPA for students with ADHD (Allison et al., 1995; Lufi & Parish-Plass, 2011). According to OST, individuals engage in operant responses in order to regulate incoming stimulation (Leuba, 1955). Much like a thermostat regulates the temperature of a home, individuals engage in behavior to self-regulate levels of stimulation. When stimulation levels are low, the individual engages in behavior until an optimal level of stimulation has been reached.

Zentall (1975, 2005) has proposed that individuals with ADHD require higher levels of stimulation and habituate to stimulation more quickly than typical individuals. The relatively high levels of behavior observed in individuals with ADHD may function to increase the amount of stimulation and move the student into a homeostatic state of arousal. Students with ADHD who are asked to perform tasks that require little movement and high levels of sustained attention, such as those experienced in many classrooms, may act out/act inappropriately to increase their stimulation to a level that allows them to function optimally (Zentall, 2005, 1975; Zentall & Zentall, 1983). The positive effects observed in this population after MVPA may be a more appropriate means of increasing the level of stimulation to an optimal point. Thus, when a student returns to the classroom after MVPA she/he is better able to attend to the task without exhibiting stimulation seeking behaviors that may be inappropriate for a given setting.

OST suggests typically functioning students are nearer the optimal range and will therefore exhibit smaller benefits concerning behavior. Research has shown effects of exercise are stronger for students who are on task the least and exhibit more inappropriate behavior in the classroom (Drollette et al., 2014; Mahar, 2011). These findings could explain the consistently positive effects seen in studies that examined children with ADHD compared with typical students.

Similarly, in support of OST, on a neurochemical level dopamine may provide an explanation for the effects of MVPA for children with ADHD. There is evidence dopamine is related to attention and regulation in the prefrontal cortex (Glanzman & Sell, 2013). Dopamine is also associated with reward and motivation behavior as well as self-control (Arias-Carrión & Pöppel, 2007; Robbins & Arnsten, 2009), all areas of concern for students with ADHD. Children with ADHD exhibit lower baseline levels of dopamine (Levy, 1991). Thus, low levels of dopamine for children with ADHD may correlate with their limited self-control and inappropriate behavior. MVPA increases production of dopamine, which results in increased levels of dopamine delivered to synapses (McMorris, Collard, Corbett, Dicks, & Swain, 2008). As children with ADHD participate in MVPA, their levels of dopamine may increase leading to a more optimal state of functioning as OST suggests.

Intervention Implications

Research suggests students with ADHD benefit from MVPA (Archer & Kostrzewa, 2012; Grassmann, Alves, Santos-Galduróz, & Galduróz, 2014). Unfortunately, 81.5% of schools in the U.S. exclude students from physical activity for inappropriate behavior (Lee, Spain, Burgeson, & Fulton, 2007). Furthermore, opportunities to participate in physical activity have been reduced in schools to increase instruction time (Marshall & Hardman, 2000; Pellegrini & Bohn, 2005). In contrast to reducing activity levels to make additional time for academic tasks, increasing levels of physical activity may increase academic engagement and reduce problem behavior. Time

away from academics while engaged in MVPA has been shown to not adversely affect academic performance (Dwyer, Coonan, Leitch, Hetzel, & Baghurst, 1983; Sallis et al., 1999; Trudeau & Shephard, 2008). In fact, MVPA has been associated with better grades (Taras, 2005; Trudeau & Shephard, 2008). Improvements seen in grades may be a result of the improvements in EF for children with ADHD. Results of this review suggest physical activity may be one possible solution for improving EF deficits in children with ADHD.

One study used a unique task that may help teachers to measure improvement in inhibition and self-control in a school setting. This research had young children with ADHD in grades K-3 participate in an eight-week intervention (Smith et al., 2013). In each session, children completed 26 minutes of aerobic games (e.g. tag). To assess changes in EF researchers had the children play a recess game of Red light/Green light. This task showed measurable improvements in response inhibition. For teachers, this is particularly noteworthy as a task to observe, in their own setting, the effectiveness of MVPA for students with ADHD.

Early intervention is important, and results showing children as young as 5 years old improved EF is one reason to consider early adoption of having children with ADHD participate in MVPA (Chang et al., 2014; Smith et al., 2013). Additionally, the finding that students already taking medication still benefit from participating in MVPA is particularly promising (Kang et al., 2011; Medina et al., 2010). In some instances use of stimulant medication in conjunction with behavioral supports allows for a reduction in dosage of medication while maintaining maximum behavioral benefits (Carlson, Pelham, Milich, & Dixon, 1992; Fabiano, Pelham, Gnagy, Burrows-MacLean, & al, 2007). Research is needed to identify if MVPA can be combined in a similar fashion. Perhaps addition of MVPA with stimulant medication may support a reduction in medication dosage while maintaining behavioral benefits.

Given the deficits in EF experienced by children with ADHD, MVPA provides teachers with a user-friendly approach to positively impact EF for this population. Consider the following typical scenario. A teacher asks students to return to their seats, get out their books, turn to page 21, and read to the end of the chapter. Minutes pass and as the teacher circulates around the room, she finds the student with ADHD sitting with a closed book doing nothing, having only remembered the first of several instructions. Similarly, a student may blurt out answers in class at inappropriate times. These applied examples of updating and inhibition are common problems faced in classrooms every day. Teachers may find MVPA an efficient and cost-effective method for improving EF of students with ADHD. A recent meta-analysis that synthesized data for children with ADHD suggests short, variable intensity exercises that are frequent and varied provide optimal improvements in behavior and academic engagement (Hart & Lee, in review). The current paper taken together with the findings of Hart and Lee suggest MVPA can improve EF for children with ADHD in as few as five minutes by using a variety of exercises ranging in intensity, duration, and frequency.

It appears symptoms of ADHD decline as children move into adulthood; yet 15% of adults age 25 continue to meet diagnosable criteria, and 65% meet a definition of ADHD in partial remission (Faraone, Biederman, & Mick, 2006). Further, in a ten year follow-up study 78% of participants reported a persistence in symptoms and functional impairments into early adulthood (Biederman, Petty, Evans, Small, & Faraone, 2010). Some of these symptoms include lower

educational attainment, lower job performance and potential firing, fewer close friends, and increases in sexually transmitted diseases (Barkley, Fischer, Smallish, & Fletcher, 2006). Given the potential for lifelong impairment, promotion of MVPA as an ameliorative intervention is easy to justify, particularly when MVPA has been shown to be effective for both children (Memarmoghaddam et al., 2016) and adults with ADHD (Den Heijer et al., 2017).

Conclusion

Children with ADHD experience deficits in EF, with two key deficits being inhibition and updating. Research using event related potentials has shown children with ADHD increase P3 amplitude and reduce P3 latency, suggestive of increased allocation of attentional resources. Intervention studies using MVPA with children with ADHD have shown improvements in EF, particularly in inhibition and updating. Increases in dopamine levels, after participating in MVPA, may support OST as a theoretical perspective for the effects of exercise. MVPA may serve to improve classroom behavior for children with ADHD. In summary, there is evidence MVPA can be effective at improving EF resulting in improved inhibition, updating and shifting; leading to improvements in behavior and academic engagement for children with ADHD. Those improvements may also carry over to improved outcomes in adults above and beyond the physiological benefit of participating in a program of MVPA.

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Inclusive Book Club: Perspectives of Undergraduate Participants

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Abstract

We examined undergraduate students' perceptions of peers with intellectual and developmental disabilities (I/DD) before and after participating in an inclusive book club on the college campus. Over a six-week period, undergraduate students and students with I/DD enrolled in the post-secondary education program at the university engaged in an inclusive book club that involved coming together once a week for an hour to discuss a piece of literature. Results indicate that the perceptions of the undergraduate students changed as a result of their participation in the book club. Although, prior to the onset of the study, the undergraduates predicted that the students with I/DD would have difficulty with comprehension and participation, at the end of the study they reported that the students with I/DD did not have the difficulties they predicted and were able to successfully participate and contribute to discussions during each book club meeting. Implications of the findings for K-12 learning environments and post-secondary inclusive programs are provided.

Inclusive Book Club: Perspectives of Undergraduate Participants

Over the past decade there has been an increasing number of post-secondary programs for students with intellectual and developmental disabilities (I/DD) created at colleges and universities across the country, making dreams of going to college a reality for these young adults. There are now over 250 post-secondary programs for students with I/DD available nationwide. Advocacy efforts to support families in affording the tuition costs involved have been extremely successful. Students enrolled in programs recognized as Comprehensive Transition Programs by the U.S. Department of Education are able to apply for federal Pell Grant funds to support their tuition expenses. Vocational Rehabilitation programs across the nation are also providing clients with financial support. Additionally, opportunities for state and local scholarships and grants are also an option for eligible students. Overall, students with I/DD are being welcomed to campuses and experiencing positive outcomes when it comes to competitive employment (Green, Cleary, & Cannella-Malone, 2017; Grigal, Hart, Smith, Domin, & Weir, 2016; Moon, Simonsen, & Neubert, 2011; Zafft, Hart, & Zimbrich, 2004), increased independence (Miller, DiSandro, Harrington, & Johnson, 2016; Neubert & Redd, 2008), and improved social and emotional well-being (Hughson, Moodie, Uditsky, 2006; Papay, Trivedi, Smith, & Grigal, 2017).

While the outcomes of students with I/DD participating in post-secondary programs is well-documented, the literature lacks a discussion of the impact of these programs on traditional college students who have the benefit of interacting with their peers with I/DD. There are various ways that traditional students interact with peers with I/DD on college campuses including structured experiences such as serving as peer mentors or job coaches as well as natural experiences that occur in courses, employment sites, residence halls, clubs and organizations,

sporting events, and a variety of other campus-wide recreational activities. The purpose of this study was to examine undergraduate students' perceptions of peers with intellectual and developmental disabilities (I/DD) before and after participating in an inclusive book club.

Recruiting Students with I/DD and Book Selection

All students enrolled in the post-secondary program for students with I/DD on campus were invited to participate in the book club. The lead researcher met with the group to provide information about the book club and stimulate interest. Five of the students with I/DD elected to participate. To select a book for the inclusive book club, an interest survey was administered to the students with I/DD to determine what genres of fiction and nonfiction they prefer reading, how they choose books they want to read, the best book they ever read, their top three favorite books and movies, and how they like to spend their free time. The majority of these students indicated that they enjoyed reading fiction that focused on adventure, survival, and science fiction. Given that the participants had different reading levels, it was important to select a text that had an audio-version available. After conversations with the students and learning more about their interests, *The Maze Runner* by James Dashner (2009) was selected for the book club.

Recruiting Undergraduate Students

Information about the book club was then shared with members of student organizations and posted to the university's social media accounts. The only excluding criteria was undergraduates serving as peer mentors or working with the post-secondary program in any capacity. Four undergraduate participants volunteered to participate including one elementary education major, two special education majors, and one English major.

Preparation for the Book Club

Prior to the start of the book club, trainings were delivered to each group of participants. For the students with I/DD, the training included: 1) a mini-lesson on book clubs (what they are, how they work); 2) a discussion about student responsibilities and behavioral expectations; and 3) planning for successful participation. Students were provided a reading schedule which outlined what had to be read prior to each book club meeting. The lead researcher assisted students in setting reminders in their phones for each session (day, time, location of meeting, required reading).

Prior to the training for the undergraduate group, a questionnaire was administered to determine the undergraduates' perceptions of peers with I/D before participating in the book club. This 18-item questionnaire included demographic information, questions regarding participants' experience and beliefs about individuals with developmental disabilities, expectations for the project, and predictions about participation and potential challenges. This same questionnaire was given to the undergraduate group after participating in the book club to examine any shifts in perceptions as a result of the experience. The training for the undergraduates included: 1) an overview of the post-secondary program for students with I/DD and a brief description of each student that would be participating in the book club; 2) a discussion about student responsibilities and behavioral expectations; 3) planning for successful participation.

After the trainings were completed, every book club participant received a hard copy of the book and downloaded the audio-version on their personal devices. The lead researcher then met with all book club participants as a group. Refreshments were served and icebreaker games were played to help participants get to know each other. At this meeting, expectations for participating in the book club were reviewed, supports that could be used before, during, and after reading (see Table 1) were discussed, and participants were encouraged to add to the list with strategies they use while reading. The group then reviewed the reading schedule, had the opportunity to take supplies (highlighters, post-it notes), and were provided with discussion questions for each chapter to help support their reading.

Table 1. *Supports for Book Club Participants.*

Before Reading	During Reading	After Reading *Prior to Book Club meeting
- read through the discussion questions - look back to previous chapter - review previous discussion notes	-listen to the audio version while following along in your book -use post it notes to show your thinking -use a highlighter to mark important parts of the text -make voice recorded notes -make predictions -answer some/all discussion questions -make personal connections to what you're reading -try to put yourself in the characters' shoes	- Need something to share with the group: -share your perspective on a character(s) -write a journal entry -create a summary -complete a graphic organizer -draw picture of a character (or an event from the story) -ask a question -describe your favorite part -share a personal connection you made

Book Club Procedures

Each book club meeting lasted approximately one hour, and the lead researcher served as the book club facilitator. Before starting the discussion about the literature, five to ten minutes were set aside to allow the group to have informal social conversations about matters other than the book. The purpose of these exchanges at the beginning of the meeting was to get the group comfortable and limit unnecessary conversations during the literature discussion. Each formal book club discussion opened with a summary of the assigned reading. This was done to ensure everyone understood and remembered what happened in the story. Following the summary, the conversations led to various discussions such as checking predictions, making connections to real life, putting themselves in a character's shoes, and asking questions to clarify understanding. The facilitator allowed the conversation to develop naturally and would only intervene if the conversation changed to something off topic or if the discussion stopped. Prompts included asking a question, making a statement about the reading, or referring to the discussion questions for the chapter. At the end of the discussion, the session would close with the group making predictions about the next chapter.

Supports for Students with I/DD

There were a variety of supports provided to the students with I/DD to facilitate their successful participation during book club meetings. All students with I/DD were provided with an audio version of the book. At the onset of each session, there was a facilitated summarization activity to support comprehension. Both the students with I/DD and the undergraduate students contributed to the summarization discussion. There were also review questions provided to support students before, during, and after reading for the purposes of supporting comprehension and facilitating discussions.

Findings

Perception data was collected through a written questionnaire (see Figure 1) to determine if the perspectives of undergraduate students about their peers with I/DD changed as a result of participating in the book club.

Questionnaire for Undergraduates Book Study Project					
	not at all		a little		very much
1) Did you like participating in this book study? Why or why not?	1	2	3	4	5
2) Would you like to participate in this type of project again? Why or why not?	1	2	3	4	5
3) Should other undergraduate students have this opportunity? Why or why not?	1	2	3	4	5
4) What did you like about participating in the book study?					
5) What did you not like about participating in the book study?					
6) Is there anything else you'd like to share about your experience in the book study?					

Figure 1. *Project questionnaire.*

The analysis of the questionnaires led to three common themes related to the undergraduate students' perspectives of their peers with I/DD. First, although the questionnaires given at the onset of the study indicated that the undergraduates predicted that the students with I/DD would have a difficult time comprehending the literature and making connections to the book, this perception changed by the end of the book club. Some comments the undergraduates reported on the questionnaire at the conclusion of the book club include:

- “The students [with I/DD] blew me away with their ability to keep up with the reading and comprehend the story; even the small details.”
- “I learned that the students [with I/DD] are more than able to keep up with the pace.”
- “The students were able to offer opinions as well as conversation and connections outside of the maze runner. For example, Kenna was comparing the movie to the book during the book study offering her insight and predictions for the next chapter.”

Second, prior to the onset of the book club, the undergraduate students predicted that the students with I/DD would have difficulty voicing their opinions, putting thoughts into words, understanding hidden messages, and developing visual images of the book while reading. However, at the conclusion of the study, the undergraduate students reported that the students with I/DD did not face any of the challenges they predicted they would face, and in fact, they faced the same challenges as the undergraduate students. Both groups had challenges with keeping up with the readings and initiating discussions that would engage the whole group. Third, the undergraduate students recognized that students with and without disabilities had background knowledge to bring to the discussion. One undergraduate student wrote, “I was able to witness different viewpoints and perspectives about the ideas and events within the book.”

Implications

The results of this study indicate that the perceptions of undergraduate students about their peers with I/DD were significantly altered as a result of their participation in an inclusive book club. Prior to their participation, the undergraduate students predicted that the students with I/DD would have great difficulty with comprehension and participation. However, these perceptions changed as they discovered that their peers with I/DD were able to actively participate and successfully comprehend the material with some basic supports provided throughout the study (e.g. audio version of the book, summarization activities, and review questions). These findings suggest that when typically developing peers have opportunities to interact with students with I/DD in inclusive contexts, they quickly learn that these students can be active contributors regardless of their identified disabilities. Similar types of inclusive literacy experiences should be embedded within the contexts of K-12 schools. Book clubs such as the one described in this study can be replicated in elementary, middle, and high school settings to enrich the academic and social learning of students with and without disabilities. Likewise, post-secondary programs for students with I/DD should consider ways to provide quality inclusive academic and social experiences to benefit students with and without disabilities.

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Constructivism, Zone of Proximal Development and Target in a Multi-Dimensional Classroom

Bradley Johnson, Ph.D.

Abstract

Constructivism represents a heterogeneous body of theoretical approaches across different disciplines for these alliances, as well as, attracting and antagonizing vast audiences within these disciplines, including psychology and education. A major influence on the rise of constructivism has been the theory and research in human development. Classroom characteristics, including motivation, can affect the perceptions and learning of students. By focusing on these factors within the classroom, teachers and students are able to work in a multidimensional classroom. Multidimensional classrooms have more activities and allow for greater diversity in student abilities performances, as well as being more compatible with constructivist tenants about learning. The Zone of Proximal Development (ZPD) opens the possibility for new interpretations of a development as a social construction and undermines the traditional assumption that development is independent from observers, researchers, and educators who can recognize certain aspects of the activity.

Introduction

Constructivism represents a heterogeneous body of theoretical approaches across different disciplines for these alliances, as well as, attracting and antagonizing vast audiences within these disciplines, including psychology and education (Vianna & Stetsenko, 2006). A major influence on the rise of constructivism has been the theory and research in human development (e.g., the theories of Vygotsky and Piaget). The existing diversity of constructivist theories and approaches ranges from radical forms of social constructionism (Gergen, 1994), distributed cognition, and situated learning perspectives to cognitive constructivism stemming from Piaget, to Vygotsky's cultural-history theory, often clouds the underlying common foundation and potential of this framework (Vianna & Stetsenko).

Constructivist educational theories often involve the intertwining of developmental and nondevelopment aspects (Phillips, 1995). Vygotsky's socio-historical or socio-cultural theory is considered to be an exception to this tradition of treating development as a constraint for education by allowing education to lead development (Matusov, DePalma, & Drye, 2007). The Zone of Proximal Development (ZPD) is one of the principles within Vygotsky's theoretical framework which has contributed to the body of knowledge in educational psychology. Vygotsky (1978) stated more capable peers, adults, or a socio-cultural activity (such as play) engage child a more advanced actions and they could have performed on his own or her own thus, define the child's potential development.

Unidimensional classrooms have high visibility performance (Rosenholtz & Rosenholtz, 1981), which can motivate high achievers to learn, but often have a negative effect on everyone else (Schunk, 2008). Classroom characteristics, including motivation, can affect the perceptions and learning of students. Epstein (1989) identified some of the factors which affect the motivation

and learning of students using the acronym, “TARGET.” By focusing on these factors within the classroom, teachers and students are able to work in a multidimensional classroom. Schunk (2008) stated multidimensional classrooms have more activities and allow for greater diversity in student abilities performances, as well as being more compatible with constructivist tenants about learning.

Constructivists Assumptions and Perspectives

Many researchers and practitioners have questioned some of the cognitive psychology’s assumptions about learning and instruction because they believe these assumptions cannot completely explain students’ learning and understanding. Greeno (1989) identified the questionable assumptions:

- Thinking resides the mind rather than in interaction with persons in situations.
- Processes of learning and thinking are relatively uniform across persons, in some situations foster higher-order thinking better than others.
- Thinking derives from knowledge and skills developed in formal instructional settings more than on general conceptual competencies that result from one’s experiences and innate abilities.

However, constructivist do not accept these assumptions because of evidence that thinking takes place in situations in the cognitions are largely constructed by individuals as a function of their experiences in these situations (Bredo, 1997). To understand the assumptions of the theory, an understanding of what constructivism is will be examined.

Constructivism

Constructivism is not used as a generic term to describe the theoretical approaches developed in sociology, psychology, political sciences, education and other social sciences; constructivism is not a theory, but rather an epistemology or philosophical explanation about the nature of learning (Vianna & Stetsenko, 2006; Simpson, 2002). Constructivism’s central idea is that human learning is constructed, and that learners build new knowledge upon the foundation of previous learning. Hoover (1996) stated there are two important notions around the simple idea of constructive knowledge: (1) learners construct new understandings using what they already know; (2) learning is active rather than passive. Focusing around the central idea, the first notion shows that knowledge is developed by building upon experiences and adapting when necessary change for the environment. The second notion identifies that learners take an active role in each experience in order to enhance their own development and others in their classroom.

Rather than viewing knowledge as truth, constructivists construe it as a working hypothesis allowing for knowledge to be formed from inside an individual rather than imposed from outside people (Schunk, 2008). This working hypothesis allows for individual constructions focused specifically on each person is a separate entity and does not apply, necessarily, too other individuals. Cobb & Bowers (1999) stated this is because people produce knowledge based on their beliefs and experiences in situations; which differ from person to person. All knowledge, then, is subjective and personal and a product of our cognitions (Simpson, 2002).

Assumptions

Constructivism contrasts with conditioning theories that stress the importance of the environment on the person; constructivist theory also contrasts with cognitive information processing theory that places locus of learning within the meeting with little attention to the context in which it occurs (Schunk, 2008)). It shares with social cognitive theory the assumption that persons, behaviors, and environments interact in reciprocal fashion (Bandura, 1986, 1997).

Geary (1995) stated a basic assumption of constructivism is that people are active learners and must construct knowledge for themselves. In order for learners to understand the material and grasp the basic principles of a lesson, they must have basic knowledge and actively engage themselves. Constructivists differ in the extent to which they ascribe this function entirely to learners; some believe that mental structures come to reflect reality, whereas others believe that the individual's mental world is the only reality (Schunk, 2008).

Another construction of assumption is a teacher should not teach in the traditional sense of delivering instruction to a group of students, but they should structure situations such that the learners become actively involved with content through manipulation of materials and social interaction (Schunk, 2008). By using a multidimensional structure, teachers are able to structure lessons to allow for students to construct their understanding of the material across the curriculum. Students are taught to be self-regulated and take an active role of the learning by setting goals, monitoring and evaluating progress, and going beyond basic requirements by exploring interests (Bruning, Schraw, Norby, & Ronning, 2004).

Perspectives

There are three different perspectives on constructivism because it is not a unified theory. The three different perspectives are as follows: exogenous, endogenous, and dialectical (Bruning et al, 2004; Moshmam, 1982, Phillips, 1995).

Exogenous constructivism refers to the idea that the acquisition of knowledge represents the reconstruction of structures that exist in the external world; a strong influence of the external world on knowledge construction, such as by experiences, teaching, and exposure to models (Schunk, 2008). Endogenous constructivism emphasizes coordination cognitive actions (Bruning et al, 2004); mental structures are created that of earlier structures, not directly from environmental information; therefore, knowledge is not mirror of the external world acquire through experiences, teaching, or social interactions (Schunk, 2008). Between these two extremes lies the dialectical constructivism, which holds that knowledge derives from interactions between persons and their environments; it is referred to as cognitive constructivism (Derry, 1996).

Various Types of Constructivism

On the epistemological continuum, various types of constructivism have emerged. We distinguish between radical, social, physical, evolutionary, postmodern constructivism, social constructionism, information-processing constructivism and cybernetic systems to name but some types more commonly referred to (Steffe & Gale, 1995; Prawat, 1996; Heylighen, 1993).

Ernst von Glasersfeld whose thinking has been profoundly influenced by the theories of Piaget, is typically associated with radical constructivism (Murphy, 1997); it is radical because it breaks with convention and develops a theory of knowledge in which knowledge does not reflect an objective, ontological reality, but exclusively an ordering and organization of a world constituted by our experience (von Glasersfeld, 1984). Von Glasersfeld defines radical constructivism according to the conceptions of knowledge. He sees knowledge as being actively received either through the senses or by way of communication. It is actively constructed by the cognizing subject. Cognition is adaptive and allows one to organize the experiential world, not to discover an objective reality (von Glasersfeld, 1989).

Heylighen (1993) stated that social constructivism sees consensus between different subjects as the ultimate criterion to judge knowledge; 'truth' or 'reality' will be accorded only to those constructions on which most people of a social group agree. Derry (1992) stated that constructivism has been claimed by "various epistemological camps" that do not consider each another "theoretical comrades".

Vygotsky's Socio-cultural Theory

Tudge and Scrimsher (2003) stated Vygotsky's theory is a constructivist theory than emphasizes the social environment as a facilitator of development and learning. Vygotsky attempted to explain human thought and new ways by abandoning states of consciousness by referring to the concept of consciousness; similarly, he rejected behavior of explanations of action in terms of prior actions by taking environmental influences into account through its effect on consciousness (Schunk, 2008).

Vygotsky's theory stresses the interaction of interpersonal (social), cultural-historical, and individual factors is the key to human development (Tudge & Scrimsher, 2003). Through these interactions' children are able to transform their experiences, based on their knowledge and develop new characteristics by reorganizing their mental structures to coincide with their environment. The way that learners interact with their worlds – with persons, objects, and institutions in a – transforms their thinking; the meanings of concepts changes they are linked with the world (Schunk, 2008). Cognitive change results from using cultural tools and social interactions and from internalizing and mentally transforming these interactions (Bruning et al, 2004).

There are five major points in Vygotsky's (1978) theory:

- (1) Social interactions are critical; knowledge is co-constructed between two or more people.
- (2) Self-regulation is developed through internalization (developing an internal representation) of actions and mental operations that occur in social or actions.
- (3) Human development occurs to the cultural transmission of tools (language, symbols).
- (4) Language is the most critical tool. Language develops from social speech, to private speech, to covert (inner) speech.

- (5) The Zone of Proximal Development (ZPD) is a difference between what children can do on their own what to do with assistance from others. Interactions with self and peers in the ZPD promote cognitive development.

Vygotsky's most controversial contention was that all higher mental functions originated in the social environment (Vygotsky, 1962). Research shows that young children mentally figure out much knowledge about the way the world operates long before they have an opportunity to learn from the culture in which they live; children also seem biologically predisposed to acquire certain concepts, which does not depend on the environment (Bereiter, 1994; Geary, 1995).

Zone of Proximal Development (ZPD)

The notion of ZPD opens the possibility for new interpretations of a development as a social construction and undermines the traditional assumption that development is independent from observers, researchers, and educators who can recognize are not recognized (value or discount) certain aspects of the activity as "developmental" (Matusov, DePalma, & Drye 2007). Within the framework of ZPD, Vygotsky distinguish between two kinds of abilities that children are apt to have at a particular point in their development. A child's actual developmental level is the upper limit of tasks he or she can perform independently, without help from anyone else; a child's level of potential development is the upper limit of tasks here she can perform with the assistance of a more competent individual (Ormrod, 2006). Challenging tasks promote maximum cognitive growth in children which is the basis for ZPD. A child's zone of proximal development includes learning and problem-solving abilities that are just beginning to develop – abilities that are in an immature, "embryonic" form; naturally, any child's ZPD will change over time and more complex ones appear on the horizon to take their place (Ormrod, 2006, p. 36).

One support mechanism that helps learners successfully perform a task within his or her ZPD is scaffolding. To understand the concept, scaffolding is similar to that used in constructing a building use of a scaffold as an external structure to provide support for workers until the building itself is strong enough to support them; as the building gain stability, the scaffold becomes less necessary and so is gradually removed (Ormrod, 2006). An adult guiding a child through a new task to provide an initial scaffold was for the child's early efforts; as the child becomes capable of working without such support, the adult gradually removes it, a process known as fading (Ormrod, 2006). As competence builds within the child; we remove the scaffolding.

Classroom Structure and TARGET

Organization and structure learning environments focus on how students are grouped for instruction, how work is evaluated and rewarded, how authority is established, and how time is scheduled; including classroom management (Schunk, 2008). Rosenholtz and Simpson (1984) stated an important aspect organization is dimensionality. The two types of dimensionality were identified previously as unidimensional and multidimensional classrooms. There are several different characteristics which are identified under the category of dimensionality. The characteristics are: differentiation of task structure, student autonomy, grouping patterns, and performance evaluations (Schunk, 2008).

Unidimensional classrooms set undifferentiated task structures; all students work on the same or similar tasks, and instruction employs a small number of materials and methods (Rosenholtz & Simpson, 1984). When students work on different tasks at the same time that structure becomes differentiated or multidimensional, but more likely that daily activities will produce consistent performances for each student in the greater the probability that students will socially compare their work with that of others to determine relative standing (Schunk, 2008).

Autonomy refers to the extent to which students have choices about what to do and when and how to do it: unidimensional classrooms have low autonomy enduring self-regulation and stifling motivation; multidimensional classrooms offer students more choices, which can enhance intrinsic motivation (Schunk, 2008). Grouping patterns become more prominent when students work on the whole-class activities for when students are grouped by ability.

Performance evaluations referred to the public nature of grading; unidimensional classrooms grade students on the same assignments and greater public, whereas, multidimensional classrooms grading can motivate all students because they feature more differentiation, greater autonomy, let's ability grouping, and more flexibility in grading with less public evaluation (Schunk, 2008).

TARGET

TARGET is an acronym which identifies of the factors that can affect learners' perceptions, motivation, and learning in classrooms. Epstein (1989) identified the following factors: Task, Authority, Recognition, Grouping, Evaluation, and Time. The task dimension involves the design of learning activities and assignments by making learning interesting, using a writing challenge, assisting students to set realistic goals, and helping students develop organizational, management, and other strategic skills (Ames, 1992a, 1992b). Authority refers to whether students can assume leadership and develop independence and control over learning activities; self-efficacy tends to be higher in classes that allow students for some measure of authority (Ames). Recognition, which involves the formal and informal use of rewards, incentives, and praise, has important consequences of motivated learning (Schunk, 1989). Grouping focuses on students' ability to work with others and evaluation involves methods for monitoring and assessing students learning (Schunk, 2008). The final factor of time involves the appropriateness of workload, pace of instruction, and time allowed for completing work (Epstein, 1989). Incorporating TARGET components into a unit can positively affect motivation learning within the classroom.

Applying a Model of ZPD in the Classroom

In the National Reading Report (NRP, 2000), research and the development of reading comprehension skills that are three predominant themes:

- First, reading comprehension is complex cognitive process that cannot be understood without a clear description of the role that vocabulary development and vocabulary instruction play in the understanding of what has been read.
- Second, comprehension is an active process that requires an intentional and thoughtful interaction between the reader and the text.

- Third, the preparation of teachers to better equip the students to develop and apply reading comprehension strategies to enhance understanding is intimately linked to students' achievement in this area (2000).

Duffy (1993) argues that strategies are not skills that can be taught by drill; they are plans for constructing meaning.

Application of the Model

As part of a multidimensional reading and language arts classroom; the use of ZPD and scaffolding would be appropriate for teaching students how to improve their comprehension. Through the use of several different strategies a teacher and the students are able to be instrumental in reading fluency and comprehension. Kaminski and Good (1996) suggests the following strategies for the teacher and students to use: practice naming letters until the student can name the letters at a rate of approximately 47 letters per minute, practice identifying letter sounds until the student can say the phonemes at a rate of 35-45 phonemes per minute, practice reading nonsense words until the student can read nonsense words at a rate of 40 nonsense words per minute, and practice reading phrases that include high-frequency words or words targeted for sight vocabulary.

In order to implement these strategies, the teacher can develop a lesson plan by using the Phrase-Cued Text Practice to focus on fluency. The following lesson plan is very specific on how a teacher can use the strategy: The objective of the lesson is to use Phrase-Viewed Text Practice allows students to focus on fluency. The teacher should prepare marked and unmarked copies of the phrase-cute text passage. Distribute copies of the text passage. Instruct the students to follow along as you, the teacher model reading the marked passage using appropriate phrasing and intonation. Then read the text chorally. Have the students read the passage multiple times; provide appropriate feedback. On subsequent days, have the students chorally read the marked passage first as a group, then in pairs. Ask the students to practice reading the passage independently. Distribute the unmarked version of passage and ask students to read it independently. Meet with each student individually and ask him or her to read the unmarked passage. Note phrasing, appropriate pauses, expression, and reading rate. Record the results in each student portfolio.

By using this strategy 10 minutes each day throughout the week the students are encouraged to work together, use constructive feedback, and the teacher is able to determine their ZPD by using each one of the strategies in the lesson. By the end of the week, the teacher can assess each student's fluency rate and note an increase or decrease.

As a reading and language arts teacher for 6-12 grade special education students, I have used this strategy in the classroom to enhance reading fluency and comprehension. Using this in a multidimensional setting provides a learning environment focused on a constructivist approach. The increase or decrease of levels allows for assessing the possibility of two or three different ability groups. Special education students are unique with their learning abilities in comparison to the general education peers. Their uniqueness requires more time to complete assignments, accommodating or supplementing different learning strategies to help them focus, and continued practice and explanation or review.

Conclusion

Constructivism represents a heterogeneous body, a theoretical approach across different disciplines for this alliance, as well as both attractive and antagonized vast audiences within these disciplines, including psychology and education (Vianna & Stetsenko, 2006). An overview of the different educational theories through the eyes of constructivism was provided highlighting the socio-historical or sociocultural theory of Vygotsky. Several assumptions and perspectives as they relate to constructivism were reviewed with an overview of the basic premise of constructivism.

The five major points of Vygotsky's theory are reviewed and highlighted the Zone of Proximal Development (ZPD). Scaffolding was identified as one of the support mechanisms within the ZPD and identified as being similar to that used in constructing a building. Classroom structure and the use of the acronym, TARGET, within the classroom setting to help affect learners' perceptions, motivation, and learning. Finally, an example is provided of how a model of ZPD could be applied to the classroom and incorporated in the classroom with the specific lesson focusing on reading comprehension and fluency.

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Playgrounds for “All” Children

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Abstract

This article describes the inclusion challenge children with special needs face on playgrounds and public parks with universal design guiding the rights of children both with and without special needs to have play opportunities. This study evaluated 68 public school elementary playgrounds to determine whether they met Section 502 guidelines for accessibility, and whether the playground equipment on these playgrounds had been modified so that children with and without special needs could play together.

Introduction

Play is an integral part of a child’s early years. Many levels of play opportunities exist for children for mental, social, and physical growth. Offering playing inclusive environments leads to social interactions that provides all children chances to have creative moments that occur only through play experience. The law requires provisions that incorporate play and playgrounds as being beneficial to all children. Whether developers meet the requirements for playgrounds, depends on knowledge of the federal guidelines.

Importance of Play

Play is essential for every child (Access to play areas, 2006). It promotes physical, mental, emotional, and social well-being. Play allows children to problem solve, communicate, share, and develop friends (Access to play areas, 2006). All children must be “included together” on a playground in order to engage in play experiences (Access to play areas, 2006). Children with special needs should also be allowed to play alone on playgrounds, if possible and if they so desire (Access to play areas, 2006). Hence, a child diagnosed with a disability should be given the same opportunities as any other child to play, as well as, to play outdoors on playgrounds (Access to play areas, 2006). Universal Design is a design that works for everybody, especially all children. After all, the law provides for them to have Universal Designed Playgrounds. Thus, playground designers, developers, healthy school workers, teachers, parents, and community should promote “inclusive play” for children to learn together or alone in a pleasant, relaxed, outdoor universal designed playground environment (Access to play areas, 2006; Morrow Jr, J. R., Jackson, A. W., & Payne, V. G., 1999).

Need for Play and Physical Activity for the Children

Children need to play, and that means every child also needs a play area to flourish in his/her play activities. In 1956, Dr. Dwight Eisenhower's administration formed the President's Council on Youth and Fitness. This span provided diverse groups a span of time to think about and focus on physical activity as being important. Even the Surgeon General's Report on Physical Activity includes "benefits of physical activity for all ages" (Morrow & et al., 1999, p.2). Though historically in America, an epidemic of childhood health problems exists related to inactivity (Morrow & et al., 1999). However, at least 20 percent of elementary schools have limited recess on their playgrounds (Tyre, 2003; Satcher, 2005; Pica, 2003).

Placing time limits on recess at schools, as well as limited outdoor playground access is not providing for all children. When time limits are set on recess at schools, as well as limiting children access to an outdoor playground, then a severe flaw exists in public education policy and society. The Right to Play, which is a global organization with the same name advancing educational games for children, supports accessible playgrounds both at elementary schools and public play spaces.

Mooney (2013) reports that Lev Vygotsky, sociocultural theorist, believed that social interaction reinforces the needs of young children through play. One of the environments to build these social interactions, as well as emotional, physical, and cognitive experiences is the playground. Thus, if we agree that children need to play, then we must realize that they also need "play spaces," such as elementary playgrounds and parks (Clements, 2000).

The American Association for the Child's Right to Play supports physical activity as recess and physical education for children with and without special needs (Satcher, 2005; Huberty, J. L., Siahpush, M., Beighle, A., Fuhrmeister, E., Silva, P., and Welk, G., 2011). Thus, the American Association for the Child's Right to Play offers volunteer state recess advocates who check on the physical activity of the children in the schools, as well as promote awareness about the need for play and playground areas throughout communities (Tyre, 2003). These supporters validate the need for children to play.

Accessibility for Playgrounds

Section 502 of the Rehabilitation Act of 1973 requires that all public facilities, and the location of programs funded with public dollars, be accessible to individuals with special needs. This act includes public school playgrounds. In Section 502, different requirements exist for public facilities depending upon whether the facility is an "existing" facility or "new construction." According to the regulations, an existing facility is any facility constructed before June 3, 1977. Specifically, recipients of public dollars must "operate its [existing] program or activity so that when viewing each part in its entirety, then it is readily accessible to handicapped persons." (34 CFR 104.22). "New construction" is defined as those facilities constructed after June 3, 1977, or any part(s) of an existing facility altered after the date of June 3, 1977. Specifically, "new construction" must "be designed and constructed in such manner that the facility or part of the facility is readily accessible to and usable by handicapped" (2010 ADA Standards for Accessible Design, p. 3).

Facilities constructed between June 3, 1977, and January 17, 1991, are deemed to be accessible if they meet the American National Standards Institute's accessibility standards. The regulations

also state that “all new construction, or alterations of existing facilities built on January 18, 1991, and thereafter, but prior to January 26, 1992, which is the effective date of the regulation implementing Title II, must be in compliance with the Uniform Federal Accessibility Standards (UFAS) or substantially equivalent standards” (City University of New York – Hunter College [Letter written August 13, 2014 to William P. Kelly]. (n.d.). and 28 CFR 35.15.

In addition to regulations from the Rehabilitation Act of 1973 requiring that playgrounds be accessible to children with special needs, the United States Department of Education has explained that Section 300.320 of the Individuals with Disabilities Education Act with least restrictive environments, includes playgrounds as part of the “general education environment.” Therefore, it is paramount that playgrounds be accessible so that children with special needs may interact with their non-disabled peers.

Universal Design for Playgrounds

The play episodes on a barrier-free playground are preferable because children with special needs can participate. Universal Designed Playground requirements provide these “barrier-free” playgrounds for all children (Able to play...2005).

The Americans with Disabilities Act of 1990 was of great importance for children with special needs; even though it was “accompanied by accessibility guidelines,” it did not include “playgrounds” (Access to play areas, 2006). However, the Universal Design for Playgrounds did address the “playground” needs of all children (Access to play areas, 2006).

Roberts (2009) indicates the American With Disabilities Act supports guidelines set in 2000 by the Access Board for Standards on Universal Access for playgrounds indicates “beyond a basic definition of accessible” (p.44). Also, he notes that “all playgrounds must comply with this,” which includes a specified number of “ramps, elevated platforms, transfer stations, and height and width requirements for all the play structures” (p.44). According to Center for Universal Design at North Carolina State University, Universal Design is, “the design of products and environments to be usable by all the people, to the greatest extent possible, without the need for adaption or specialized design” (p. 44).

If guidelines exist for children to play outdoors, and through the means of Universal Design from the National Center for Accessibility at North Carolina State University all children can play, then playgrounds should be available. The Universal Design from the National Center for Accessibility at North Carolina State University has seven guiding principles for all children to have playgrounds: 1) equitable use, 2) flexibility in use, 3) simple and intuitive use, 4) perceptible information, 5) tolerance for error, 6) low physical effort, and 7) size and space for approach of use (Roberts, 2009, p. 44). When children are given the occasion to engage with others in creative playground opportunities, they interact in activities and life experiences. Also, they are more socially acceptable and adaptable to their environments.

Playgrounds for All Children

If children are allowed to play and have playgrounds, then stakeholders must also make sure that these playgrounds provide an experience for all children to enjoy a safe and non-threatening environment. Sadly, some current playgrounds at elementary schools and parks, even those planned to be built, are not created for all children because they are not accessible to children with special needs.

According to the Keith Christensen, Director and Research Scientist of the Center for Persons with Disabilities at Utah State University, “Three principles – safety, accessibility, and inclusion should guide the design of an outdoor play environment” (Christensen (2003, p. 4). If playgrounds were provided to children as Christensen’s suggests then they would give ALL young people an opportunity to play. Rogers and Sawyers (1988, p. 1-2) indicated that

children are by nature playful. They enjoy playing and will do so whenever they can latch onto the opportunity.... as an intrinsically motivated behavior; play may be the most important process through which children learn to adapt to the world and become more mature (p. 8)

Allowing children to engage on playgrounds allow them to mature through the development of their physical, social, emotional, and cognitive skills. Some educators realize these play experiences are essential, and children with special needs deserve the same opportunities through play at elementary school playgrounds and public parks. The question remains, are playgrounds provided for children with special needs allowing them to maneuver by themselves, be inclusive or with some assistance?

If playgrounds provide for children with special needs, then the community, parents, and others must understand what these playgrounds should render, and then they should build them accordingly. Thus, they would be illustrating a better understanding of inclusion is and what accessibility can be. Therefore, Christensen (2003, p. ii) defines accessibility as “the removal of physical barriers” and inclusion as “the removal of social barriers.” Christensen (2003) also explains inclusive playgrounds should include not only children in wheelchairs but all those with special needs. Dunn, Moore, and Murray (2003, p. 30) further note, that “Equipment does not wholly define a play space. How the design of space enables people to use it different ways is important.” Careful thought and planning offer valued experiences for all children when applied to playgrounds.

A plan is necessary for builders and educators to study playgrounds with more depth and keen awareness (Dunn, & et al., 2003). All in all, Dunn, & et al. (2003, p. 30), continue to tell us that, “Envisaging inclusive play spaces as where children can have a chance to interact and play with each other should be the starting point when thinking through what is involved in creating inclusion by design.” Finally, “Children who are included have the best chance of becoming included as adults” (Dunn, & et al., 2003, p. 12).

According to the W.K. Kellogg Foundation, “Approximately 10 percent of children in the United States have a disability that prevents them from using or enjoying most public playgrounds with their peers and siblings” (Able to play. 2005, p.1). This percentage is the major reason that public

elementary playgrounds and park playgrounds need to be accessible to ALL children. The W.K. Kellogg Foundation (Able to play...2005, p. 7), also “believes that excluding disabled children from play opportunities inhibits their potential and is a form of injustice that should be addressed” (Able to play...2005, p. 7).

Methodology

The researchers provided instruction to undergraduate students in early childhood courses and to graduate students [evaluators] in special education law courses on how to evaluate a playground for compliance with Section 502 accessibility guidelines. Also, the evaluators had instruction on how to use a checklist that listed various types of playground equipment that might be found on a playground to facilitate social-emotional, perceptual-motor, physical, sensory, and intellectual development. Also, they looked for whether specific adaptations were available to provide for accessibility for children with special needs. The evaluators were then assigned in pairs to evaluate one playground located on a public elementary school campus.

A list of public elementary school playgrounds located in a state on the Gulf of Mexico was selected randomly. All 68 playgrounds evaluated were built after 2005, because Hurricane Katrina destroyed all of them. An evaluation of the inter-observer reliability of the evaluation of playground accessibility and evaluation across the five developmental areas was conducted by having twenty-five percent of the playgrounds ($n=17$) evaluated by two teams. This evaluation yielded an inter-observer reliability coefficient of .90 for both the evaluation of playground accessibility and evaluation across the five developmental areas.

Results

In Table 1 are displayed the data of the question as to whether the playground layout of 68 elementary school playgrounds evaluated in this study was accessible to children with special needs. None of the 68 playgrounds were found to meet all of the playground layout accessibility criteria across all ten §502 playground layout standards, and forty-eight playgrounds (71%) were found to meet less than 50% of the playground layout accessibility criteria. As can be seen by looking at Table 1, none of the playgrounds met 100% of the playground layout accessibility criteria in any of the ten areas.

Table 1

Descriptive Data for Playgrounds meeting §502 Playground Layout Accessibility Criteria

Playground Layout Accessibility Category	Number of Criteria	Number of playgrounds where at least one applicable criterion was absent	Number of playgrounds where all applicable accessibility criteria were present	Percent of playgrounds meeting all applicable criteria
Site Location	3	39	29	43%
Parking and Curbs	3	58	10	15%
Walkways	9	65	3	4%
Surface Treatments	3	67	1	1%
Clearance	7	66	2	3%
Traffic Patterns	4	46	22	32%
Practical Aesthetics	6	65	3	4%
Play components	3	55	13	19%
Soft contained play structures	2	64	4	6%
Accessible routes	11	67	1	1%

In Table 2 are displayed the data of the question as to whether the playground equipment on the sixty-six elementary school playgrounds evaluated in this study was accessible to children with special needs. Playground equipment accessibility, in Table 2, is broken down by the eleven 502 playground equipment accessibility areas. As can be seen by looking at Table 2, none of the playgrounds met 100% of the accessibility criteria in any of the eleven areas. Also, only three playgrounds (4%) met all playground accessibility criteria across all eleven standards, and sixty-two playgrounds (91%) met less than 50% of the applicable criteria across all equipment accessibility standards.

Table 2

Descriptive Data for Playgrounds meeting §502 Playground Equipment Accessibility Criteria

Playground Equipment Accessibility Category	Number of Criteria	No. of playgrounds where criteria were N/A	No. of playgrounds where all criteria applicable	No. of playgrounds where at least one accessibility criteria was present	No. of playgrounds where one or more applicable criteria were absent	No. of playgrounds meeting all applicable accessibility criteria	Percentage of playgrounds meeting all applicable criteria
Elevated ramp run	5	16	49	6	63	5	10%
Landings - Level Surface	4	18	49	6	63	5	6%
Handrails	6	17	49	13	65	3	6%
Transfer System	3	15	50	9	60	8	16%
Transfer Platforms	6	14	52	9	66	2	4%
Transfer Steps	3	15	51	13	55	13	25%
Transfer Supports	1	17	51	13	42	9	18%
Clear Floor or Ground Space	1	3	48	17	48	17	35%
Maneuvering Space	2	2	47	12	56	5	11%
Entry Points and Seats	1	10	46	11	46	11	24%
Reach ranges (Advisory)	1	6	38	23	38	23	61%

Shown in Tables 3, 4, and 5 are descriptive data on the following two questions. First, to what extent is playground equipment provided in each of the developmental areas? Also, to what extent is a piece of playground equipment modified so that it is accessible to children with special needs when that particular playground equipment item is on the playground?

In Table 3 is the number and types of equipment found across the 68 playgrounds observed. The selections are whether space had developmental areas and the percentage of playgrounds where a particular type of play equipment existed and if it was modified so that children with special needs had access.

Table 3

Descriptive Data for Play Equipment by Developmental Area by Modifications for Disability Accessibility

Play Equipment	Modifications	No. of Playgrounds with Equipment Present	No. of Playgrounds with Modifications Present	No. of Playgrounds with all Modifications for Equipment	Percentage of Playgrounds with all Modifications for Equipment
Social Emotional Development					
Thirty-eight playgrounds had at least one piece of playground equipment in the intellectual development area.					
Work/Play Tables		13		5	38%
	• Space for a wheel chair • Textured surface design • Play tables are located on an accessible route with wheelchair knee clearance minimums of: •24 inches (610 mm) high •17 inches (430 mm) deep		10 7 4		
Sand Tables/Box		9		0	0%
	• Space for a wheel chair • Indentations around table to enable children with poor balance to stand. • If box, backed seating is provided in corners for children with poor balance.		6 1 0		
Sand Crane		3			0%
	• Appropriate surface for a wheel chair. • Sound generated by pulley for child with a visual impairment.		1 0	0	
Play Counter		7		3	43%

Play Equipment	Modifications	No. of Playgrounds with Equipment Present	No. of Playgrounds with Modifications Present	No. of Playgrounds with all Modifications for Equipment	Percentage of Playgrounds with all Modifications for Equipment
Play Hut	• Appropriate surface and space for a wheel chair	11	3	5	45%
Steering Wheel	• Large enough to accommodate a wheel chair and 2 or 3 other children.	17	5	4	24%
Sympathetic Swing	• Steering wheel mounts at different heights so that one is accessible to children in wheel chairs. • A horn is present so children with visual impairments may locate the steering wheel.	2	8	0	0%
Tunnel	• A sound-producing device is present to enable (a) children with visual impairments to locate and determine if in use, and b) children with developmental delays to learn cause and effect. • Ramp access is provided • Textured areas to provide tactile orientation cues to children with visual impairments	9	0	0	0%
			1		

Play Equipment	Modifications	No. of Playgrounds with Equipment Present	No. of Playgrounds with Modifications Present	No. of Playgrounds with all Modifications for Equipment	Percentage of Playgrounds with all Modifications for Equipment
Basketball hoops	• Large enough to enable either an adult or 2 children to go through together.	17	8	1	6%
	• Multiple means of access		7		
	• Adjustable so that they are accessible to children in wheelchairs.		7		
Wide Slide	• Equipped with sound devices for children with visual impairments.	15	1	1	7%
	• Multiple access options including ramp for wheel chair.		2		
	• Installed on embankment to reduce risk of injury in case of fall.		5		

Perceptual Motor Development

Thirty-six playgrounds had at least 1 piece of playground equipment in the perceptual motor development area.

Equipment		Frequency	Percentage
Tire Swing		5	*
Spring Teeter-Totter		5	3
	A non-slip surface is provided at center to enable a child to lie there without slipping around.	3	60%
Spring rides		6	1
	Provides a sound-producing device to serve as an auditory cue.	2	17%
	Back supports are provided on animal seats.	2	
Standard Swing		32	4
	Provides a sound-producing device to serve as cue for locating and knowing when in use.	4	13%
Log/tire roll		0	0
	Provides a sound-producing device to serve as cue for locating and knowing when in use.	0	

Balance beams	9		8
Gadget panel	13	8	2
		10	
		6	
		3	
Physical Development			
Thirty-nine playgrounds had at least 1 piece of playground equipment in the physical development category.			
Hand-over-hand bars	19		3
		3	
Chinning bars	11		1
		1	
Parallel bars	12		3
		3	
Adjustable basketball hoops	6		0
		5	
		0	
Cargo/chain/tire nets	3		3
		3	
Tube and half tube slide	22		9
		9	
Stairs and inclined ladders	26		3
		3	
Bridges	15		0
		3	
		8	
		10	

	Provides a sound-producing device to serve as cue for locating and knowing when in use.	0	
Sensory Development			
Nine playgrounds had at least 1 piece of playground equipment in the sensory development			
Music Panel		2	0
	Devices are a varying height to ensure access	2	
	Surrounding surface is wheel chair accessible.	0	
Colored Panels		7	7
Bucket Table		3	0
	Ensures wheel chair access.	3	
	Indentations around table to enable children with poor balance to stand are provided.	2	
Intellectual Development			
Nineteen playgrounds had at least 1 piece of playground equipment in the intellectual development			
Walls with colors and shapes on them.		13	5
	Ensures wheel chair access.	5	
Relief Maps		3	0
	Ensures wheel chair access.	0	
Guide Rails		14	1
	Devices are at varying heights to ensure access.	1	

Notes: This table will be made available on the Internet for viewing by readers should the manuscript be accepted for publication. Seven playgrounds had at least 1 piece of playground equipment in every developmental area.

* = No modifications necessary to provide for accessibility. indicated in Table 4, the means and frequencies show unmodified and modified playground equipment items based on developmental areas that were found on each playground across all them evaluated. In Table 4 a majority of playgrounds had unmodified equipment in all developmental areas. However, it may also be that a majority of playgrounds did not have modified playground equipment in any developmental area. Shown in Table 5 is the mean number of developmental areas having modified playground equipment per playground across all playgrounds, and the frequency of developmental areas addressed by modified playground equipment across all playgrounds.

Table 4

Play equipment, unmodified and modified, on playground by developmental areas

	Developmental Areas									
	Social Emotional		Perceptual Motor		Physical		Sensory		Intellectual	
	U	M	U	M	U	M	U	M	U	M
Mean number of playground items per playground	1.5	0.3	1.0	0.3	1.7	0.3	0.2	0	0.4	.1
Frequency of play items per playground										
0	30	54	32	55	29	54	59	68	49	63
1	10	9	18	10	5	7	7	0	11	4
2	10	5	9	2	15	6	1	0	6	1
3	10	0	5	0	5	1	1	0	1	0
4	1	0	1	1	9	0				
5	5	0	3	0	2	0				
6	0	0			3	0				
7	2	0								

Note: U means unmodified and M means modified

Table 5

Developmental Areas Addressed by Modified Equipment on the Playground

Mean	0.7
Mode	0
Number and (Percentages) of Developmental Areas	F
0 (62%)	42
1 (23%)	16
2 (6%)	4
3 (3%)	2
4 (6%)	4
5 (0%)	0

The majority of playgrounds (68%) did not have modified playground equipment in any of the developmental areas, and only 23% of the playgrounds had modified playground equipment in one developmental area. On Table 6 are the results of Chi-square analysis for the question, “When playground equipment for non-disabled children is modified so that a child with a disability may access it?” Respectively, results of chi-square tests revealed that when play equipment is in a developmental area for children without disabilities, there is a highly significant probability ($p < .000$) that it is not modified so that children with special needs may also access the play equipment.

Table 6. χ^2 results for presence of accessible playground equipment in developmental areas.

Discussion

		Social-emotional		Perceptual-motor		Physical		Sensory		Intellectual	
		f _e	f _o	f _e	f _o	f _e	f _o	f _e	f _o	f _e	f _o
Non-disabled	Present	38	34	36	34	39	34	9	34	19	34
	Absent	30	34	32	34	29	34	59	34	49	34
Disabled	Modified	10	34	13	34	14	34	9	34	5	34
	Absent	58	34	55	34	54	34	59	34	63	34
X ² (3)		34.824		26.176		25.000		73.529		62.706	
Significance		.000		.000		.000		.000		.000	

Play is essential for all children. Young children need to be given opportunities for overall learning with developmentally appropriate practice to stimulate both their bodies and minds. Therefore, Play is the time that children learn primarily from each other; this time is when children may learn to: “problem solve,” “communicate,” “share,” and “develop friends,” (Access to play areas, 2006). If opportunities are not allowed for children to play such as on a playground for All children their growth and development are limited, as the children progress to adulthood.

Play and Playgrounds for All Children

Children need equal opportunities for overall learning. As discussed earlier, according to Roberts (2009) if the lack of guidelines prohibits children to play outside, then steps must be taken to allow them to do so. Universal Design from the National Center for Accessibility at North Carolina State University has seven guiding principles: 1) equitable use, 2) flexibility in use, 3) simple, intuitive use, 4) perceptible information, 5) tolerance for error, 6) low physical effort, and 7) size and space for approach of using). Also, not only do playgrounds overall need to be accessible through Universal Design, but specific equipment is needed to be provided for children with special needs to play and socially interact with all children.

Review of Findings

This study yielded results of quantitative descriptive data that evaluated whether public school elementary playgrounds met Section 502 accessibility and whether the playground equipment on these playgrounds was modified so that children with and without special needs may play together. As the results reported, the 68 playgrounds were not accessible to all children. Granted that, at lunchtime and recess, a break is provided at just one of these 68 schools for children, the social interaction placement for children with special needs and their peers can still occur but based on the time and playground equipment, it will be very limited.

All children would benefit from this time at play, especially, on a playground. Unfortunately, according to this study, the playgrounds were found not to be accessible to all children; therefore, the children are not gaining the enrichment that they need.

These results indicate that without applying Universal Design, children do not play equally on a playground if they have a disability. It also defies child development needs for all children. According to Mooney (2013), the work of the Lev Vygotsky, sociocultural theorist, supports that social interaction does reinforce the needs of young children through play. Therefore, one of the best places for children to build these social interactions, along with their emotional, physical, and cognitive involvement, is on the playground.

Rogers and Sawyers (1988, p. 1-2) stated, “Children are by nature playful. They enjoy playing and will do so whenever they can latch onto the opportunity.... as an intrinsically motivated behavior; play may be the most important process through which children learn to adapt to the world and become more mature.” Playing at a playground is a child gaining maturity, at its finest. Therefore, the child with special needs should have access to play and have accessible play equipment on the playground. This study found in 68 school playgrounds play accessibility is not happening for the child with special needs.

Hence, findings of data in Table 1, displayed questions as to whether the playground layout of 68 playgrounds was accessible to children with special needs. As noted earlier, the paired university student evaluators reported that none of these playgrounds were found to meet 502 playground layout standards and 71% were found to meet less than 50% of the playground layout accessibility criteria. Furthermore, none of the 68 playgrounds studied meet 100% of the playground layout accessibility criteria in any of the ten areas (site location, parking, and curbs, walkways, surface treatments, clearance, traffic patterns, practical aesthetics, play components, soft contained play structures, accessible routes).

The results of this study yielded information that reveals to educators and others, that more than ever an extreme need exists for Universal Design of playgrounds to be implemented for the children. It is so unfortunate that children with special needs cannot have access to the 68 elementary school playgrounds.

Clements (2000), who is a researcher on outdoor play and recess, supports that children need “play spaces,” such as elementary playgrounds and parks. Since playgrounds exist as these found in the study, then playgrounds should be adapted and built accessible to children with special needs, so they can play with their peers and gain significant growth and development socially, emotionally, and physically.

According to Satcher (2005) and Huberty et al. (2011), the American Association for the Child’s Right to Play does support physical activity such as recess and physical education for children with and without special needs. The importance of play, noted by Tyre (2003), is that the American Association for the Child’s Right to Play promotes the awareness about the need for play and playground areas in the community and provides volunteer state recess advocates who check on recess and physical activity of the children whenever possible in the schools with teachers and parents as well, and do support that all children need to Play and that Play is beneficial to all children.

Also, in Table 2, playground equipment was broken down by the eleven 502 accessibility areas. None of the playground equipment met 100% of the accessibility criteria in any of the eleven areas. Only three playgrounds (4%) met all playground accessibility criteria across all eleven standards, while sixty-two playgrounds (91%) met less than 50% of the applicable criteria across all equipment accessibility standards. These findings are alarming as discussed previously, and research supports the need for the children to play with others and not have to play alone (Access to play areas, 2006). As found in this study, if having playgrounds that do not meet accessibly for equipment, then children with special needs right to play with others is violated.

Tables 3, 4, and 5 yielded descriptive quantitative data regarding two questions: 1) To what extent is playground equipment provided in each of the developmental areas? 2) And, to what extent is a piece of playground equipment modified so that it is accessible to children with special needs when that particular playground equipment item is on the playground? Table 3 reported the number and types of playground equipment found by the paired university student evaluators in these 68 playgrounds listed as: developmental area, and the percentage of playgrounds where if the playground had a particular type of equipment the equipment was modified so that children with special needs had access to it. In Table 4 the means were given concerning the playground equipment section. As in this review of the Tables 2, 3, 4, data were provided that reveals that the playground equipment in these 68 elementary school playgrounds did not exist or and limited for the child with special needs.

The researchers in this study do recommend further research on public elementary playgrounds and playground equipment. Because of this study, hopefully, changes will take place to create awareness for communities and educators to implement Universal Design changes for special needs children's access to playgrounds, along with accessible equipment in order for all children to have the same opportunity to play together in these outdoor environments.

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Challenges to Collaboration, Inclusion and Best Practices within the Special Education Community

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Abstract

This manuscript identifies the challenges of children with special needs and their families. This text further highlights the complexity of integrating children with intellectual differences into inclusive settings. Furthermore, the author incorporates the teamwork and collaboration principles and practices of the Division for Early Childhood (DEC) of the Council for Exceptional Children (CEC, 1990). In keeping with the Council's principles, the most important aspect of the Council's mission and goals is to work across systems to meet the needs of children and families (DEC 2009). These principles focus on the importance of parent involvement, collaboration and interdisciplinary approaches to services. Lastly, this paper examines inclusion, advocacy and support for parents while reflectively examining a study (Scott-Croff, 2017) that details the perspectives of parents and pediatricians caring for children on the autism spectrum.

Key Terms: Early intervention, special education, parents, inclusion, children, teamwork, advocacy and autism spectrum disorder.

The Barriers to Collaboration, Inclusion, Teamwork within the Context of the Special Education Community

This article highlights:

- 1) the history of inclusion
- 2) the impact of inclusion and the least restrictive environment principles on services for children with special needs
- 3) the role of advocacy in special education
- 4) the role of parents pertaining to advocacy and the history of special education
- 5) support services provided to children and families
- 6) the influence of early intensive behavior interventions (EIBI) on children's development
- 7) the importance of collaboration among parents and service providers
- 8) examining a qualitative study on the perspectives of parents and pediatricians
- 9) research methods
- 10) recommendations
- 11) results and discussion questions

Defining the term Inclusion and its Role in the Realm of Special Instruction

Since the early seventies, inclusion in early childhood and special education settings has become the hallmark of best practices for young children with special needs (Yell, Rogers & Rogers, 1998). The research of Bacon and Causton-Theoharis (2013) defines inclusion as supportive programming for children with intellectual differences into mainstream settings. Bredekamp

(1993) also notes inclusion is as a programmatic approach that carefully integrates children with special needs into more inclusive settings. Her research connotes, inclusive settings that meet the needs of children with varied intellectual, social and emotional needs (Bredekamp, 1993). Integrated settings include children with varied learning styles. Moreover, inclusive settings promote the least restrictive environment (LRE) for children. A least restrictive environment is a setting that maximizes the needs of a child diagnosed with a developmental disability by providing the least restrictive environment for them to learn in. Whenever children are educated and integrated into educational settings with typically developing children (Bredekamp, 1997). These environments maximize children's abilities opposed to disabilities. Researchers Schwartz, Sandall, Odom, Horn and Bechman (2002) indicated the need for diverse programming that supports inclusion. The researchers go on to say that each program's approach to inclusion varies. Services offered to children and families may not meet the needs of all children or families. The complex needs of families warrant a diverse approach to service implementation (Torreno, 2012). Researchers Howard, Williams and Lepper (2010) indicates the need for empirically based services for children, personalized services across the continuum of children's needs, a culturally sensitive approach to service implementation, empowerment of parents, collaboration with other experts and advocacy for parents and children.

Advocacy

Advocacy serves as a catalyst to ensuring programs provide high quality services for children with special needs and their families (Heward, 2009). The research of Heward (2009) posits, advocacy is the ability to advance a cause (Bacon, & Causton-Theoharis, 2013). Advocacy often helps further the needs and causes of marginalized populations. Activism has been the bedrock of the early childhood special education community (Bredelkamp, 1997). Bacon and Causton-Theoharis (2013) notes advocacy has led to modifications in funding structures to support children with special needs. Parents are continually thrust into the role of advocates due to the challenges they face within the special education system. It is time we protect the rights of children and their families (Autism Speaks, 2013). Many advocacy groups and coalitions that serve the needs of children with special needs were developed by the parents of children with special needs. These groups were borne out of desperation, fear and anxiety and displeasure with the current support offered to parents (Smith, 2003). The research of Smith (2003) indicates advocacy groups adhere to the following tenets to support their work: (1) they identify the goals and objective of the cause; (2) they develop a strategy to eradicate the challenges; (3) they consider the perspectives of all individuals involved; (4) they exercise emotional intelligence during tense conversations; (4) they become well versed regarding the needs of families; (5) they use a strength based approach to advocate for the needs of others and lastly, resolve all concerns in a matter that is acceptable for all parties (Hess, Molina, & Kozleski, 2006).). The forwarding paragraph on stress describes the support required by families of children with special needs. The paragraph typifies the challenges that consume families of children with special needs. The research of Howard, Williams and Lepper (2010) children's abilities as well as a families' needs are uniquely different. Support of families is contingent upon quality interaction, services, education provided to families and a full spectrum of services and placement options.

Support for Families

Stress. Bacon and Causton-Theoharis (2013) posits, parents are dealing with multiple stress factors, lack of finances, and lack of adequate services and support (Bacon & Causton-Theoharis, 2013). Parents must balance the developmental needs of their children with their housing and fiscal needs. Parents may have other children to care for as well as deal with shame centered on their children's diagnosis, leading to additional stress. Researchers Bacon and Causton-Theoharis (2013) stipulate, parents experience feelings of hopelessness, anxiety, depression, shame, bewilderment and fear around their children's diagnosis. Parents are often challenged by the special education system and the daunting process to obtain services (Autism Speaks, 2013).

The research of Dettmer, Thurston and Dyck (2002) and Gallagher, Malone, and Ladner (2009) details parents' frustration during service provision meetings. According to their research, parents expressed confusion and challenges with the technical language used during the evaluation process. Parents then go on to say they were also overwhelmed by the amount of people in attendance at the hearing. The researchers asserted parents were overwhelmed by the terms utilized during the meetings. As noted by the researchers, service providers often utilize "expertise speak". Expertise speak is a language unto itself (U.S. Department of Education, 2010). It is terms, idioms and terminology utilized by experts in the field. These terms are unfamiliar to parents (Hess, Molina, & Kozleski, 2006). As detailed by the research of Dettmer et al (2002) and Ladner (2009), when this occurs, parents feel alienated during the service coordination meetings. Many reported they were relieved once the meeting was over. The researchers noted, parents felt ill equipped to attend service meetings alone. Parents also stated they found it very difficult to advocate successfully for their children. They further recounted, feeling inept when services for their children were denied. Parent's experience with anxiety, depression and confusion after attending these meetings show the disconnect, they feel when experts are the only ones with appropriate knowledge to advocate (Dettmer, Thurston & Dyck, 2006).

Educating Others. The research of Hess, Molina and Kozleski notes, parents, reported that learning the language utilized during special education service planning meeting was beneficial to them. Parents, the researchers also noted, encouraged and learned from each other (Hess, Molina & Kozleski, 2006). Parents rely on each other's experiences to assist them through the service planning process. Furthermore, Bacon and Causton -Theoharis, (2013) indicates that parents are the primary teachers of their children. Parents they go on to state, teaching other parents about their rights as parents and the rights of their children was invaluable to their self-esteem as parents. Parents taught each other about resources and services available to their children. The researchers detailed this was very important for parents. As they indicated, parents experience cultural differences, feelings of isolation, uncomfortableness and feeling misunderstood during the evaluation process.

Moreover, the research of Anderson, Chitwood, Hayden and Takemoto (2008) posits parents are conflicted, frustrated and perplexed by the decision's schools make regarding the education of their children. The research of Kendall and Taylor (2016) asserts parents enter into service agreements with providers that barely address the needs of their young children. However, parents that the research reported, felt compelled to sign off on the service plans. Their research

goes on to say, parents signed under duress, fearful if they didn't; their children would not receive any services at all. Taylor's research further indicates 40% of the children eligible for services in public schools do not receive them. The services offered, the researcher indicates did not meet the needs of their children. The qualitative study of Scott-Croff (2017) detailed the perspective of parents with a child diagnosed with autism, one parent noted, "my child has a social and communication disorder, how can an hour and a half of speech per week address his needs."

The needs of families caring for children with special needs are multilayered (Scull, & Winkler, 2011). These challenges include but are not limited to; (1) access to services; (2) understanding their children's service plans; (3) managing the needs of their children; (4) stress associated with caring for a child with special needs and (5) educating others about their children's needs. The research of Dettmer, Thurston and Dyck, N. (2002) and Heward (2009) concurs and further noted, parent's needs are as diverse as their children. Families of children with special needs experience unique challenges (Torreno, 2012). As it relates to services; service provisions for children with special needs can be difficult for parents to navigate. Toreno (2012) noted the challenges of parents of children with special needs include: (1) identifying appropriate service providers; (2) developing a service schedule that are aligned with their children's needs; and (3) service plans that ideally support the needs of children and families. The research of Dettmer, Thurston, and Dyck (2002) and Heward (2009) indicates service plans must include the following: (1) flexible parent support programs; (2) participatory planning with parents; (3); transparency in language and interactions with families; (4) diverse service provisions; and (4) consideration for families. Parent support programs as indicated by the researchers fail to support the individualized needs of families; specifically working families.

As it relates to participatory planning with parents, the research indicates the majority of planning takes place without parents (Smith, 2003). The planning process as identified by the researchers requires transparency. Parents are often unable to decode the language utilized in service planning meetings, yet they often fail to speak up due to their embarrassment (Smith, 2003). Diverse service provisions require interpreters, and services that meet the ethnic and cultural backgrounds of the families served (Smith, 2003). Well thought-out planning requires time and allows parents to actively participate (Forest, 2018, Reiman, Beck, Cappola, and Engiles, 2010). Heward (2009) details the significance of supporting parents of children with special needs. Heward (2009) noted that parents of children with special needs are continually working to meet the vast needs of their children. Heward's (2009) research further indicates parents are challenged by the following: (1) the needs of their children, service plan revisions and monetary challenges; (2) management of children's service provisions; (3) stress factors Service Needs. The service provisions for children with intellectual differences are great, yet the services offered to families are often scaled back due to school budget cuts and fiscal challenges (Heward, 2009). Often times, children may not receive the cadre of services they need due to: (1) fiscal challenges of the district; (2) lack of staff to implement services; and (3) too many children to serve (Heward, 2009). In school year 2015–16, the percentage (out of total public-school enrollment) of students ages 3–21 served under IDEA differed by race/ethnicity. The percentage of students served under IDEA was highest for those who were American Indian/Alaska Native (17 percent), followed by those who were Black (16 percent), White (14 percent), of Two or

more races (13 percent), Hispanic and Pacific Islander (both at 12 percent), and Asian (7 percent).

Management of Children's Service Provisions. Special education service providers experience higher turnover, thereby creating challenges with implementation of services and managing the multiple needs of the children served by the district. The research of Cohen, Dickerson, and Forbes, (2014) notes there are more than twenty thousand served in New York City alone. Currently there are too few programs meeting the service requirements of children with autism (National Autistic Society, 2016). Harlem New York houses the only program that specifically served children with autism exclusively (National Autism Center, 2009). There is an alarming rate of increased diagnosis of autism across the country, yet parents continue to struggle to identify appropriate schools and programming to support their children (National Autism Center, 2009). Parents manage many processes to obtain the unique services their children with special needs require. This includes but is not limited to; the legal proceedings, the administrative procedures, the school administrators, teachers, specialist and their children. As supported by the Division of Early Childhood principles parents must work across systems to meet the needs of their children. This creates a culture of collaboration and commitment. Parents are the first and best advocates for their children. It is essential for parents to work alongside teachers, service providers and advocacy groups to ensure their perspectives are part of the planning and implementation of services for their children. (Anderson, Chitwood, Hayden & Takemoto, 2010).

Stress

The research of Myers, Mackintosh and Goin-Kochel (2009) highlights the stress attributed to caring for a child diagnosed with autism. These stress levels have been outlined in studies in the United States and the United Kingdom (Mugno, 2007). The researchers captured the stress associated with caring for a child with autism has impacted parents' mental health, physical appearance and their overall quality of life. The factors associated with a parent's stress: (1) financial challenges such as the cost of caring for a child with a disability; evaluations, medications and specialized program; (2) the struggles related to day to day care of a child with special needs; (3) strained relations with families and social isolation (Myers, Mackintosh and Goin-Kochel, 2009).

Collaboration and Teamwork

The research of the National Association for the Education of Young Children (NAEYC, 2013) developmentally appropriate and evidenced based practices are the hallmarks to quality care for children in early childhood settings. These tenets paved the way to best practices for young children (Coppie & Bredekamp, 2009). To create an atmosphere of collaboration and teamwork, their research details requires authenticity and intentionality. Moreover, the research of NAEYC outlines, respectful and collaborative processes must include parents, teachers and administrators. NAEYC details each group must understand each other and work well together. According to NAEYC (2013) this work must include: (1) support engagement and inclusivity; (2) promoting respectful interactions; (3) diversity, equity and actively listening to understand each other's thoughts, perspectives and need; (4) resilience during challenging times; (5) coping skills; and (5) honest reflection. The research from the Division of Early Childhood concurs and

notes, inclusion matters and leads to best practices that impact the overall health, social and emotional development of children with special needs. Partnering with families and collaborating with service provides yield positive results for children. They

Procedures

The author of this paper reviewed the several studies that detail the needs of children with special needs. These studies also captured the unique needs of families as well as the many challenges families encounter. The author utilized the data of a qualitative study (Scott-Croff, 2017) that detailed the lived experiences of parents of children diagnosed with autism. The researchers study also highlighted the perspective of a group of pediatricians caring for children diagnosed with autism. The literature further reviewed the parents' experiences with school-based support teams, experiences with program models, related service providers and pediatricians. The review of the literature identified a gap in knowledge regarding the impact of a diagnosis of autism spectrum disorder from the perspective of parents and pediatricians. The research surmised pediatricians have limited time and resources to complete further testing of children with special needs. As indicated by the principles of the Division of Early Childhood inclusion benefits all and is an essential process in children with special needs growth and development. Collaboration is essential to meet the needs of children with special needs. The parent perspective is necessary to ensure appropriate planning (Anderson, Chitwood, Hayden & Takemoto, 2010).

Research Questions

Based on the preceding review of the literature. The following research questions were posed:

1. What are the challenges and concerns for families seeking support with special education services?
2. What role does inclusion have in planning for children with intellectual differences?
3. Are parents justly given an opportunity to participate and a substantive role in service planning meetings?

Methods

The author reviewed the literature associated with the needs of children with special needs. The author noted the challenges of families with children diagnosed with autism. This aided in identifying what impact knowledge has upon parents' ability to participate in in service planning for their children. According to the research of Scull and Winkler (2011) and Forest (2018) state that parents indicated their limited or lack of knowledge upon their children's initial diagnosis and very little knowledge related to effective treatment. Their study also highlighted parents' limited knowledge impacted their ability to effectively plan and participate in service planning meeting.

Results

The studies of Almansour, Alzahrani, Algeffari, and Alhomaidan (2013); Gallagher, Malone, and Ladner, 2009); Odom, and Soukakou, 2011); Reiman, Beck, Coppola, and Engiles, 2010); and

Schwartz, Sandall, Odom, Horn, and Beckman, 2002) each captures the challenges, the anger, ambivalence, shame and apprehension parents experienced during their journey for access, equity, collaboration to obtain the most inclusive settings for their children with special needs. The researchers also noted parents' relationships with school-based support teams, private and public-school systems were challenging. These systems, the families stated, while designed to support families, often served as a hindrance. The researchers highlight the frustration, anger, bitterness, lack of transparency and limited communication with service providers and school officials. Moreover, each study captures the trials, tribulations, challenges, barriers and needs of families and children with special needs. As indicated in Table 1, of the study conducted by Scott-Croff (2017), the researcher's study noted the lived experiences of parents and pediatricians. The study highlights as indicated by the data, parents had little to no experience at the onset of their children's diagnosis of autism. In addition, pediatricians who are at the onset of diagnosis lacked training, knowledge and time to direct parents beyond the initial diagnosis. The tables (1.1, 1.2, 1.3, 1.4, 1.5 & 1.6) outlines the results. The research of the Division of Early Childhood indicates the importance of the collaboration. This study details the lack thereof for families and children.

Discussion

The considerable needs of children with special needs and their families indicates it is essential to exercise patience with families, recognize the strengths of parents and begin to partner with families. Partnering with parents during service coordination, the diagnostic and evaluation process is important. Parents of children with special needs often report of contentious meetings, animosity toward service providers and lack luster support. Parents requires allies not enemies. Parents are met with divisive interactions during planning meetings with little resources. It is important for families to experience respectful and supportive communication. Parents require support on all levels. Communication, collaboration, education and actively listening are the primary approaches required to effective planning for children with special needs. An additional aspect to supporting parents is actively listening and eliciting the voice of parents. Retrench antiquated that limit funding and services for families. Polices lastly, a respectful and inclusive tone is one of the most important elements to planning for the needs of children (Heward, 2009). The long-term goal of the Division of Early Childhood is to continue to engage stakeholders to enhance the quality of programs to meet the needs of child and families with special needs. The goal is also to raise awareness and advocacy efforts to support children. Working in collaboration across systems as identified in the mission of the Division of Early Childhood will help accomplish this.

Conclusion

The principles of the Division for Early Childhood (DEC) of the Council for Exceptional Children (CEC, 2016) reports inclusion, collaboration and teamwork are required for a successful approach to supporting children and families. Parents, after continued challenges with the special education system, have become advocates for their children. Parents enter meetings with limited knowledge of special education law. They attend meetings with a lot of apprehension. There is considerable skepticism by parents to believe that a meeting with five to

seven school-based support team members using related to terminology and one ill equipped parent will yield positive outcomes for parents or more importantly allow them to successfully challenge a school-based support team with years of experience (Schwartz, Sandall, Odom, & Beckman, 2002).

Parents reported a limited understanding of the special education and evaluation process. Parents must become an active voice for their children. Parents are often thrust into an environment with different expectations, diverse settings and complex terminology. Parents want settings for their children that are inclusive, culturally responsive and intellectually diverse. As the author details the need for understanding and support for parents, she also suggests that parents attend any and all training made available to them as a parent. If parents are able to financially, investing in their own professional development to enrich the lives of their children it is suggested (Hess, Molina & Kozleski, 2006).

Many agencies will prorate training for parents if they request it. This yields positive results for parents. Parents not only begin to understand the terminology utilized by the experts, the many caveats to services but parents attending training helps parents become formidable advocates for their children at service planning meetings (Smith, 2003).

Reiman, Beck, Coppola, and Engiles (2010) study examined the literature related to the progression of inclusion and concludes “parents-school communication, relationships and collaborative planning form the foundation upon which student-centered educational plans are built”. It is important for school officials to understand; parents are the primary teachers of their children. They are cognizant of their children’s needs. This knowledge must be given its proper respect. Parents must be met with an inclusive tone. Parents must not only have a seat at the planning table, but they must be supported, acknowledged and encouraged to participate. Perfunctory participation must stop. Too often parents are invited to meeting but the decisions have already been made. Enough is enough. When an inclusive tone is employed, this yields respectful, remarkable experiences for parents. It gives parents hope. Hope for a better future for their children and the strength to fight another day (Bacon, & Causton-Theoharis, 2013). Family centered practices, an evidence-based approach and continued collaboration will assist in developing positive outcomes for families (Blackman, 1967).

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About the Author

Cecilia Scott-Croff has more than twenty-five years of experience in the fields of early childcare, special education, and advocacy. She is a leader in these fields having secured major city, state, and federal funding of over 5 million dollars for the programs she has served, obtained its national accreditation, managed multiple funding streams, and worked closely with at risk families. Cecilia has worked as a teacher, coordinator, special education itinerate supervisor, parent advocate, director, adjunct professor, higher education administrator, and staff developer throughout her career. She is a level 3 credentialed trainer with the New York State Association of the Education of Young Children, a New York State certified special educator, early childhood educator and administrator, and holds the New York State Certified Professional Administrator Credential (CPAC) and three teaching licenses with the New York City Department of Education.

Cecilia serves as the Executive Director of the Early Childhood Center at Borough of Manhattan Community College. She is the Chair of the Child Care Council at City University of New York (CUNY). She is currently a board member of "It Takes a Village", the National Coalition of Campus Children's Center, a member of the Professional Development Institutes (DI) at CUNY's Leadership Initiative, a member of the New York State Association for the Education of Young Children, Region 3 and Chair of the Adhoc Committee for the Child Care Access Means Parents in School Committee assembled by the National Association for Campus Children's Centers. Cecilia has two graduate degrees, one in Early Childhood Education and the other in Administration and Supervision. She has also completed the Leadership Development Institute with the National Black Americans Council. Cecilia has a doctorate in Executive Leadership at St. John Fisher College and is working toward the Board-Certified Behavior Analyst (BCBA) certification at Hunter College.

Table 1.1 Definition of Terms utilized in the field of Special Education (Scott-Croff, 2017)

Terms	Definitions
Inclusion	Is identified as a program model that is inclusive of children with exceptional as well as children who are typically developing. An inclusive setting is an environment that is designed to meet the developmental needs of children with intellectual differences and typically developing children. Typically developing children are children who meet their developmental milestones on target. Programming implemented to meet the needs of children with special needs into a mainstream setting and the least restrictive environment (LRE) Heward (2009).
Individualized Family Service Plan	Is formulated to detail the services awarded to a child with special needs. The plan itself is for children between zero and threes of age (Heward, 2009).
Individual Education Plan (IEP)	Plan a plan developed for children attending a public-school setting awarded services by the committee on special education (Autism Speaks; Heward, 2009).
Least Restrictive Environment	This describes an environment that affords children the opportunity to excel in school under the least amount of restrictions (Heward, 2009).
Service Providers	These providers are identified providers such as speech and language pathologist, occupational (Heward, 2009).
Related services	Refers to services provided to meet the needs of children with exceptionalities. These services include: (1) special education; (2) speech and language services; (3) occupational therapy; and physical therapy (Heward, 2009).
Inclusive Environment	The surrounding or conditions in which children with identified disabilities and typically developing children are educated altogether (IDEA, 2004)

Individuals with Disabilities Act (IDEA)	A special education law that protects the rights of children with disabilities (U.S. Department of Education, 2010).
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Table 1.2 Summation of the Review of the Literature (Scott-Croff, 2017)

Study	Summation
Almansour et al. (2013)	Highlights the stress and the challenges parents encounter face while caring for a child with special needs.
Bacon et al. (2013)	Underscores the barriers for families seeking inclusive environments for their children with special needs.
Scott-Croff (2017)	A dissertation study details the perspectives of parents and pediatricians on knowledge of parents and practitioners at the onset of a child's diagnosis of autism
Gallagher et al. (2009)	Their research emphasizes the viewpoints and perspectives surrounding children with disabilities
Kendall and Taylor (2016)	Research notes the importance of transition planning for children under two. Consistent, timely communication and planning the researchers note are the hallmark to smooth transition to special education.
Odom et al. (2011)	The researchers study describes inclusive services as well as the progression of inclusion within the last twenty-five years
Schwartz et al. (2002)	research provides an alternative to services when school-based settings fails to meet the needs of the child
Reiman et al. (2010)	offers suggestions for improvement in services

Table 1.3 details the demographic information relating to the parent participants (Scott-Croff, 2017)

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Age	26	38	32	27	41
Number of Children	1	5	3	1	2
Birth order of the child diagnosed with autism	First	First Fourth	Third	First	Second
Age child was diagnosed with autism	15 months	2 years 3 years	2 years	2 years	2
School environment of child with autism	Public	Public	Public	Public	Public
Type of treatment option chosen for child with autism	Early intervention, applied behavioral analysis services, speech, and occupational therapy	Early intervention, applied behavioral analysis	Early intervention, applied behavior analysis	Speech, occupational therapy, special instruction, applied behavior analysis	Speech, occupational therapy, special instruction, applied behavior analysis
Borough of Residence	Queens	Westchester	Bronx	Bronx	Yonkers
Level of education of parent	Associate degree, working on undergrad. degree	Master's degree	Associate degree	Associate degree, attending an undergrad. Program	High School

Ethnicity	Latina	Black	Ivory Coast (Cameroon)	Asian	White
Marital status	Not married	Married	Married	Married	Married
Occupation	Homemaker	Speech Pathologist	Homemaker	Homemaker	Business Owner

Table 1.4 details the demographic information relating to the pediatrician participants (Scott-Croff, 2017)

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Age	56	56	67	54	70
Gender	Male	Female	Male	Female	Male
Ethnicity	White	White	White	White	White
Number years in practice	25	20	35	24	30
Location	Hartsdale	3-Croton Harmon	Croton Harmon	White Plains	Hartsdale
Size	200	300	350	3,000	5,000
Ethnicity of parents served	80% White 15% Black 5% Hispanic	White Hispanic African American	White	80% White 15% Black 5% Hispanic	80% White 15% Black 5% Hispanic
Number of courses taken or training completed relating to children with autism	2-year fellowship	3-4 courses		Ongoing	2 years
Number of children in practice identified with autism	10	20	350	450	40-50

Practice setting: Hospital/Private/Urban/ Suburban	Private	Private	Suburban	Private	Private/ Suburban
Office Hours	9-6, 9-2	9-6	9-5	9-5, 9-12	9-5

Table 1.5 Pediatrician Participant Interview Questions Table (Scott-Croff, 2017)

Question	Pediatrician 1	Pediatrician 2	Pediatrician 3	Pediatrician 4	Pediatrician 5
Please tell me a little about yourself and your experience working with families of children with disabilities.	Pediatrician, private practice Fellowship, Kennedy Center 2-year residency Worked for Early Intervention in the Bronx	Pediatrician in private practice Took a few courses many years ago	Developmental pediatrician who has worked continuously with children with disabilities; started out in the 70s; in the beginning years, the practice included about 20% children with special needs; 15 years ago, 80%; 5 years ago, practice moved to 100% developmental	Pediatrician, private practice; was a nurse prior to becoming a physician She has taken several courses and her training is ongoing	Completed a Fellowship at Kennedy Center many years ago
Please describe your first experience caring for a child with autism.	1988, 1991	Many years ago, child is in 10th grade now; 20 years practicing accumulated a lot of children; the child	Fifty years ago, worked with special needs kids; the autistic children, at that time, had a classical description, with minimal	First experience was in residency; the children seen were very ill. The majority stimmed and had self-harming	In residency, as a youngster, a young man with atypical behavior and features of autism

		described earlier went through Early Intervention, and he ended up seeing a developmental pediatrician and neurologist	delays, multiple atypical behavior, and repetitive behaviors, and were treated with psychopathologic agents available at the time	behavior. Described it as overwhelming	was fascinated with the subway. Probably today would be classified as having Asperger's. Then he carried a diagnosis of mild mental retardation
What resources are available for your families?	Special school with an emphasis on the needs of children with autism	Early Intervention, a state supported agency for families of children with developmental delays	Autism speaks, an advocacy, research and referral agency for scientist, parents and children. .”	Board of Cooperative Educational Services (BOCES): an organization that support children’s academic learning and progress Westchester Jewish Community Center A nonprofit that services the Westchester Community and the special needs community	An agency that is instrumental in ensuring the educational needs of children are met
Are you familiar with any programs to support parents	“No, but I would try to send them to family therapy; but it’s difficult to	“I am not aware of any official programs. I know there are some on	“Autism Speaks”	“Westchester Jewish Community Service”	“Not specifically; either a center or a place in Westchester

caring for a child with autism?	know which ones accept insurance or private pay or what costs are involved. I tend to say the Westchester Jewish Community Center Service.”	the Internet. Some groups, parents’ kind of talk to each other, try to support each other.”			called Westchester Child Development Center”
What is your process for diagnosing a child with autism?	Hesitant to diagnose before the age of 3. Ask parents questions during the screening process related to symptoms of autism as well as language. Completes a screening tool used for to identify children with autism. Lastly, pediatricians refers any children with speech and language concerns to early intervention.	Refers to early intervention and then to a developmental pediatrician if additional follow up is required. Pediatrician has a system for screening of young children beginning at 6 months, and 6-month intervals thereafter.	Starts with a developmental history, completes a physical and mental health examination. Clinician stated he does not use any developmental tools or check list during his process. As per his responses, the children he works with have already been evaluated and diagnosed.	Explained diagnosis is a straightforward process, however pediatrician 4 stated they work with developmental specialist with advanced training in autism and neurologists to confirm their diagnosis. They also use the M-CHAT revisions 1 and 2 and proceed to further testing.	Pediatrician process is not formal and was based upon his knowledge of working with children over the years.
Can you tell me about any development	Modified Checklist for Autism in Toddlers (M-	Modified Checklist for Autism in	None, children were prescreened by	Modified Checklist for Autism in	Informal methods based on education,

al screening instruments used with families to detect autism?	CHAT) Communication and Symbolic Behavior Scale Development Profile (CSBC-DP) Pediatric Symptom Checklist (PSC) assesses for social problems	Toddlers (M-CHAT)	others before referred to him	Toddlers(M-CHAT)	knowledge and experience
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Table 1.6 Parent Participant Interview Questions (Scott-Croff, 2017)

Question	Parent 1	Parent 2	Parent 3	Parent 4	Parent 5
Please tell me a little about yourself and your family.	Resides in Queens	Resides in the Bronx	Resides in the Bronx	Resides in Westchester	Resides in Westchester
Can you describe for me how you found out your child had autism?	Early intervention diagnosis	Early intervention diagnosis	Early intervention diagnosis	Early intervention diagnosis	Early intervention diagnosis
What was one of the first things you did upon finding out about your child's diagnosis?	Cried	Very upset	Blamed myself	Got a second opinion	Cried for days
Who did you seek support from?	Pediatrician Early intervention	Pediatrician Early intervention therapist School	School social worker Therapist	I did not have much support Early intervention Researched	Researched on Internet
Have you participated in any parent support programs?	Special Education Parent Teachers' Association (SEPTA)	No	No	No, I tried to create a group for parents	Local advocacy agencies, but no parent group joined
Can you describe the treatment intervention programs your child has participated in?	ABA	ABA	ABA	ABA Therapies	ABA

***Use of Visual Performance Feedback to Increase Teacher Use of Behavior-Specific Praise
among High School Students with Severe Disabilities***

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Abstract

Behavior-specific praise has been deemed an effective, evidence-based positive behavioral intervention and support practice for use among high school students with severe intellectual disabilities. However, teachers are not adequately trained to use such practices with fidelity. One way to address this shortcoming is by implementing a performance feedback approach characterized with observations and consultations that provide visual performance feedback. Using a changing criterion research design, the present study evaluated the effect of a performance feedback approach to increase a high school teacher's use of behavior-specific praise among students with severe disabilities. Results showed significant increases with the teacher-participant's use of behavior-specific praise and mixed trends with the student-participants' exhibition of challenging and replacement behaviors. A discussion of reported results was provided, along with implications for stakeholders in teacher preparation programs and high school contexts. Limitations and areas for future research were also addressed.

Keywords: behavior-specific praise, severe intellectual disabilities, high school students, challenging behaviors, replacement behaviors

Introduction

Students with severe intellectual disabilities have chronic and severe deficits in both adaptive behavior and cognitive functioning that manifest during early childhood and are likely to continue for life (Handleman, 1986). These deficits often lead to a range of challenging behaviors that significantly impede a student's ability to exhibit appropriate social functioning in school-based settings (Lane & Wehby, 2002; Medeiros, 2015). Challenging behaviors include noncompliance, stereotypy (e.g., intense fixations on objects or parts of objects, impulsivity, repetitive behavior patterns), and self-injury. Without appropriate interventions, challenging behaviors can interfere with how students with severe intellectual disabilities interact with others (Carter, Sisco, Chung, & Stanton-Chapman, 2010; Matsushima & Kato, 2015; Nijs & Maes, 2014) and have an impact on the academic learning environment (Räty, Kontu, & Pirttimaa, 2016). Thus, teachers who work among students with severe intellectual disabilities must use teaching strategies that emphasize curricular content and self-help skills, while also reducing any

challenging behaviors that impede the acquisition of critical academic and functional skills (Handleman, 1986).

Beginning in the 1960s, researchers have utilized applied behavior analysis as a systematic way to study individual functions of human behavior in an attempt to “reduce the frequency and severity of challenging behaviors and facilitate the acquisition of adaptive skills” (Dixon, Vogel, & Tarbox, 2012, p. 7). Initial theories posited that challenging behaviors could be managed by automatic reinforcement (Vaughan & Michael, 1982; Vollmer, 1994), positive reinforcement (Carr, 1977), and negative reinforcement (Carr, Newsom, & Binkoff, 1976; Iwata, 1987). Almost 20 years later, these theories became the foundation for functional analysis (Dixon et al., 2012), which provided a methodology to assess multiple behaviors and functions during a single experimental investigation in order to develop effective interventions for individuals who exhibit challenging behaviors (Hanley, Iwata, & McCord, 2003; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Iwata et al., 2000). To date, federal legislation has mandated that schools use functional analysis in the form of functional behavioral assessments (FBA) when a student’s behavior impedes the learning process (Drasgow, Yell, Bradley, & Shriner, 1999; Zirkel, 2017). One of the goals of FBA is to determine the purpose of a student’s challenging behavior, identify environmental factors surrounding challenging behaviors and implement positive behavioral interventions and supports (PBIS) to promote alternate, replacement behaviors (Farmer, Lane, Lee, Hamm, & Lambert, 2012).

Behavior-specific praise has been deemed an effective, evidence-based PBIS practice for use among high school students (Duchaine, Jolivette, & Fredrick, 2011; Kennedy, Hirsch, Rodgers, Bruce, & Lloyd, 2017). Teachers should deliver behavior-specific praise to immediately reinforce a student’s desired behavior with a descriptive verbal statement. Unfortunately, teachers are not adequately prepared or trained to use PBIS practices with fidelity (Kennedy et al., 2017), particularly among high school students with severe intellectual disabilities (Bruhn et al., 2016). Stormont and Reinke (2014) recommended using a data-based performance feedback approach to address this need. Through this approach, a trained behaviorist serves as an instructional coach to the classroom teacher and conducts systematic, direct observations of the teacher in the classroom setting where the challenging behaviors occur. The instructional coach collects observational data and facilitates subsequent consultations with the teacher to share visual performance feedback by reviewing a graph that depicts the classroom teacher’s use of PBIS practices.

Available studies that examined the use of visual performance feedback to enhance teacher performance with PBIS practices primarily focused upon young children and adolescents in the elementary and middle school grade levels (Allday et al., 2012; Fabiano, Reddy, & Dudek, 2018; Gage, Grasley-Boy, & MacSuga-Gage, 2018; Gage, MacSuga-Gage, & Crews, 2017; Mesa, Lewis-Palmer, & Reinke, 2005; Reinke, Lewis-Palmer, & Merrell, 2008; Sweigart, Landrum, & Pennington, 2015). There were a limited number of studies that specifically focused on teacher performance with PBIS practices among older adolescents in the high school grade levels (Bruhn et al., 2016; Hawkins & Heflin, 2011; Kalis, Vannest, & Parker, 2007). The purpose of the present study was to address this research gap and evaluate the effect of visual performance feedback on the frequency of (a) behavior-specific praise statements given by a high school

special education teacher and (b) challenging and replacement behaviors exhibited by high school students with severe intellectual disabilities.

Methods

Participants

Information provided about participants relates to the time that the present study was conducted. There was one teacher-participant, Ms. George (all names are pseudonyms). Ms. George was a high school special education math and science life skills teacher with more than 10 years of teaching experiences in special education settings. There were also three student-participants who were high school students that met IDEA eligibility criteria for a severe intellectual disability. Kara was a Caucasian female classified as a sophomore-level student, Chris was a Caucasian male classified as a junior-level student, and Cody was a Caucasian male classified as a senior-level student. The identified adaptive behavior deficits for Kara, Chris, and Cody were of such significance that their access to the general education instructional environment and daily functioning were severely limited. Therefore, Kara, Chris, and Cody received instruction for more than 80% of the school day in a self-contained life skills classroom, as well as frequent monitoring and supervision during meal times, transition periods, and toileting.

Role of Researchers

Two individuals collected data for the present study. Both of these individuals had previously received specialized training in behavior management techniques. The first individual was the primary researcher for the present study (i.e., the first author) and was a direct observer who completed study session observations, recorded data measurements, facilitated consultations with the teacher-participant, and performed all data analyses. The second individual was a Licensed Specialist in School Psychology (LSSP) employed by the school district and assigned to the high school campus where the present study was conducted. The second individual served as an inter-observer who completed observations and recorded data measurements with the primary researcher during the intervention phase. Other members of the research team (i.e., the second, third, and fourth authors) contributed expertise once data analyses were completed.

Setting

The present study was conducted in a public high school located in a rural area of the South Central United States that served students in grades 9-12. The high school had a student enrollment of approximately 1,500 students who resided in several surrounding rural communities. The high school used a self-contained model for the life skills classroom, which was led by a state-certified special education teacher. One teaching assistant was also assigned to the life skills classroom and provided the teacher and students with additional support during the school day.

At any given time throughout the school day, there were typically six to eight students in the life skills classroom. The life skills classroom used a paired classroom seating arrangement with two individual student desks facing one another. A large electronic display was affixed to a wall at the front of the classroom. For the majority of observed instructional delivery, Ms. George used the electronic display, along with an iPad. Additionally, Ms. George was unaware of who the

student-participants were and knew them as Student 1 (i.e., Kara), Student 2 (i.e., Chris), and Student 3 (i.e., Cody).

Research Design

The present study employed a changing criterion research design. This research design is a variant of the multiple-baseline research design and characterized by two major phases (Hartmann & Hall, 1976). The first phase, the baseline phase, includes initial observations for a single target behavior. The second phase, the intervention phase, implements a treatment for the target behavior in a series of sub-phases. During the first intervention sub-phase, an interim criterion for desired level of performance is established (Johnson & Christensen, 2014). Once the interim criterion is achieved, it is gradually increased to establish a functional relationship between behaviors and the treatment continues. Successive intervention sub-phases continue incremental criterion progression and intervention delivery throughout the duration of the study.

The goal of the present study was to increase Ms. George's use of behavior-specific praise (i.e., the independent variable) with challenging and replacement behaviors (i.e., the dependent variables) exhibited among Kara, Chris, and Cody. To achieve this goal, the treatment delivery included weekly visual performance feedback consultations between the teacher-participant and primary researcher after each intervention sub-phase. Following baseline phase observations, interim criterion calculations for intervention sub-phases were made using frequency counts of the independent variable. It was determined that the mean rate of behavior-specific praise for each intervention sub-phase must be greater than or equal to the mean of the baseline phase plus the mean of the preceding intervention sub-phase.

Materials

An event recording data collection sheet was used to record the frequency of independent and dependent variables during intervention sub-phases for Kara, Chris, and Cody (Alberto & Troutman, 2009). The event recording data collection sheet was a table consisting of four blank rows and five columns with the following labels: Date of Observation, Time Start, Time Stop, Notation of Occurrence, and Total Frequency of Occurrence. From this data, graphic displays were created to visually depict trends in Ms. George's levels of delivery of behavior-specific praise during baseline and intervention sub-phase observations for Kara, Chris, and Cody (Johnson & Christensen, 2014).

Procedure

The present study was conducted during a six-week time frame that implemented procedures for five different conditions that occurred during the baseline and intervention phases. These conditions were: (1) baseline phase observations, (2) teacher consultations, (3) intervention sub-phase observations, (4) inter-observer agreement checks, and (5) social validity questionnaires. Following is a detailed description of the specific procedures and conditions for each phase.

Baseline phase. Baseline phase observations were conducted during the first week to determine the frequency of behavior-specific praise offered by Ms. George, as well as the frequency of challenging and replacement behaviors exhibited by Kara, Chris, and Cody. For each student-participant, the primary researcher completed three separate 20-minute observation sessions and used event recording data sheets to notate the frequency of occurrence of independent and

dependent variables. An audio recording of each baseline observation session was made, and the primary researcher kept anecdotal notes in a journal. During baseline phase observation sessions, no changes were made to the environment and no treatment was applied.

Intervention phase. On the Monday of the second week, the primary researcher conducted a 20-minute initial teacher consultation with Ms. George to provide visual performance feedback. Visual performance feedback consisted of the following instructional coaching strategies. The primary researcher noted and reinforced specific examples of Ms. George’s behavior specific praise delivery using graphic displays. The primary researcher also identified and discussed occurrences when Ms. George used non-specific praise, reprimands, or other non-PBIS responses toward student behaviors. During these occurrences, the primary researcher encouraged Ms. George to provide examples of PBIS strategies that could have been used with students instead of the aforelisted behavioral approaches. In addition, the primary researcher delivered a brief training on behavior-specific praise to Ms. George. This training included an overview of evidence-based practices, examples of behavior-specific statements (see Table 1), and opportunities for Ms. George to practice using behavior-specific praise. At the conclusion of the initial teacher consultation, the primary researcher communicated the mean rate of behavior-specific praise from baseline observation sessions for Kara, Chris, and Cody to Ms. George.

Table 1
Examples of Behavior-specific Praise Statements

Observed Behavior	Behavior-specific Praise Statements
Kara verbally responds to a question posed during class.	“Way to go, Kara! Thank you for giving an answer to that question.”
Cody gets his blue binder out to begin an assignment.	“Good job! Thank you for getting your binder out, Cody!”
Chris remains in his seat and raises his hand to get the teacher’s attention.	“I like that you raised your hand to get my attention, Chris.”
Chris sits quietly while the teacher gives instructions.	“Chris, I noticed you listened while I was giving instructions for that assignment. Well done!”
Cody refrains from hand movements or gestures that create inappropriate noise.	“Wow, thank you for keeping your hands quiet, Cody! You made it easy for your classmates and me to hear!”
Kara states, “Ms. George” to request help from the teacher.	“Thank you, Kara, for using my name to get my attention. That was helpful!”

Following the initial teacher consultation, the primary researcher and inter-observer conducted joint intervention sub-phase observations of Kara for three weeks and Chris and Cody for five weeks. Each week, the primary researcher and inter-observer conducted three 20-minute observation sessions of each student-participant simultaneously, yet independently of one another. The primary researcher and inter-observer used event recording data sheets to record data, kept anecdotal notes in a journal, and made audio recordings of each observation session. After each observation session, inter-observer agreement checks were made by calculating a Cohen’s Kappa statistic (Bryington, Palmer, & Watkins, 2002). For each variable, the number of agreements was divided by the number of agreements plus disagreements. Resulting Kappa

values were interpreted as poor (below 0.40), fair (between 0.40 and 0.59), good (between 0.60 and 0.74), and excellent (between 0.75 and 1.00). As shown in Table 2, the majority of Kappa values reflected good inter-observer agreement with independent and dependent variables ($K = 0.67$), although there were two instances that showed poor inter-observer agreement ($K = 0.33$).

Table 2

Kappa Values for Inter-Observer Agreement Checks

	Behavior-specific Praise	Challenging Behaviors	Replacement Behaviors
Kara	.67	.33	.67
Chris	.67	.67	.67
Cody	.67	.67	.33

Every Monday, the primary researcher held a 20-minute teacher consultation with Ms. George regarding the previous week of intervention sub-phase observations. During teacher consultations, the primary researcher provided visual performance feedback and facilitated dialogue concerning Ms. George's use of behavior-specific praise with Kara, Chris, and Cody. The primary researcher concluded each teacher consultation by sharing information related to expected levels of behavior-specific praise for the forthcoming week. Once intervention sub-phase observations concluded, Ms. George completed separate social validity questionnaires for Kara, Cody, and Chris. The social validity questionnaire consisted of 13 Likert-type statements for which Ms. George used a five-point scale (i.e., 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree) to rate her personal viewpoints toward behavior-specific praise (see Figure 1).

Although Ms. George completed a social validity questionnaire for Kara, Chris, and Cody separately, her ratings for each statement were identical. Ms. George gave the highest rating (i.e., Strongly Agree) to every questionnaire statement except Statement 4 and Statement 8 (see Figure 1). For these two questionnaire statements, Ms. George gave the second-highest rating (i.e., Agree).

1. I understand the term "behavior-specific praise."
2. I can identify behavior-specific praise statements.
3. I can develop behavior-specific praise statements.
4. Behavior-specific praise statements are easy to deliver during my typical classroom instruction.
5. Behavior-specific praise is an effective behavior intervention strategy for this student.
6. The use of behavior-specific praise has improved my delivery of educational services to this student.
7. The use of behavior-specific praise has increased this student's access to instructional opportunities.
8. The use of behavior-specific praise is time-sensitive.
9. The use of behavior-specific praise is cost free.
10. I will continue to use behavior-specific praise as a behavior intervention strategy for this student.
11. Behavior-specific praise is an age-appropriate behavior strategy for this student.
12. I feel comfortable using behavior-specific praise in a classroom setting.
13. I believe behavior-specific praise addressed the attention-seeking behavior needs presented by this student.

Figure 1. Likert-type statements included on social validity questionnaire.

Results

Analyses of baseline phase observations revealed a variety of challenging behaviors exhibited by Kara, Chris, and Cody. Kara frequently uttered inappropriate words or sounds and used gestures

to gain the attention of the teacher or a peer. Inappropriate utterances included giggling, making kissing noises, excessive audible yawning, and yelling off-topic words. Kara would also touch Ms. George's arm, wave a piece of paper in the air, or stand up while Ms. George was talking. Chris often yelled inappropriately, repeated or mimicked Ms. George's words, or shouted off-topic words or phrases. Chris would also create loud sounds using random objects and by slamming his hands on surfaces, such as desktops and the floor. Cody regularly uttered inappropriate words or sounds, snorted, yelled off-topic responses out of turn, or used random objects to create drumming sounds. Cody would also continually enter Ms. George's personal space, lay his head on her shoulders or arms, or wave objects in her face.

Analyses of baseline observations for Ms. George revealed that she typically responded to challenging behaviors by avoiding eye contact with the student, ignoring the behavior, issuing a verbal correction or reprimand, stating the student's name, or taking away sound-making objects. There were two occurrences where Ms. George provided verbal praise for replacement behaviors. However, the praise she provided was generic and not specific to the desired behavior (i.e., "good job," "thank you").

Independent Variable Data

The number of behavior-specific praise statements given by Ms. George to Kara, Chris, and Cody are shown in Figures 2, 3, and 4, respectively. With Kara, the mean rate of behavior-specific praise during the baseline phase was 0.3 and had increased to 1.6 after the first intervention sub-phase (see Figure 2). This increasing trend continued through the second (2.0) and third (3.0) intervention sub-phases and exceeded the established interim criterion for both sub-phases (1.9 and 2.3, respectively).

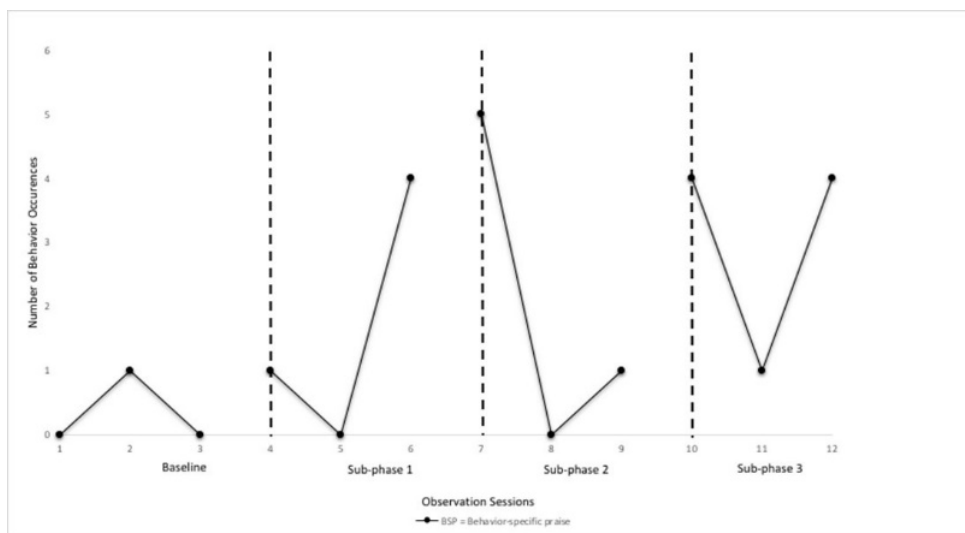
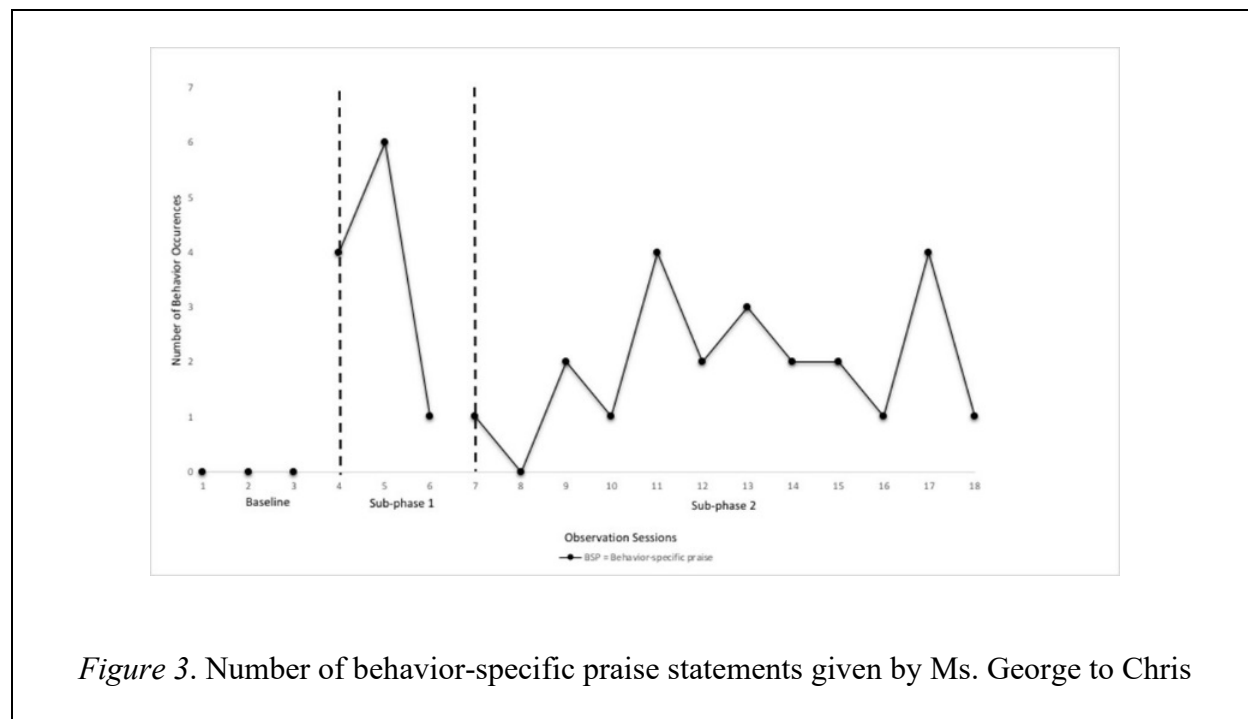


Figure 2. Number of behavior-specific praise statements given by Ms. George to Kara

With Chris, the mean rate of behavior-specific praise during the baseline phase was zero and increased to 3.6 after the first intervention sub-phase (see Figure 3). During the second intervention sub-phase, the mean rate of behavior-specific praise decreased to 1.9 and failed to meet the established interim criterion of 3.6. The mean of behavior-specific praise continued to be calculated for subsequent sub-phase observations during the next three weeks and reflected the same trend.



With Cody, the mean rate of behavior-specific praise during the baseline phase was 0.3 and increased to 2.6 after the first intervention sub-phase (see Figure 4). During the second intervention sub-phase, the mean rate of behavior-specific praise decreased to 2.5 and failed to meet the established interim criterion of 2.9. Similar to Chris, the mean rate of behavior-specific praise given to Cody continued to be calculated for subsequent sub-phase observations during the next three weeks and reflected the same trend.

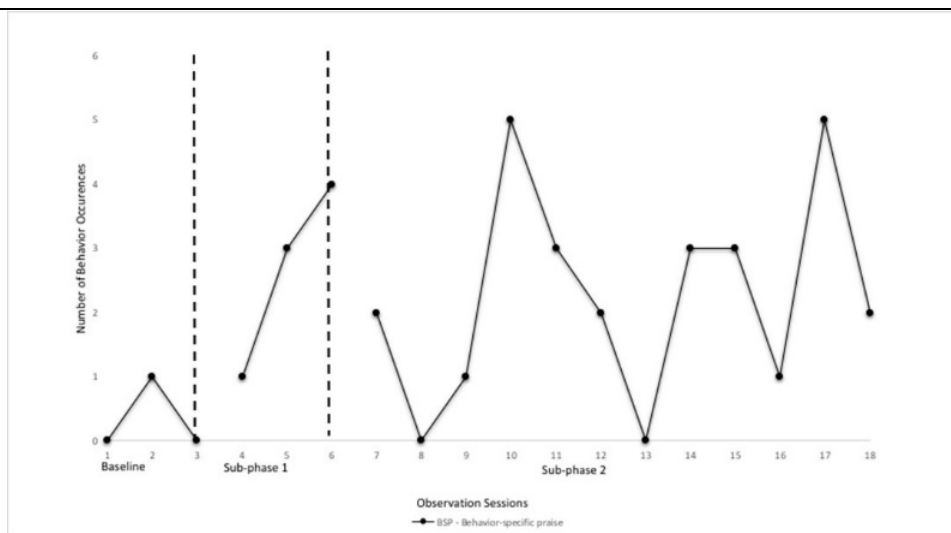


Figure 4. Number of behavior-specific praise statements given by Ms. George to Cody

Dependent Variable Data

The number of challenging and replacement behaviors exhibited by Kara, Chris, and Cody are shown in Figures 5, 6, and 7, respectively. With Kara, the mean rates for challenging behaviors was 2.0 and zero for replacement behaviors during the baseline phase (see Figure 5). During the first intervention sub-phase, there were increases in the mean rates of Kara's challenging (4.7) and replacement (3.0) behaviors. However, this trend was reversed during the second intervention sub-phase (challenging behaviors = 2.6, replacement behaviors = 1.3). During the third intervention sub-phase, the mean rate of Kara's challenging behaviors remained the same, yet increased dramatically for her replacement behaviors (5.3).

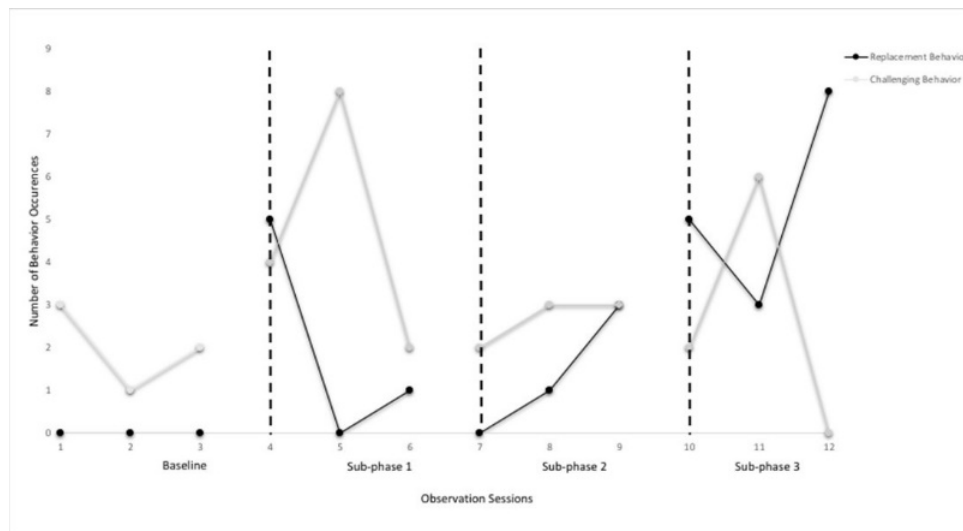


Figure 5. Number of challenging and replacement behaviors exhibited by Kara

With Chris, the mean rates for challenging behaviors was 4.6 and zero for replacement behaviors during the baseline phase (see Figure 6). The mean rates for Chris's challenging behaviors decreased to 3.3 during the first intervention sub-phase and then increased back to 4.6 during the second intervention sub-phase. Data also revealed that Chris's replacement behaviors increased to 2.3 during the first intervention sub-phase with no change during the second intervention sub-phase.

With Cody, the mean rates for challenging behaviors was 4.6 and 0.3 for replacement behaviors during the baseline phase (see Figure 7). The mean rates for Cody's challenging behaviors decreased to 3.6 during the first intervention sub-phase and then increased back to 4.2 during the second intervention sub-phase. Data also revealed that Cody's replacement behaviors increased to 1.6 during the first intervention sub-phase and then decreased slightly to 1.3 during the second intervention sub-phase.

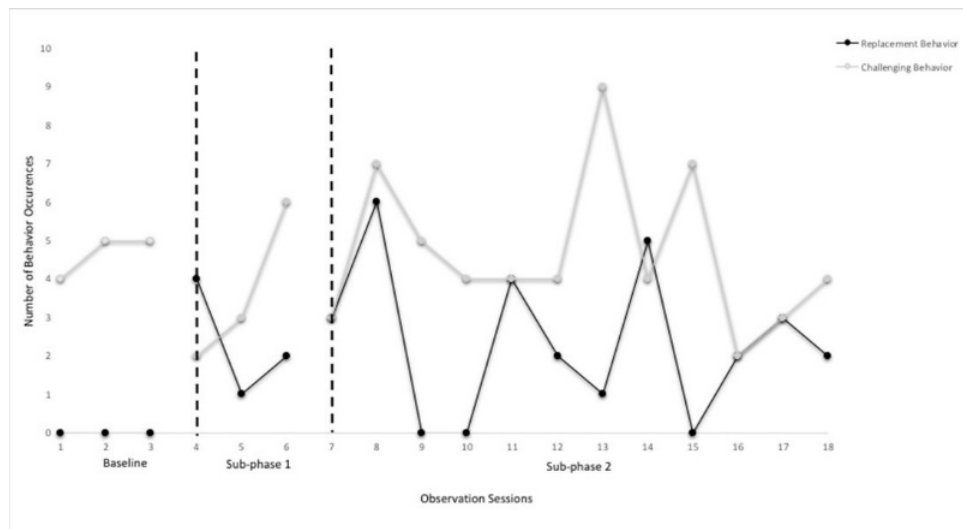


Figure 6. Number of challenging and replacement behaviors exhibited by Chris

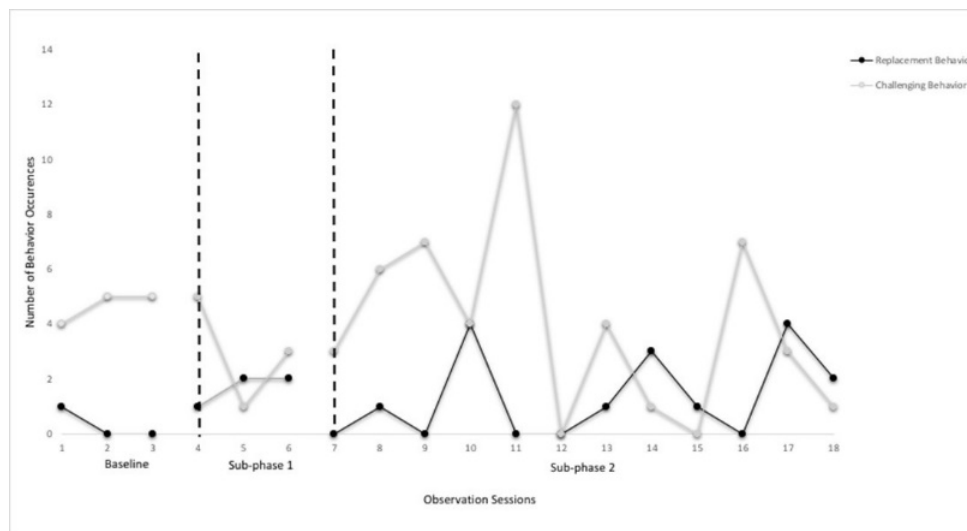


Figure 7. Number of challenging and replacement behaviors exhibited by Cody

Limitations and Areas for Future Research

There were three major limitations in the present study that impact generalizability of reported results. First, extraneous variables occurred during observation sessions that were beyond the control of the primary researcher. All observation sessions were conducted in a high school life skills classroom where other students and school personnel were present. As a result, there may have been distractions that impacted the teacher's use of behavior-specific praise or factors that provoked challenging behaviors among students. Future studies should attempt to create a more controlled classroom setting to reduce distractions and instigating factors as much as possible.

Second, the teacher-participant had several years of professional teaching experiences among students with disabilities. Additionally, the three student-participants were individuals with severe intellectual disabilities who each exhibited individualized challenging behaviors. Future studies should include teacher-participants with varying professional teaching experiences so that teachers in different teaching assignments (e.g., special education classrooms, content area classrooms) and at various stages of their teaching career may be evaluated. Future studies should also involve a greater number of student-participants with other types of disabilities who exhibit different forms, frequencies, and intensities of challenging behaviors.

Lastly, the present study used inter-observer agreement checks to establish reliability with intervention sub-phase observations. For each observation session, Kappa values were calculated and demonstrated good inter-observer agreement with all but two observation sessions. Future studies should incorporate ways to improve the degree to which multiple observers conduct consistent interpretations of events during the same observation session.

Conclusion and Recommendations

Among students with severe intellectual disabilities teachers can use PBIS practices, such as behavior-specific praise, to reduce the occurrence of challenging behaviors and promote alternate, replacement behaviors (Farmer et al., 2012). Since teachers are not adequately prepared or trained to use PBIS practices with fidelity (Kennedy et al., 2017), Stormont and Reinke (2014) recommended using a data-based performance feedback approach characterized with observations and consultations to provide teachers with visual performance feedback. The goal of the present study was to address an under-researched area and evaluate the effect of visual performance feedback on the frequency of (a) behavior-specific praise statements given by a high school special education teacher and (b) challenging and replacement behaviors exhibited by high school students with severe intellectual disabilities.

Results in the present study have shown that use of a data-based performance feedback approach enabled Ms. George to significantly increase the frequency of behavior-specific praise given to Kara, Chris, and Cody. By providing Ms. George with initial training and weekly consultations that included visual performance feedback, she was empowered to implement behavior-specific praise with fidelity. Results also revealed decreases in challenging behaviors and increases in replacement behaviors exhibited by student participants, especially with Kara. Reducing challenging behaviors in high school students with severe intellectual disabilities can be

problematic because their behaviors have become deeply ingrained over time (Bruhn et al., 2016). This was evident in findings reported for Chris and Cody after the first intervention sub-phase. Despite this phenomenon, findings from the social validity questionnaire showed that Ms. George viewed behavior-specific praise as an effective PBIS practice that increased access to instructional opportunities for Kara, Cody, and Chris. Furthermore, Ms. George indicated that she planned to continue using behavior-specific praise with high school students who have severe intellectual disabilities.

Results from the present study have implications for stakeholders in teacher preparation programs and high school contexts. High school teachers who work among students with severe intellectual disabilities must know how to address challenging behaviors appropriately. Therefore, preservice and practicing teachers must learn how to conduct FBAs to determine the function of challenging behaviors and create function-based behavior improvement plans that implement PBIS practices as interventions (Erbaş, Tekin-Iftar, & Yücesoy, 2006; Westing, 2015). Trainings should include frequent opportunities to observe experienced teachers and practice related skills in authentic high school settings (Mastropieri, 2001) using a visual performance feedback approach (Jenkins, Floress, & Reinke, 2015; Reddy, Dudek, & Lekwa, 2017; Stormont & Reinke, 2014). While implementing a data-based performance feedback approach, stakeholders in teacher preparation programs and high school contexts may also consider different variations with procedures. For example, video self-modeling enables teachers to view themselves performing PBIS practices successfully (Hawkins & Heflin, 2011). Additionally, teachers may be provided with performance feedback through email (Allday et al., 2012; Gage et al., 2018) or via real-time means using wireless technology devices (Sweigart et al., 2015).

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Empowering Refugee Families of Students with Disabilities

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Abstract

Many refugee students with disabilities are entering their American classrooms for the first time after experiencing adversity and trauma. They may have experienced famine, war, displacement, forced migration and abuse. One can also presume that their special education needs were neglected due to the limited resources that were available to them. While some of these students will have apparent disabilities, others will have social-emotional and other disabilities that are hidden. As the special education team prepares to embark on welcoming and educating each of these students, they will first need to empower the parents.

Introduction

The special education process, which for this paper includes: Domain Documentation, Eligibility and Individual Education Plan (IEP) meetings can be very daunting for many families of children with disabilities. For refugee families who have experienced trauma, homelessness and displacement, this process can be very difficult especially when presented in a language that may not be their first language. As a result, the process may need to be more thorough and inclusive (Allen, 2007). According to the National Association of School Psychologists “Given the often chronic and significant stress placed on refugee students, many are at increased risk for developing trauma and other mental health disorders, undermining their ability to function effectively in school. Further, given the environment of their previous schooling and the immigration to the United States, many have experienced significantly interrupted schooling; coupled with language gaps, many students arrive unprepared to participate in school with their same-age peers” (National Association of School Psychologist, 2015).

The special education team and other school personnel must communicate to the refugee family that they value the efforts the family has made to ensure the well-being of their children. They must show compassion for the family’s situation and reassure them that the school and teachers are there to provide the necessary supports for their child with disabilities. It is important to approach families with respect and professionalism. Every effort should be made to assure the family that they are a valued member of the school community and that their child is everybody’s priority (Benson & Martin, 2003). When working with refugee families new to the American educational system, it is very important to consider the special needs of these families using a trauma-informed perspective and empower parents to take ownership of their child’s progress and success (Ristuccia, 2013). In this article, we will discuss specific strategies that will help the special education team in empowering refugee families of students in their classrooms.

Using Trauma-Informed Practices during Special Education Meetings:

1. Special Meeting Considerations: According to The National Child Traumatic Stress Network (NCTSN), refugee families and their children have experienced significant episodes that “may affect their mental and physical health long after the events have occurred. These traumatic events may occur while the refugees are in their country of origin, during displacement from their country of origin, or in the resettlement process here in the U.S.” (National Child Traumatic Stress Network).

Every special education team member needs to participate in workshops, seminars or in-services on trauma-informed practices (Adelman & Taylor, 2013). It is the responsibility of the special education team to be educated about the impact of traumatic events that impact refugee families (Blaustein, 2013). The school psychologist and the social worker can help the team take into consideration what might cause family members stress during the special education meetings. The special education team members should anticipate that certain components of the special education paperwork can create a sense of unease and anxiety for the family. For example, the family may not like to publicly share information about their previous history in refugee camps or the lack of formal schooling for their children. Instead, the special education team should ask the parent *what information they want to share with the team*. Since the refugee families may be unfamiliar with the special education process due to cultural, linguistic, and other differences, it is very important that the special education team make an exceptional effort to include the parents in all the different components of the special education process. Holding some informal meetings first to help the families understand the special education process may be helpful. With the help of refugee liaisons, the parents can understand their child’s educational needs and how the school is going to address those needs. It would be helpful for the parents to get a sense of the school, the classrooms, and the different professionals who will be providing services to their child, if found eligible. The team should ensure that parents understand their rights in the special education process and that all their questions are answered (Kalyanpur & Harry 2004). Effective communication goes beyond just translating the written materials. The team must explain that the parents have a right to ask questions, disagree, or reject any aspects of the process. When the formal special education meeting is in progress, it is important to inform parents that they can interject and ask questions. It would also be very helpful to pause when discussing technical and jargoned language to explain terminology in understandable terms. The most important message to convey to any parent during the special education process is that everyone is working for the child and that the parents are a very important part of this team effort (Kalyanpur & Harry 2012). These families have limited resources and transportation availability when it comes to getting the services that they need. With the help of the refugee liaisons working with the family, the school can arrange for flexible times to meet with the families and arrange for transportation to the school for conferences and special education meetings.

2. Creating Networks: It is important for the special education team to create an authentic and collaborative relationship between the team and parents. Aside from contacting the family via phone calls or through conversations when they meet the parents at drop off/dismissal times; written communication can also be utilized as a tool, if requested by the parents. Unlike other families in the special education process, refugee families do not have existing familial support systems (Sobel & Kugler, 2007). They do not have the resources for childcare for their other

children while they are required to attend meetings and conferences for their child with disabilities. Therefore, it would be helpful if the school provided childcare while parents are in meetings. When it comes to utilizing community resources, refugee families may not be aware of all the services that are offered within their communities to assist them in helping their child (Elias & Schwab, 2004). The school can work with the refugee liaisons to ensure that families are accessing all possible resources within their community (Bridging Refugee Youth and Children's Service).

3. Display Respect and Empathy for the Family: When dealing with refugee children who have experience from displacement and war, it is very likely that they will exhibit behavioral concerns within the classroom (Becker-Blease, Turner & Finkelhor, 2010; Holmes, Levy, Smith, Pinne, & Neese, 2014). According to the National Association of School Psychologists, "Extreme stress, adversity, and trauma can impede concentration, cognitive functioning, memory, and social relationships. Additionally, stress can contribute to both internalized symptoms—such as hypervigilance, anxiety, depression, grief, fear, anger, isolation—and externalized behaviors—such as startle responses, reactivity, aggression, and conduct problems" (National Association of School Psychologist, 2015). It is important that the parent understands that this is not a reflection of their parenting or culture. This is an opportunity for all the team members to provide strategies that will help the student manage his or her behavior at school and at home (Luiselli, Putnam, Handler & Feinberg, 2005). At first, the parents might feel that it is the teacher's responsibility to manage their child's behavioral issues within the classroom. However, it is important to create a team atmosphere to assist the child in the transition. This may require informal discussions before the meeting, so the parents know what to expect. During the meeting, the teachers must first present positive behaviors of the student; then they can provide specific examples of the behaviors with which they are concerned. The teachers should ask the parents how they address their child's behaviors at home and whether there are other strategies that they recommend be used within the classroom. The special education team must engage the parents in a way that allows the families to voice their concerns. The special education team should model their collaborative problem-solving approach with the family. They can use hypothetical cases or specific examples of how their child is doing within the classroom to create better learning opportunities. The parents will understand that the goal of the team is to help their child make progress in school and that there will be times when there are setbacks. This may require an informal discussion after the special education meeting to debrief them about the process and decisions made during the meeting. It is during these setbacks that the team may have to reconvene with the parents to brainstorm various approaches that will help their child.

4. Create an Optimistic Vision for the Student's Future: Parents entering the special education maze are often left feeling overwhelmed and anxious about the progress of their children. They are not sure how their child will progress into the future. It is very important for the special education team to help the parents create a positive vision for their child's future. The parents need to be engaged in developing the outcome that they desire for their child (Pena, 2000). The special education team can assist the family in realizing their child's strengths and talents in addition to acknowledging the child's needs as they look for opportunities for growth (Vaughn, Bos, & Schumm, 2011). Sometimes it is difficult for parents to envision a future where their child is safe, productive, and thriving. They need to be reassured that they are not alone;

that the special education team will work with them and their community in creating opportunities for their child (Mosselson, 2006). Professionals need to show optimism when discussing the child's progress with the parents (Ferrara & Ferrara, 2005). They should also connect the families with other parents who have navigated the special education process in a successful way so that they can network and develop friendships. The parents need to know that they are developing the roadmap for their child's future by collaborating with the child's special education team.

5. Allow the Student to participate during the Special Education Process: According to a recent report by the U.S. Department of Education, "there are more than 840,000 immigrant students in the United States and more than 4.6 million English learners (U.S. Department of Education, 2014). When refugee families are granted asylum in the United States, students with special needs are eligible to receive special education services Under IDEA. As soon the student is identified as having a disability, special education and related services will be provided under the eligibility guidelines of the Individualized Education Plan (IEP). Whenever it is appropriate or feasible, the student with disabilities should be included in the special education process. Regardless of the student's communication needs, it is imperative that the teachers utilize the student's voice during these meetings (Phelan, Davidson, & Yu, 1993). The student should participate at a level that is appropriate for him/her and the special education teacher can facilitate the process. Another advantage to including the student in the special education process is to get the student to discuss any strategies that have helped him/her in the school that the parent can utilize within the home.

Table 1:
Trauma-Informed Practices Recommended During Special Education Meetings

Areas to consider	What that might look like
1. Special Meeting Considerations	Use open-ended, non-probing questions, which allow parents to feel free to share at their level of comfort (“What information do you want to share?”) versus asking specifics about the family’s ordeal as refugees leaving their country of origin.
2. Creating Networks	Use multiple modes of communication (in-person, on the phone, in writing) Provide childcare during the meetings to keep distractions to a minimum
3. Display Respect and Empathy	Reassure the parents that the circumstances, not their parenting styles, are the source of behavioral concerns Talk about the student’s strengths before addressing the areas of concern
4. Create an Optimistic Vision	Focus on strengths and talents
5. Student Participation	Allow the student to self-advocate to the level capable

Conclusion

The special education team must realize that refugee families arriving into the United States have experienced trauma and the schools need to become trauma-informed (Rossen, E., & Hull, R., 2013). Refugee families have experienced severe trauma and it impacts every facet of their lives. The special education team must be prepared to address the complex needs of the entire family unit in order to meet the educational and social-emotional needs of the child with disabilities. They need to be flexible and realize that for these refugee families, the school becomes an extended family; the parents appreciate the relationships that they are forming with their child's teachers and other personnel within the school. These families value this partnership because for some of them the school is the safe-haven that they had envisioned for their child (Warsi, 2017). The school can play a vital role in improving the educational outcomes for their children (Feuerstein, 2000). By engaging and working with the refugee families, the special education team will benefit from this interaction and will have the opportunity to provide the student with a solid education. The refugee families might not be used to having their children participate in the day-to-day activities due to their disabilities, and this would be an opportunity for them to see their child's strengths in self-advocacy (National Association of School Psychologist, 2015). Once they see their child with disabilities from a strengths-based perspective, they will feel more optimistic about their child's future. "The path or journey for a refugee child is complicated and long, and the challenges for these students occur in every aspect of their life" (Stewart, J., 2011, p. 219).

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***Individual Education Plan Considerations for Online Learning:
Accommodations***

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Abstract

This article provides guidance for including students with disabilities (SWDs) in online learning. Federal special education law and research are currently outpaced by practice as students with disabilities participate in K-12 online learning in increasing numbers. While online learning has the flexibility to present content in multiple ways and to offer students multiple means for expression, IEP accommodations assigned to onground learning are often incongruent with online learning. Accommodations should be reconsidered for online learning by delineating learning profile skill deficits and filtering them through three lenses that characterize important features of online learning: synchrony in computer-mediated communication (CMC); World Wide Web (web) and technology; and curriculum.

Keywords: accessibility, accommodations, online learning, Universal Design for Learning

***Individual Education Plan Considerations for Online Learning:
Accommodations***

Background

The Every Student Succeeds Act of 2015 (ESSA) has mobilized the notion of personalized learning pathways to best meet the needs of all learners. One ESSA learning pathway that has emerged, alongside significant digital advances, is online learning and its variations -- blended and hybrid learning. Online learning provides anytime, anyplace, anywhere learning options -- the spirit of ESSA. It may also open up new, adroitly flexible ways of learning for those with disabilities ("Equity Matters," 2015; Hashey & Stahl, 2014; "Universal Design for Learning," 2017).

Eleven years prior to ESSA, the Individuals with Disabilities Education Act (IDEA) was developed to ensure a Free and Appropriate Public Education (FAPE) for those with disabilities who could not make progress in education without an Individualized Education Plan (IEP) (Individual with Disabilities Education Act, 2004). IDEA was written for the context of students who attend school in a physical building (brick-and-mortar) with in-person interaction with teachers (onground). Those who wrote it could not foresee the dimensional differences that would characterize online learning. This difference requires considerations in interpreting how IDEA applies (Rice & Carter, 2015). State Education Agencies (SEAs), Local Education Agencies (LEAs), administrators, and teachers struggle to ensure legally sound practices for online learning without specific guidance on how the laws are to be interpreted, and without timely peer-reviewed research that can support appropriate practices. Until policymakers can recommend interpretations of the law and research can catch up with practice, the IEP should be carefully reviewed prior to a Student with a Disability (SWD) participating in online

learning (Tindle, East, & Mellard, 2017; “Equity Matters,” 2016). This article addresses considerations for IEP accommodations.

Maria Worthen, Vice President for Federal and State Policy of the International Association of K-12 Online Learning (iNACOL) states that, “For students with disabilities, multiple pathways mean new possibilities for the least restrictive learning environment. Leaders and educators should ensure that each is accessible for every learner, with appropriate accommodations for students with disabilities” (Worthen, 2016). Online learning incorporates flexible media which can quickly and naturally provide a variety of opportunities to accommodate learners’ differing needs (“Equity Matters,” 2015; Hashey & Stahl, 2014; “Universal Design for Learning,” 2017). In addition, Learning Management Systems (LMSs) and Learning Platforms (LPs) have built-in tools and/or the ability to interface with external applications that can accommodate learning needs by making content accessible and providing multiple methods of demonstrating knowledge. Because of these advances from less flexible, onground learning media (a worksheet handed out to students) to significantly and efficiently flexible online learning media (digital text that can be enlarged instantaneously or accessed using text to voice application), as well as other dimensional differences, accommodations’ applicability must be scrutinized.

Framework

Four Categories of Ongoing Accommodations. Accommodations typical to ongoing learning can fall into four categories when examining their applicability to online learning. An accommodation may have a counterpart, it may be inherently accommodated, it may have implementation challenges, or it may vary in the online realm by skill deficit (see Figures 1- 4). Accommodations can play out differently in online learning and must be considered by the IEP team.

Accommodations with Counterparts. Some accommodations in ongoing learning have a counterpart in online learning (see Figure 1). For example, let’s consider that a student is assigned an accommodation for ongoing learning of “Reduce visual distractions.” While this student may receive learning material accommodated by presenting one visual at a time or with limited text to a page, on a digital device he or she may be supported with a front-ended masking tool or with a masking application layered onto his or her browser. While there may be an accommodation counterpart to ongoing learning in online learning, some accommodations are no longer necessary due to the flexible nature of technology.

Common Accommodations in Onground Learning	Comparative Accommodations in Online Learning
Environment	
Reduce visual or auditory distractions.	Provide a masking tool or noise-cancelling headphones.
Assessment	
Allow oral responses from and/or scribe for the student.	Provide voice to text application.
Read the test to or with the student.	Provide text to voice application.
Functioning & Learning (Executive, Social and Emotional)	
Preview/review the classroom environment and how to access different resources.	Preview/review with the student how to navigate the online course in order to access content, resources and learning.
Presentation of Content	
Provide manipulatives to support concept acquisition.	Provide simulations or interactive learning to support concept acquisition.
Pre-teach vocabulary.	Include hyperlinks for targeted vocabulary.

Figure 1: A comparison of some selected accommodations in onground learning that have a counterpart in online learning. Accommodations are organized by common categories.

Accommodations Inherently Accommodated. Some onground accommodations are inherently accommodated in online learning (see Figure 2). For example, a student may have an accommodation for an auditory processing disorder of “Provide written directions.” In online learning, directions are typically provided first and consistently in text with supplemented modalities to varying degrees of effectiveness. Therefore, this accommodation is inherently accommodated by online learning. Thus IEP team members can see that some accommodations can be by nature addressed in online learning; for others there are implementation challenges.

Selected Accommodations in Onground Learning Inherently Accommodated in Online Learning	
Assignments	
Provide written directions.	
Assessment	
Provide enlargement of text and visuals specific to the student's needs.	
Presentation of Content	
Present individually.	

Figure 2: A selection of accommodations in onground learning that are inherently accommodated in online learning. These accommodations, occurring naturally, are no longer needed.

Accommodations irrelevant. Some onground accommodations are irrelevant to online learning (see Figure 3). A student with an attention deficit may be assigned an onground accommodation of, “Preferential seating.” The seat is assigned in an area of the classroom that is most beneficial to one’s learning, typically in closer proximity to the source of the content delivery or facilitator of learning. As the content is not delivered in person in online learning, this accommodation does not apply and should not be included in the IEP. Therefore, an accommodation in onground learning may have a counterpart, it may be inherently accommodated in online learning, or it may not apply at all. A number of accommodations, however, will vary in online learning depending on a skill deficit. An understanding of the skill deficits that comprise a student’s learning profile and the characteristics of online learning is essential to identifying appropriate online accommodations.

Selected Accommodations in Onground Learning With Implementation Challenges in Online Learning	
Environment	
Provide preferential seating. Provide an alternate environment.	
Functioning and Learning (Executive, Social and Emotional)	
Allow movement breaks.	

Figure 3: A selection of accommodations in onground learning that have implementation challenges in online learning. These accommodations are no longer needed.

Accommodations vary by skill deficit. Some onground accommodations vary by the student's actual skill deficit (see Figure 4). A skill deficit is not to be misconstrued with a disability. Disability categories, such as Autism Spectrum Disorder, by no means identify specific skill deficits. They can, however, have a host of skill deficits potentially associated with them (Hoffman, Fehlinger, Stenzel, & Rief, 2015).

Selected Accommodations in Onground Learning That Vary by Skill Deficit in Online Learning
Assignments
Complete assignments at school only. Grade only what is completed. Provide extended time for assignments. Assist in initiating assignment. Check with the student for understanding.
Assessment
Allow the student an opportunity to retest.
Functioning and Learning (Executive, Social and Emotional)
Implement an incentive-based reward plan for work completion or skill application. Provide verbal reinforcement at fixed intervals of instruction, for a task, or for application of a desired skill. Provide and assist the student in understanding the daily or class schedule. Provide a verbal (or nonverbal) cue to attend.
Presentation of Content
Provide guided notes. Highlight critical information. Simplify language.

Figure 4: A selection of accommodations in onground learning that vary by skill deficit in online learning. These accommodations require the IEP team to determine the associated skill deficit to plan for appropriate accommodations in online learning.

Identifying Skill Deficits. The IEP team must also consider that an onground accommodation may be in place for two or more very different skill deficits and this can impact how it is rendered to the online environment. For example, a student has an IEP accommodation for onground learning of, “Assist in initiating assignments.” This accommodation could be in place, for example, because the student does not have fine motor capability in his or her hands, because the student has a planning deficit, or because the student has chronic anxiety. In online learning, the assistance with initiation for a student with a physical limitation could be unnecessary if a device has been put in place to support physical access. For the student with a planning deficit, the IEP accommodation might be replaced with a synchronous check-in each time the student begins an assignment. For the student with chronic anxiety, the accommodation may be unnecessary as the student will work on the course at a time optimal to their productivity. In conclusion, when planning accommodations for online learning, the IEP team must start by identifying the student’s specific skill deficits. This methodology promises the most targeted results in developing online learning accommodations for individual student learning profiles. Once the IEP team has identified skill deficits, it is necessary to consider certain facets of online learning that have implications for accessibility.

Skill Deficit Model for Determining Online Accommodations

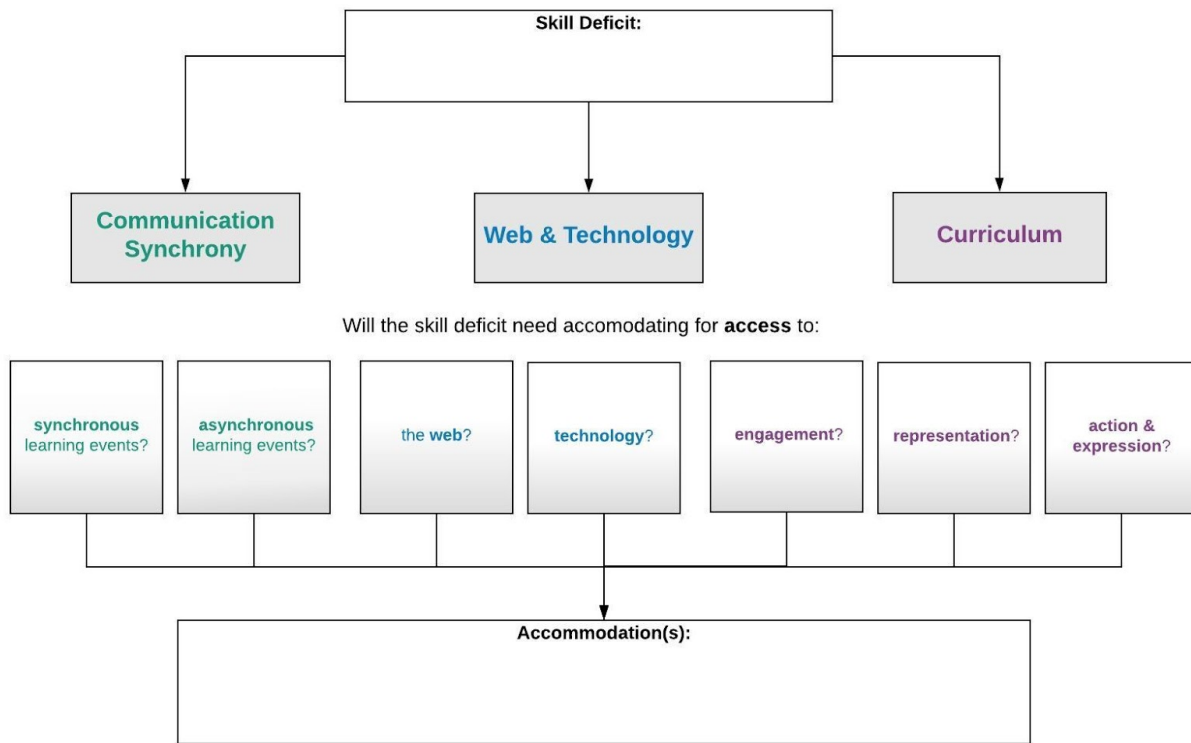
Three Lenses as Points for Accessibility. When considering accommodations for online learning, it is necessary to consider certain lenses that focus on critical accessibility points specific to it: synchrony in computer-mediated communication (CMC); the web and technology; and curriculum (see Figure 5). Online learning occurs by way of two methods of communication synchrony -- synchronous and asynchronous (Nowak, Watt & Walther, 2017). Synchronous learning refers to real time information exchange between education participants. This can take place, for examples, with several individuals working together on a Google Doc, via an instructor conducting a live presentation in a webinar, or through a face-to-face video session between an instructor and student. There are myriad synchronous formats available digitally; the key is that there is real time information exchange. Naturally, asynchronous learning refers to learning that is not real time (Gambino, 2006). Common to but not limited to self-paced digital learning, the student is not bound by a specific time for learning to take place. An example of this would be a threaded conversation where the student can review questions and comments at any time and respond similarly. Another example would be a student who needs to watch a video during a weekly module, but his or her learning is not dependent on whether he or she watches at the same time as other students. CMC synchrony has implications for learning media, sensory modality, social engagement, and the temporal -- all of which can impact a SWD’s learning participation (Nowak, Watt & Walther, 2017). A single skill deficit may or may not result in an accessibility issue across the two forms and, therefore, this lens must be considered. The skill deficit model for determining accommodations for online learning shows that the first step in ascertaining this is for the IEP team to ask whether a specific skill deficit needs accommodating for access to synchronous learning, or for access to asynchronous learning. To better understand the importance of this lens, consider a skill deficit of attention. In synchronous learning events, this skill deficit could impede access to learning without an accommodation. For example, an accommodation of “Record synchronous sessions for review,” would allow the student to review any missed content due to lapses in attention during the real-time presentation. In asynchronous learning events, this skill deficit is inherently accommodated as the student can review or reread items as many times as needed to comprehend

the information. Therefore, the student may require an accommodation for his or her attention deficit for synchronous learning events, but may not for asynchronous learning events. In summation, it is necessary to recognize that differences in synchrony in CMC can result in different accessibility needs with regard to learning communication. There are, however, other points of access to consider in online learning.

When the IEP team considers onground accommodations, they look at curriculum (Burns, 2001). They also may examine how a student accesses a facility, its classrooms, and other physical spaces. Similarly, in online learning there are several basic points of access the IEP team must recognize to delineate any obstacles presented by those points due to a skill deficit. In “Invited In: Measuring UDL in Online Learning,” Smith (2017) describes these points as 1) web access and technology access and 2) curriculum access. Yesilada, Brajnik, Vigo & Harper (2012) suggest asking this question regarding web access: What does a student with a particular skill deficit need to perceive, understand, navigate, interact, and contribute to the World Wide Web? For access to the curriculum, they suggest asking: What does the learner need to effectively use devices, software and applications? Finally, for a given skill deficit, what does this student need to access and engage with content, as well as demonstrate learning? The skill deficit model for determining accommodations for online learning provides educators with a tool for considering communication access and the principal points of access for online learning outlined by Smith (Smith, 2017). The constituent lenses allow the IEP team to consider critical access obstacles.

Curriculum access merits a larger discussion and the IEP team must have a working understanding of the principles of the Universal Design for Learning (UDL). UDL is a widely recognized methodology for leveling the playing field in onground as well as digital coursework and provides for multiple means for representation, action and expression, and engagement (“About Universal Design for Learning,” 2018). When considering the lens of curriculum, look at three UDL components -- engagement, representation, and action & expression (see Figure 5).

Skill Deficit Model for Determining Accommodations for Online Learning



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Figure 5: A skill deficit model for determining accommodations for online learning. Skill deficits associated with the learning profile of a student with disabilities can be considered through three lenses of online learning to determine appropriate accommodations

While not a cure-all for students with disabilities, it can significantly expand the access and participation for many learners. Virtual learning schools incorporate UDL into their coursework to varying degrees. A 2016 report by The Center on Online Learning and Students with Disabilities (COLSD) entitled, “Invited In: Measuring UDL in Online Learning,” states, “While data suggest limited alignment to the UDL framework, it is difficult to determine the added supports offered to students by their teachers, parents, or other support personnel” (Smith, 2016). The success of the SWD, consequently, may vary along these supports. There are two tools, however, that COLSD recommends to gauge accessibility to technology and the web as well as to curriculum (Smith, 2017). The Voluntary Product Accessibility Template (VPAT) is a tool that can evaluate the application of information accessibility from a sensory and mobility standpoint (“Voluntary Product Accessibility Product {VPAT}”, 2018). The UDL Scan Tool, similarly, can ascertain the provision of accessibility to online curriculum and content. If a SWD is struggling with online learning, the IEP Team may employ the VPAT and/or UDL Scan Tool to delineate any further accommodations that may be needed. When considering accommodations for a student in online learning, assuming sound UDL practices may be premature.

Using the Model: To use the skill deficit model for determining accommodations for online learning, begin with an identified skill deficit. Apply it to three online learning lenses: 1) synchrony in computer-mediated communication; 2) web and technology; and 3) curriculum. By asking, “Will the skill deficit need accommodating for access to...” across the lenses, the team can flesh out any accommodations necessary to support the skill deficit in order for the student to participate in online learning. Chart, for example, a skill deficit in reading (see Figure 5). A student is reading below grade level and is participating in an online social studies course. By applying the model, the IEP team might determine that the student needs the following accommodations: 1) For synchronous activities involving text documents, allow the student to preview text and ensure collaborative text is read aloud (Communication Synchrony); 2) Provide voice over training for Alt text (Web and Technology); 3) Provide a text to voice application for text-based information and content (Curriculum); and 4) Provide opportunities for non-text based demonstration of knowledge (Curriculum). Though this list may not be exhaustive, the model, with its three lenses, provides a means by which the IEP team can, with some degree of confidence and due diligence, determine accommodations needed for online learning. They begin by considering the constellation of a learner’s skill deficits that can impact learning. While online learning can be inherently accommodating and can provide more flexible learning medium, it is inequitable to assume that SWDs do not need accommodations and remiss to assume that onground accommodations can be applied. A skill deficit model for determining accommodations for online learning ensures that SWDs can experience the benefits of online learning and can participate in this personalized learning pathway.

Summary

Transferring IEPs from a brick-and-mortar school to an online school, or from classroom-based learning to online learning, is not an exact process. “Moving to a technological environment (and the notion that the online environment is inherently accommodating) needs interrogation at every level (practice, research, and policy),” (Carter & Rice, 2016). Practice outpaces research, and there is no clear guideline on how IDEA applies to the virtual learning path (East, Mellard &

Tindle, 2017). COLSD, in 2015, completed a state and territorial policy scan and found that, “roughly 75% of all states and territories had Unclear, No with Evidence, or Nothing Found across the six major pillars of the Individuals with Disabilities Education Act (IDEA),” (Equity Matters, 2015). Until research converges with practice and policy guidelines are clear, the recommendations set forth in this paper provide the IEP team with considerations for IEP accommodations in online learning that are practicable and judicious.

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