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Special Education Legal Alert

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This monthly legal alert addresses Section 504 and IDEA issues, respectively. First is an update of the national and state-by-state percentages of "504-only" students. Second is the summary of a recent federal appellate court decision concerning child find and eligibility IDEA. For automatic e-mailing of future legal alerts, sign up at **perryzirkel.com**.

The follow-up analysis of the rate of "504-only" students (i.e., those with 504 plans, not "double-covered" students with IEPs) nationally and for each state, based on the 2015–2016 Civil Rights Data Collection (CRDC) revealed notable changes since the 2013–2014 analysis. The full version of this analysis will be available next month under the Section 504 and the ADA subheading of the Publications list on perryzirkel.com—"State Rates of 504-Only Students in K–12 Schools: An Update."	
The national average for 504-only students increased from 1.8% in 2013–2014 to 2.3% in 2015–2016.	This increase is surprising to the extent that the liberalized standards for Section 504 eligibility went into effect on January 1, 2009. Six years later, it would appear that not only the awareness and adherence to these standards may have been slow but also that other contributing factors are in play, including possible over-identification in some states or districts.
The states with the highest average rates are the same although the increases vary in each one: New Hampshire (5.5%à5.8%), Louisiana (5.0%à5.4%), and Vermont (4.4% à5.0%). The states with the lowest average rates changed to the extent that Kansas (.9%à.1%) moved to the bottom position and New Mexico (.5%à1.3%) moved out of the bottom three; yet, Wisconsin (.5%à.8%) and Mississippi (.3%à.4%) remained there.	This inter-state variance is higher than that for the IDEA IEP rates in terms of the ratio between the highest and lowest percentages. The likely contributing factors include litigiousness, socioeconomic status, and various interrelated situational features such as responses to high stakes time testing and the corresponding pressures with regard to IDEA identification. Their interactions and effects continue to vary as evident in not only the state averages but also the extent of the change during these two year.
My next follow-up analyses, which will be at the district and school levels, will reveal even more significant variance within each state.	The inter- and intra-district variance further reflects the same systemic contributing factors, such as socioeconomic status. The "culture" of the district and, within it, of the school, that form the prevailing practices

	in identifying 504-only students represent extent of accurate knowledge and available resources, the nature and weight of competing interests and values, and the interaction between past practices and current pressures. In any event, review of such data warrants consideration of possible under- or over-identification.

In *Durbrow v. Cobb County School District* (2018), the Eleventh Circuit Court of Appeals addressed the parents' child find and eligibility claims on behalf of their son, a student with ADHD in an accelerated program at a selective magnet high school. The district provided him with a 504 plan, which included extra time on tests and small class sizes, in grade 9. In grades 10 and 11, he passed all of the classes and scored As in all his final exams. In his senior year, however, he failed two subjects in the fall and three more in the spring due to late and incomplete work, despite additions to his 504 plan in October (e.g., reduced homework). At another 504 meeting in May, the parents requested an evaluation for IDEA eligibility, which the district completed by the start of the following school year. In the meanwhile, due to his Fs, the district removed him from the magnet program and determined that he had not yet qualified to graduate.	
For child find, which the parents claimed started as early the second semester of grade 10, the appellate court agreed with the hearing officer and district court that the school district (1) did not have reason to suspect possible IDEA eligibility prior to the parents' request and (2) proceeded to conduct the evaluation within a reasonable period of time. The court pointed to ample evidence in the record, including admissions from the parents and the student, that although his passing grades were less than his capability, the discrepancy was due to lack of effort. Thus, the court concluded that the missing element, in terms of the requisite reasonable suspicion, was the need for special education.	Consistent with the long line of child find jurisprudence, this case identified the two dimensions of the ongoing affirmative obligation of child find under the IDEA: (1) reasonable suspicion, as the trigger, and (2) reasonable period, as the amount of time for initiating the evaluation. Although directly connected, the time period for completing the evaluation is a fixed number—60 days from the date of consent unless state law specifies a different timeframe. In this case, the court did not find any "alarming" signs, or red flags, to indicate that the student might need special education, especially due to the overriding lack of effort and the district's "individualized attentiveness," including successive 504 plans to his difficulties. However, this outcome should not be over-generalized.
The Eleventh Circuit, which encompasses Alabama, Florida, and Georgia, also agreed with the hearing officer and lower court that for the same basic reason, the lack of evidence for the need for special education, that the student was not eligible for an IEP.	Again, this outcome is subject to caveats or questions. For example, the court concluded that the student "displayed some weaknesses not readily available to special education remediation." Are procrastination, lack of effort, and organizational skills mutually exclusive from ADHD and special education? As another example, the district's evaluation, upon completion, determined

	that the student was IDEA-eligible. Why was he eligible at the start of the following school year but not by the early spring of his failed grade 12?[1] Yet, this published appellate ruling illustrates the less than nuanced and district-deferential decision-making of many courts.

[1] Conversely, although the parties did not raise the issue and the court did not comment on it, one wonders whether the student's relatively early qualification for a 504 plan illustrates the over-identification in some schools. More specifically, what it the major life activity that the school identified, and how did the knowledgeable team determine that the student's ADHD substantially limit this major life activity relative to the general population independent of his lack of effort?

Creating a Climate of Achievement in Secondary Inclusive Classrooms for Students with Behavioral and Learning Difficulties: Features of an Effective Instructional and Classroom Management System

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Abstract

Demands on teachers have increased with new levels of accountability, diminishing resources, and an increase in the diversity of learners. Effective instruction and classroom management practices should benefit all students including those with learning and behavioral problems. Strategies to improve instructional and classroom management involve school climate, student achievement, and must be evidence based-practices proven effective across a variety of content areas. This article discusses instructional classroom management strategies to promote a climate of achievement, encourage respect and responsibility, and maximize student learning and positive behavior among students who are at risk for failure. These methods are applicable across disciplines and grade levels in middle and high school.

Keywords: expectations, pre-correction, active supervison

Introduction

Today's secondary teachers are faced with the difficult task of ensuring optimal achievement for all students. Demands on teachers have increased with new levels of accountability, diminishing resources, and an increase in the diversity of learners. These factors emphasize the need for evidence-based models of instruction and classroom management teachers can apply to their classrooms to increase student learning and support a climate of achievement.

As students transition to middle and high school the behavioral and learning expectations change. Students are expected to apply skills learned in earlier grades to a new environment (Johnson and Smith, 2008), a task that is challenging to all students but can be especially difficult for students with learning and behavior problems (Forgan and Vaughn, 2000; Letrello and Miles, 2003; Carter, Clark, Cushing, and Kennedy, 2005; Spencer, 2005; LaCava, 2005; Cauley and Jovanovich, 2006). In addition to the shift in educational expectations adolescents are changing physically, socially and emotionally; and these changes affect their needs and values. As a secondary teacher it is important to understand the implications these changes can have on instruction and classroom management.

Classroom Climate

Effective instruction and classroom management practices should benefit all students including those with learning and behavioral problems (Ennis, Royer, Lane, & Griffith, 2017; Emmer & Stough, 2001; Fairbanks,

Simonsen & Sugai, 2008; Merrell, Carrizales, Feuerborn, Gueldner, & Tran, 2007). Understanding that many as 75% of students with disabilities are educated in general education classrooms (Prater, 2003) makes creating an appropriate learning climate a vital step toward effective instruction. Climate is a broad concept that encompasses students' feelings about their teachers and peers (Barr, 2016). It reflects students' perceptions of instructional rigor, interactions with teachers, and peers; and students' involvement in the class (Reid & Radhakrishnan, 2003). Each student will develop an individual sense of the classroom environment, however, it is important to know that the classroom climate is a general feeling of all students in the class (Barr, 2016). Therefore it is important for educators to know techniques for developing effective instructional climates that increases learning for all students, including students with disabilities.

Unique Considerations When Teaching Adolescents

When establishing climate it is important to understand that instruction and management are married concepts in the classroom in that the teacher must be skilled in both to be effective. Teachers who are masters of their content areas can struggle in the classroom because they have limited management skills. Management problems can be devastating to the success of students with learning and behavioral needs. Researchers have shown that early management problems create an adversarial cycle of negative student behavior and negative teacher responses which damage the student-teacher relationship beyond repair. Kameenui and Simmons (1990) identified the assumption that teaching is a complex task that can be especially difficult in the secondary setting. Designing classroom management within the context of instruction for adolescents is aided when considering this assumption. Adolescents enter the classroom with a new set of characteristics than they presented to teachers in the earlier grades. Adolescence can be a time of turmoil for students associated with a decline in academic motivation, poorer self-concepts, and decreased interest in school. Adolescents also have a higher arrest rate than other age groups and a relatively high rate of drug and alcohol use (Baer, 1999).

While physical and sexual development is the most obvious change of adolescence (Obenchain & Taylor, 2005) significant psychological and emotional changes are taking place beneath the awkward exteriors. As students reach adolescence they begin to question the moral norms they knew during childhood and start to develop their own identity (Brophy, 1985). Students experiment with different identities or roles during middle and high school (Oberchain & Taylor, 2005) often testing these new identities for a few days or a few months while carefully gauging peer and adult responses.

A 2003 study by Cothran, Kulinna, & Garrahy interviewed students concerning their perceptions of effective classroom managers. In addition to clear expectations and consequences the students cited intangible factors such as relationships, respect, and caring as attributes of effective classroom managers. For students with learning and behavior problems, who often see the school environment as uninviting and non-supportive, (Walker and Green, 2009) it is essential for teachers to understand the power of creating a positive, caring atmosphere. Adolescents are sensitive to being treated negatively by teachers and can respond in kind. Establishing respect with students is essential in the secondary setting. As students seek autonomy from adults during adolescence they begin to view themselves more as equals to adults than subordinates. Teachers must recognize this early and systematically incorporate opportunities to establish mutual respect into their instruction as opposed to assuming respect due to their position as instructor (Cothran et al., 2003).

These challenges of adolescence are compounded for students with learning and behavioral problems. Students with significant instructional and behavioral needs require more supports. Table 1 shows some of the

differences between students with and without significant learning and behavioral problems. It is advantageous for teachers to make proactive adjustments to their classroom management procedures and instruction, understanding that instruction and the classroom climate are intertwined.

Table 1

Differences between students with and without significant learning and behavioral problems

Descriptions	Students without Learning or Behavior Problems	Students with Learning or Behavior Problems
Attitude toward school	School is a means to achieve success later in life. Regularly interact with teachers.	School is a burden that is required. Often receive lower rates of positive teacher attention like academic interactions, teacher praise, and opportunities to respond. (Sutherland, Lewis-Palmer, Stichter and Morgan, 2008)
Sense of belonging	Perceive their environment to be accepting and inclusive (Walker and Greene, 2009)	Perceive environment to be uninviting and non-supportive (Walker and Greene, 2009)
Learning	Capable of learning required skills through normal student-teacher interactions. Able to access and understand implied or "hidden" academic and behavioral expectations.	Require specialized instruction in specific academic and behavioral skills especially those that are implied or "hidden."
Social Skills	Able to use social skills to make and keep friends and to establish a sense of belonging	Poor social skills that can lead to lead to social isolation, loneliness and a lack of fulfillment in social settings (Court & Givon, 2003)

Self-determination	Attribute success to hard work and good study habits and able to set and achieve goals. Able to organize more than one goal and transition from simple to complex goals (The IRIS Center for Training Enhancements, n.d.)	Attribute failure to uncontrollable factors such as luck or teacher style. Unorganized and impulsive when dealing with problems (The IRIS Center for Training Enhancements, n.d.)

Instructional Implications to Improve Student Outcomes

The differences among learners outlined in Table 2 can be a source of frustration for teachers. Unfortunately there is no simple step-by-step solution for teachers to close the gap between typical learners and those who struggle in the classroom. This should not leave teachers hopeless though as there are many effective strategies that can be implemented in the classroom to improve instruction and management.

Effective instruction and management is proactive. The teacher must visualize what they expect from students. This means that before a problem behavior occurs the teacher strategically teaches all that is required so students have the skills to behave appropriately (Darch, & Kame'enui, 2004). This proactive approach, along with calculated adjustments to the classroom environment can help improve classroom management and create an effective atmosphere for learning. It is important to note that the ideas and examples set forth below are not discipline specific. That is, they are as applicable for 12th grade chemistry teacher as they are for a 7th grade music teacher. Furthermore, this is by no means an exhaustive list of ways to implement instructional classroom management techniques nor does a teacher need to implement every example to improve their classroom atmosphere.

Practical Strategies for Instructional Management

Hallinan (2008) identified liking school as a predictor of student performance. Some students are able to maintain consistent levels of performance simply because school is a place they enjoy being and/or it is valued by family. In addition to this they view school as an opportunity to help them achieve success later in life. Many students with learning and behavior needs do not share this same view of school. Often students with behavior or learning difficulties view school as a necessary evil that must be endured to avoid conflicts with authority figures like the teachers, parents, & police. Students also may have parents who had negative school experiences making the aversion to school generational or they have had traumatic experiences at school like bullying or negative interactions with teachers. While many of these issues are beyond the control of teachers, there are steps teachers can take to make school more inviting, friendly and safe for students with learning and behavior needs. The instructional implications that follow are designed to make school less ambiguous and more relevant for students in the secondary setting. Too often individuals claim that there is nothing they can do if the kids don't want to be in school. This outlook puts teachers in a powerless position and leads to a dangerous apathetic outlook of their own efficacy because they are focused on factors they cannot control. By shifting focus to factors that can be controlled the teacher is able to stay excited about how they can affect student learning and achievement.

Instructional Techniques in Setting Expectations

One initial step teachers can take toward improving students' attitude toward school is establishing expectations with the intent of maintaining a positive, productive and safe classroom. Establishing expectations

provides students with a form of external guide to their behavior. Unambiguous and consistently enforced expectations outline how to behave in the classroom setting which is a setting that can be confusing for students with learning and behavior problems. It is important for teachers to know that students may have a different set of behavioral expectations at home and in other environments where they spend time. When not explicitly taught a new set of expectations for the classroom students with behavior and learning needs will fall back on the behavioral expectations they know. Unfortunately these behaviors may not align with the teacher's expectations and can cause some serious management problems.

Martella and Nelson (2003) discussed the importance of carefully establishing classroom rules and outlined several steps to guide teachers in the process (see table 2). It is very important for teachers to go beyond simply posting a list of "Don'ts" in the classroom and then calling on the list when they are down to their last nerve. One important step to consider when working with adolescents is that rules must be developed using the input of students. Adolescents value the opportunity to control parts of their education and can feel more respected when teachers listen to their ideas.

Table 2

Guidelines for Developing Classroom Expectations

1.Discuss the value and purpose of classroom expectations with students.
2.Gather student input to develop expectations.
3.Gain student commitment to expectations.
4.Teach expectations to students explicitly.
5.Post expectations in prominent location.
6.Monitor and assess students expectation following and reteach if needed.
Table adapted from Martella and Nelson, (2003)

Instructional Techniques for Teaching Expectations

After the classroom expectations have been established it is important for teachers to teach students the skills they need to meet the expectations. To many middle and high school teachers this may seem like an elementary process. In fact, many students with learning and behavior needs may not understand simple rules without explicit teaching due to a lack of social skills or limited receptive language skills. In addition to skill deficits teachers are attempting to shift a student's way of thinking about behavior that has been engrained in them for many years. That is, the behavioral expectations the student has at home are more familiar and much more likely to be followed because it is what the student knows. If these expectations do not align with the teachers expectations it is unreasonable to assume that the students known set of expectations will be erased and rewritten by simply reviewing classroom rules for 5 minutes at the beginning of the school year.

One method of teaching classroom rules is to use a "T" chart that asks students to describe what a certain rule or behavior looks like and sounds like (see Figure 1.). The teacher draws the "T" chart on the board, states the

rule or expectation and poses a question to the class. For example, “We are going to talk about rule three, speak respectfully. What does it look like to speak respectfully? What does it not look like?

Figure 1.

Rule 3: Speak Respectfully.

Looks Like	Is Not

The students’ responses are used to fill in the chart and are referred back to it as needed. This method of teaching rules can be applied to new instructional situations as well as a method of pre-correction. Pre-correction is a proactive strategy teachers implement by identifying contexts in which students may need extra behavior support, and facilitate students engagement in appropriate behaviors (Ennis et al., 2017). For example, before transitioning to another setting, the teacher will remind students of desired behaviors to be displayed during the transition and tie the behaviors to existing classroom rules. By explaining a desired behavior and rule in this manner teachers are able to reinforce students as they follow the rule in the future, as well as know if a student is not following a rule because they choose not to or are unable to. For many students this teaching model must be repeated numerous times throughout the semester or school year and in some cases multiple times every day.

Similar to arranging the physical aspects of the classroom the teacher should establish systems for common student tasks such as handing in homework, labeling papers, sharpening pencils, and storing materials (Kameeniu, 1995; Southerland, Lewis-Palmer, Stichter, & Morgan 2008). While many teachers at this level view middle and high school as the time when students must learn to be responsible for their own belongings it is important to know that students will not automatically learn to be responsible for their belongings simply because they are in middle school. In the same way we teach new academic concepts we must help students establish organizational routines. Students with learning and behavioral needs often struggle with organizational skills. The level of organization required in middle and high school is significantly different than what was required in earlier grades. Teachers who establish systems and routines that students can follow for organizing materials establish external governance for those students who are unable to manage this skill internally. In addition to setting up structure that aids students in organizing materials, the teacher saves valuable instructional time because students more readily locate materials to complete assignments. By establishing systems for these basic student tasks the classroom atmosphere becomes less ambiguous to students allowing them to focus on learning content instead of trying to remember where and how to perform basic tasks. Students must be taught these systems, given opportunities to practice them and be reinforced when the systems are used independently.

Establishing the Classroom Environment

Establishing a safe classroom environment is an essential step toward improving student attitudes toward school. In addition to establishing and consistently enforcing classroom expectations it is essential that students feel safe in class. Safety in class goes beyond students' physical safety and involves the students' emotional safety as well. One way to maximize the emotional safety in the classroom is to designate the classroom as a safe haven. A safe haven is a place free from negative or hurtful interactions with both students and teachers. Most teachers are aware that middle and high schools are filled with put-downs and sarcasm that are damaging to a student's emotional wellbeing. By establishing a safe haven in the classroom free from hurtful comments and interactions students are free to concentrate on academics and learning. In such an environment a student can develop self-confidence and grow. In a safe haven the teacher is responsible for teaching students what is acceptable and what is not acceptable. This can be done in much the same way that classroom rules and expectations are established. The teacher must discuss why the safe haven policy is valuable, gather student input to define safe haven and gain student commitment to the policy. It is important to recognize that the teacher must not only consistently enforce the safe haven policy but must be a constant model for students. This means that the teacher must be mindful of her own interactions with both students and adults to be sure that sarcasm and put-downs are not a part of her vocabulary.

Creating a Sense of Belonging

Students with learning and behavioral problems often do not feel welcome at school. Research suggests that students with behavioral difficulties receive lower rates of positive teacher attention in the form of academic interactions, teacher praise, and opportunities to respond due to their problematic behaviors (Sutherland, Lewis-Palmer, Stichter & Morgan, 2008). This is an unfortunate cycle. Cothran et al., (2003) stated that students identified good classroom managers as teachers who showed students they care. This may involve taking the time to learn about students' interests or simply making sure that students get equal opportunities to respond during instruction. Consideration of these factors before instruction will allow more time for teachers to focus on content instruction and student learning in the during-instruction phase. Active supervision is one way teachers can manage their class and demonstrate to students that hey care. When implementing active supervision the teacher (a) moves among students with a special focus on problem areas, (b) scans the environment to look for appropriate and inappropriate behavior, (c) interacts with a variety of students through conversation, initiating pre-correction, or teaching appropriate behaviors; and (d) provides students with frequent positive comments for observed appropriate behaviors (De Pry & Sugai, 2002; Haydon & Kroeger, 2016).

Conclusion

It is important to know that the teacher who has classroom management difficulties also has instructional inefficiencies because both ideas are interconnected. That is, the teacher who is unable to get students to come into class, sit in their seats, and attend to instruction is going to have a difficult time accomplishing his academic objectives. A vital step in the implementation of instruction is establishing a climate that increases learning for all students. Teachers must be skilled in both classroom management and content to be effective educators for all students (Ennis, et al., 2017; Merrell et al., 2007). Instructional techniques include setting expectations and rules students perceive as fair, teaching expectations, establishing a safe classroom environment, and creating a sense of belonging for all students. All of these considerations and ideas are effective but do require the teacher to take time to implement in the secondary environment where there are so

many instructional demands. Teachers can feel that if they have to spend so much time developing and incorporating these management strategies their content instruction will suffer. In reality, the opposite is true. By taking the time to proactively incorporate even a few of these ideas into instruction teachers can create *more* time for content instruction. In addition to increasing their instructional time, the quality of instruction is enhanced.

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Model Special Education Letters

There are times when parents may want to communicate in writing with their child's school about some problem or concern with their child's education or well-being. Below are a series of model letter templates for you to have on file

Discussing a problem
http://www.parentcenterhub.org/problem/
Requesting a copy of your child's records
http://www.parentcenterhub.org/records-2/
Requesting an evaluation for special education services
(you're already here)
Requesting an independent evaluation
http://www.parentcenterhub.org/iee-3/
Requesting a meeting to review your child's Individualized Education Program (IEP)
http://www.parentcenterhub.org/iep-2/
Requesting a change in your child's placement
http://www.parentcenterhub.org/placement-2/
Informing the school that you intend to place your child in a private school at public expense
http://www.parentcenterhub.org/private/
Requesting prior written notice
http://www.parentcenterhub.org/notice/
Requesting mediation to resolve a conflict
http://www.parentcenterhub.org/mediation-2/
Requesting a due process hearing to resolve a conflict
http://www.parentcenterhub.org/hearing/
Filing a complaint with the State to resolve a conflict
http://www.parentcenterhub.org/statecomplaint-2/

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Buzz from the Hub

All articles below can be accessed through the following links:

https://www.parentcenterhub.org/buzz-june2018-issue2/

She Will Never…

Many of you already know Rene Averitt-Sanzone, formerly of Region 2's PTAC at ECAC, now the Executive Director of The Parents' Place of Maryland. In her recent blog, Rene shares the ups and downs of her family's journey: discovering, screening for, and coming to terms with hearing impairment; and advocating for and watching the incredible successes of her remarkable daughters.

What Matters Most: Research on Elevating Parent Expectations

Put simply, efforts to change the post-school landscape must include a heavy investment in equipping families to hold high expectations from an early age, to aspire toward and advocate for enviable outcomes after high school, and to share this vision with every person whose life intersects with the lives of their sons and daughters.

The Effects of Training on Parent Knowledge and Expectations of Student Post-School Outcomes

A key predictor of successful post-school outcomes for students with disabilities is high parental expectations. This project examined the impact of training parents about transition agency services and found that, yes, providing such training increases parents' knowledge and expectations for post-school outcomes for their young adult with disabilities.

Do We Really Have High Expectations for All?

The bottom line of this article, written by a middle school educator, is: "We have to match our beliefs about expectations to our daily actions in the classroom." Teachers will find lots of insight into the subtle and not-so-subtle ways that high or low expectations are communicated to students.

Establishing a Culture of High Expectations

This PDF of a PowerPoint presentation summarizes 10 effective strategies for establishing a culture of high expectations at school.

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Students Get Involved!

There's a very simple and common sense reason why IDEA 2004 requires that students with disabilities be invited to attend every IEP meeting where postsecondary transition goals will be considered: *It's their lives*.

And those lives are changing. Adulthood is approaching, and with it will come a world of responsibilities and choices. Who's the primary stakeholder in that life ahead? The student. Who better to choose the path ahead, the job or the next schooling, than the student? Who better to ponder what career, what leisure past-times, what community participation? Student involvement in planning ahead makes all the sense in the world.

This resource page will connect you and yours with resources you can use to involve students with disabilities in planning their own transitions into adulthood.

The Basics of Student Involvement

Whose life is it anyway?
This publication is a unique exploration of the emotions and relationships between three key transition partners: Becky, the youth; her mother, and her teacher. It includes talking points for group discussion about relationship building and best practice in adolescent transition.
https://waismanucedd.wiscweb.wisc.edu/wp-content/uploads/sites/74/2017/05/WLIIA.pdf

What does student involvement involve?
Jim Martin is an expert on student involvement in IEP and transition planning. Here's an archived discussion of his that provides an overview of student involvement and self-directed IEPs, as well as detailed answers to teachers' questions.
http://www2.ku.edu/~tccop/files/Martins_Perspective.pdf

10 ways to involve young adults in their IEP meetings
When students with disabilities and young adults are involved in their own IEP meetings, it helps them understand their own disability, strengths, areas to work on, goals, and modifications. Ultimately, this practice leads to greater confidence and increased self-advocacy skills for our students.
https://www.thepathway2success.com/10-ways-to-involve-young-adults-in-their-iep-meetings/

Person-Centered Planning

According to the Person-Centered Planning Education Site, person-centered planning "involves the development of a 'toolbox' of methods and resources that enable people with disability labels to choose their own pathways to success; the planners simply help them to figure out where they want to go and how best to get there." As such, person-centered planning is a marvelous tool for IEP teams to use during transition planning. Explore the resources below to learn more.

Person-centered planning.
What is it? Here's the short and sweet intro.
http://www.pacer.org/transition/learning-center/independent-community-living/person-centered.asp

Person-centered planning education website.
Visit this website for an overview of the person-centered planning process; a self-study course covering the basic processes involved; a quiz section to help you focus on areas you may need to cover more thoroughly; a compendium of readings and activities for you to use on your own, various links, and downloadable resources.
http://www.personcenteredplanning.org/

Parent Center webinar on the subject.
The Michigan Alliance for Families offers an archived webinar on person-centered planning.
https://www.youtube.com/watch?v=BFsImuEaXcQ&feature=youtu.be

Person-centered planning.
Visit the website on person-centered planning put together by New York State. Lots of faceted information here: hallmarks of the process, various methodologies, facilitating a person-centered planning, personal stories, and additional resources.
https://www.opwdd.ny.gov/opwdd_services_supports/person_centered_planning

Materials for Students

A variety of resources speak directly to students themselves, to explain the transition planning process and the importance of participating in it. Because the resources are written for students rather than about students, their language is clear, positive, concrete, practical (often going step by step), and motivating. Turn your student loose on these!

Youthhood.org.
"Childhood meets adulthood at Youthhood.org." This is a very interactive site for youth to use to start thinking about what they want to do with the rest of their lives, designed to help youth plan for the future. (Psst! Good for adults, too.)
http://www.youthhood.org/

Best practices in self-advocacy skill building.
Don't forget to visit the "Youth" section of CPIR's priority page on building self-advocacy skills.
http://www.parentcenterhub.org/priority-selfadvocacy/#youth

Map It: What comes next?
Map It: What Comes Next is a free, online, interactive training designed for transition-aged students who are deaf or hard of hearing. Video vignettes signed in ASL with spoken English and written transcription, self-assessments, and a series of interactive questions guide students as they identify their goals and develop strategies to achieve them. All interactive materials are saved and compiled in an electronic portfolio.
https://dcmp.org/learn/465-map-it-what-comes-next-module

Be your own advocate.

Visit KASA (Kids as Self Advocates), a national, grassroots network of youth with disabilities and needs (and friends), speaking out. As KASA youth say, "We are teens and young adults with disabilities speaking out. KASA knows youth can make choices and advocate for themselves if they have the information and support they need."

http://www.fvkasa.org/index.php

Winning in college: A guide for students with disabilities.

The transition from high school to college life is difficult enough for any number of students without considering a disability. Odds are that if you have a disability and you made it through high school, you've done it with the help of a very disciplined and structured routine order of classes. College life is a very different game, allowing you to make a lot of choices and decisions for yourself.

http://www.edsmart.org/students-with-disabilities-college-guide/

On the job: Stories from youth with disabilities.

And there's nothing like hearing success stories about your peers! This booklet compiles the stories of six young people with significant disabilities on the job, for whom early work experiences have played a vital role, as did an emphasis on using natural supports.

https://www2.waisman.wisc.edu/naturalsupports/pdfs/YS.pdf

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

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Abstract

This manuscript details the challenges for children with special needs and their families. This text highlights the complexity of integrating children with special needs into inclusive settings. This article also incorporates the teamwork and collaboration principles and practices of the Division for Early Childhood (DEC) of the Council for Exceptional Children (CEC). As per its principles the most important aspect of the Council is to work across systems to meet the needs of children and families. Lastly this manuscript examines inclusion, advocacy and support while reviewing a study that seeks to evaluate the way we view relationships between parents of children on the autism spectrum and the role of pediatricians.

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

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. The terms exceptionalities and special needs are used to describe children with cognitive difficulties and for those who learn in a different way. This article incorporates the teamwork and collaboration principles and practices of the Division for Early Childhood (DEC) of the Council for Exceptional Children (CEC, 1990). As indicated by its principles, the most important aspect of the Council's mission is to work across systems to meet the needs of children and families. These principles focus on the importance of parent involvement, collaboration and interdisciplinary approaches to services.

Furthermore, this article highlights:

1) the history of inclusion and how it impacts services.

2) the role of advocacy in special instruction and what role parents play.

3) the support services provided to children and families and their influence on children's development.

4) collaboration with parents and why this is important.

5) recommendations and things to consider.

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 (Yell, Rogers, Rogers, 1998) for young children with special needs. According to the research of Bacon and Causton-Theoharis (2013) inclusion is defined as supportive programming for children with intellectual differences into mainstream setting. Inclusion is defined as a program to support children with

special needs into integrated settings. Integrated settings are program that include children with all capabilities. These settings also 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 disability by providing the least restrictive environment for them to learn in. Whenever possible children are educated and integrated into educational settings with typically developing children. These environments maximize children's abilities opposed to disabilities. Yet, researchers Schwartz, Sandall, Odom, Horn and Bechman (2007) indicate inclusive programs are varied in their approach and services to families and administration of services to children may not meet the needs of all children or their families.

Advocacy

Advocacy is defined as using one's abilities to advance a cause. Advocacy often helps further the needs and causes of marginalized populations. Activism is the bedrock of the early childhood special education community (Bredelkamp, 1997). The research of 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). These advocacy groups adhere to the following tenets as a means to advancing their causes: (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.

Support for Families

The research of Dettmer, Thurston and Dyck (2002) and Gallagher, Malone, and Ladner (2009) detail parents have described the multiple times they have entered a service provision hearing and felt bewildered. They were confused by the technical language used and the number of people in attendance at the hearing. The providers, the researchers note often spoke in a tone and used terms and language, "expertise speak" unfamiliar to parents. Parents described feeling of alienation during the service coordination meetings. Many reported they were relieved once the meeting were adjourned. Parents also reported they felt ill equipped to attend service meetings alone. They also noted they had no idea they would have to work so hard to advocate for their children. They also reported they felt they let their children down when much needed services were denied.

According to the research of Kendall and Taylor (2016) parents enter into service agreements that barely address the needs of their young children. However, parents reported they felt compelled to sign off on the service plans, fearful their children would not receive any services. 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 do not meet the needs of their children.

The needs of families caring for children with special needs are multilayered. According to the research of Dettmer et al. (2002) and Heward (2009) parent's needs are as diverse as their children. Families of children

with special needs experience unique challenges. 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.

Service provisions for children with special needs can be difficult for parents to navigate. This includes: (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 et al. (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 planning requires time and allows parents to actively participate (Forest, 2018).

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) lastly too many children to serve (Heward, 2009).

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. According to the research of Cohen et al. (2014), 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. 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).

Stress Factors. Parents are dealing with multiple stress factors, lack of finances, lack of adequate services and support. Parent 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. According to the research of Bacon and Causton- Theoharis (2013) parents have 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 obtaining services (Autism Speaks, 2014).

Educating Others. Parents have reported advocacy, learning the language utilized during planning meeting as well as the special education landscape has served as a beneficial process during their children's educational planning meeting. Parents noted , it is important for parents to encourage other parents, they learn from each

other. The research of Hess, Molina and Kozleski (2006) details a group of parents collectively collaborating which led to effective service planning for their children. Furthermore, the research of Bacon and Causton - Theoharis, (2013) indicates parents are the primary teachers of other parents regarding their children's rights and needs.

Collaboration and Teamwork

According to the National Association for the Education of Young Children (NAEYC), to create an atmosphere of collaboration and teamwork, there must be quality education and care programs for young children (National Association for the Education of Young Children [NAEYC], 2009). In addition, respective teams that include teachers, assistant teachers, and administrators must understand each other and work well together. The cohesive work must include: (1) social clues to support engagement and inclusivity; (2) promoting respectful interactions; (3) reinforcement and the support of others thoughts, opinions and ideas; (4) resilience during challenging times; (5) coping skills; and (5) honest reflection.

Research Questions

The research questions posed by this manuscript are:

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 also provided some insight into 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) parents indicated their limited or lack of knowledge upon their children's initial diagnosis and very little knowledge related to effective treatment. The literature also noted this limited parents' ability to effectively plan and participate in service planning meeting.

Procedures

The procedures employed by the writer of this manuscript encompassed reviewing the literature of several studies related to the needs of children with special needs and the challenges their families encounter. In addition to reviewing the literature, the researcher utilized the data culled as part of a qualitative study related to the perspectives of parents and pediatricians related to a child's diagnosis of autism. This literature reviewed the parents' experiences with school-based support teams, experiences with program models, related service providers and pediatricians.

Results

The summation of the following studies: (1) Almansour et al. (2013); (2) Gallagher et al. (2009); (3) Odom, Buysse and Soukakou (2011); (4) Reiman et al. (2010); and (5) Schwartz et al. (2002) detail the trends as well as challenges parents are faced with in their attempts for inclusion and support with a system built to help but serves as a hindrance at times. Their research highlights 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. Further indicated in Table 1, the results of a study by Scott-Croff (2017) surmises the research of 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.

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.

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.

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.

Many agencies will prorate training for parents if they request it. This yields positive results for parents. Parent 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.

Reiman et al. (2010**)** study examines 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.

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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).

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	Pediatrician, private practice Fellowship, Kennedy Center 2-year residency	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	Pediatrician, private practice; was a nurse prior to becoming a physician	Completed a Fellowship at Kennedy Center many years ago

children with disabilities.	Worked for Early Intervention in the Bronx		practice included about 20% children with special needs; 15 years ago, 80%; 5 years ago, practice moved to 100% developmental	She has taken several courses and her training is ongoing	
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 described earlier went through Early Intervention, and he ended up seeing a developmental pediatrician and neurologist	Fifty years ago, worked with special needs kids; the autistic children, at that time, had a classical description, with minimal delays, multiple atypical behavior, and repetitive behaviors, and were treated with psychopathologic agents available at the time	First experience was in residency; the children seen were very ill. The majority stimmed and had self-harming behavior. Described it as overwhelming	In residency, as a youngster, a young man with atypical behavior and features of autism 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 caring for a child with autism?	"No, but I would try to send them to family therapy; but it's difficult to know which ones accept insurance or private pay or what costs are involved. I tend to say the Westchester Jewish Community Center Service."	"I am not aware of any official programs. I know there are some on the Internet. Some groups, parents' kind of talk to each other, try to support each other."	"Autism Speaks"	"Westchester Jewish Community Service"	"Not specifically; either a center or a place in Westchester 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 reversions 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 developmental screening instruments used with families to detect autism?	Modified Checklist for Autism in Toddlers (M-CHAT) Communication and Symbolic Behavior Scale Development Profile (CSBC-DP)	Modified Checklist for Autism in Toddlers (M-CHAT)	None, children were prescreened by others before referred to him	Modified Checklist for Autism in Toddlers(M-CHAT)	Informal methods based on education, knowledge and experience

	Pediatric Symptom Checklist (PSC) assesses for social problems

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

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The Impact of Assistive Technology on Autism Spectrum Disorder: A Systematic Review

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Abstract

The purpose of this research was to review the assistive technology (AT) specific assessment models and instruments that have been developed for children with Autism Spectrum Disorder (ASD) in order to provide an overview of the strategies to be employed in rehabilitation and education. Three electronic databases were searched for peer-reviewed studies investigating children with Autism Spectrum Disorder (ASD) and the use of assistive technology to assist with speech difficulties, little social interaction, and poor motor skills. Relevant studies were independently reviewed and appraised by three reviewers. Methodological quality was quantified using the American Speech-Language-Hearing Association's levels of evidence. In total, 21 studies were included in the review. We argue that there is a need to develop a more thorough guide for AT professionals in the process of AT assessment for children with Autism Spectrum Disorder.

Introduction

Autism Spectrum Disorder (ASD) is related to a range of significant impairments in speech disorders, social interaction, and poor motor skills (American Psychiatric Association, 2013). Individuals with autism are characterized by repetitive and ritualistic behavior and often have symptoms of attention deficit hyperactivity disorders (ADHD) while their cognitive development does not follow a homogeneous path (American Psychiatric Association, 2013). Furthermore, there has been a steady increase in diagnosis of the disorder (Tarbox, Dixon, Sturmey, Matson, & SpringerLink, 2014). However, it is still unknown if the disorder is due to an individual being born with the disorder or increased awareness and improved diagnosis (Tarbox, Dixon, Sturmey, Matson, & SpringerLink, 2014). Regardless of the cause, as the numbers of ASD continue to rise, the need for intervention is more demanding than ever. Children with autism need language, social and behavioral, and motor skills assistance in order to become independent and successful (Ennis-Cole & Smith, 2011). Additionally, the majority of them encounter difficulties to achieve their daily life goals and they rely on continuous support from parents and/or caretakers (Farley et al., 2009).

Assistive Technology

Assistive technology (AT) can play an important aspect of intervention for children with disabilities. Assistive technology has the potential to alter learning opportunities for individuals with ASD. The Individuals with Disabilities Education Act (IDEA, 1997), the Technology Related Assistance for Individuals Act (TRAIDA, 1988), the Americans with Disabilities Act (ADA, 1990), and the Rehabilitation Act (1973) define *AT* as “any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities” (Cardon, Wilcox, & Campbell, 2011, p. 169).

The majority of research available exploring AT and children with autism spectrum disorder (ASD) involves picture systems and their ability to increase children's receptive and expressive language skills. To support the receptive language development, AT often takes the form of picture schedules to assist children with a variety of daily routines and activities (Cardon, Wilcox, & Campbell, 2011). In addition to the low-tech picture systems, research also indicates that high-tech voice output devices have been used to help children with autism between the ages of three and five years request food, help, and gain access to preferred activities (Cardon, Wilcox, & Campbell, 2011). Assistive Technology (AT) can address the specific needs of a child with autism's speech difficulties, little social interaction, and poor motor skills. AT can enable them to experience more independent living. AT can be defined as specialized tools that allow those with a disability to independently and fully participate in schools (Ennis-Cole et al., 2011). Assistive Technology includes, but is not limited, to both non-technical auxiliary aids, mechanical and electrical devices, computer software, simulations, virtual reality, and augmentative and alternative communication devices. These technologies can help a child with a disorder, such as ASD; accomplish a task that is otherwise extremely difficult or impossible without these tools (Ennis-Cole et al., 2011).

Purpose

Identifying effective interventions and supportive strategies for people with ASD is a critical issue for researchers, educators, and practitioners (Stasolla, Damiani & Caffò, 2014). The purpose of this systematic review sets out to examine and evaluate the impact of assistive technologies such as iPad applications, social robots, and neurological exams on speech difficulties, social interaction and the poor motor skills of children in the autism spectrum disorder.

Method

Selection of Research Articles

Between January 2014 and April 2015, the following three electronic databases were searched: PubMed, CINAHL, and PsychINFO. To capture as many relevant citations as possible, a wide range of medical, health and educational databases were searched to identify primary studies of the effects assistive technology on children with autism. To reach this target, we limited the search to recent peer-reviewed articles, as they are more likely to be relevant and adhere to reporting standards. The search terms used were a combination of the following sets: set 1: *autism spectrum disorder* AND *assistive technology;* set 2: *assistive technology* AND *autism;* set 3: *autism* AND *assistive technology* AND *social skills; and* set 4: *innovative technology* AND *autism*.

Inclusion and Exclusion Criteria

Screening criteria were established to identify potentially relevant articles that met minimum methodological standards for acceptance. Inclusion criteria were: studies published between 2007 and 2015, cohort studies, case-control studies and randomized control trials that evaluated the use of assistive technology and focused on children with autism. Three reviewers screened the search results and all seemingly relevant publications. This was a process designed to eliminate only papers not meeting the criteria for inclusion.

Selection of Studies

The titles, keywords, and abstracts of the papers identified by the electronic databases were screened for potential relevance by three researchers. This effort resulted in 739 citations from which relevant studies were

selected for the review. The full papers of the remaining 21 citations were assessed to select those primary studies pertaining to assistive technologies impacting speech, social interactions, and motor skills. Studies focusing on adults were excluded, as the main focus of the review is on children with ASD. After reading the full texts of the selected articles, the 21 most significant evidence-based articles were selected for further analysis in the review. See flow diagram in Figure 1.

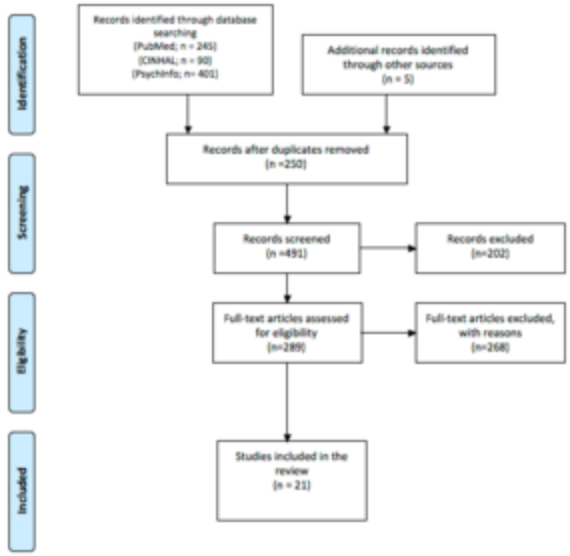

Figure 1. Study flow diagram for review of studies pertaining to assistive technology and ASD.
From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Results

Twenty-one studies were identified that met the inclusion criteria. The review used Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and guidelines to ensure appropriate and transparent reporting of results (Moher, Liberati, Tetzlaff, & Altman, 2009). Results are summarized in terms of speech difficulties, social interaction and poor motor skills. The main findings are summarized in Table 1, Table 2 and Table 3.

Speech Difficulties

Ennis-Cole and Smith (2011) conducted a case-control study in which a large sample size of 85 participants was recruited between the ages of 10 to 17. The outcomes were positive across all studies as they successfully increased a variety of skills of communication, which also increased other skills such as joint attention, self-help, task completion, motivation, and appropriate behavior (Ennis-Cole & Smith, 2011).

Sampath, Agarwal, and Indurkhya (2013) conducted a case-control study using AutVisComm, an assistive communication system. This assistive communication system was developed in collaboration with teachers and parents of children with autism. The study included 24 children with autism all of which were eight years of age. The goal of the study set out to utilize AT, or application AutVisComm, as a means to assist a child in learning to request his or her desired object. Each child had two one-on-one sessions per week with a teacher,

in which a food item was placed out of reach of the child and close to the teacher. To receive the food item, the child had to request the AutVisComm and press the appropriate picture on the screen. If they completed this on their own, it was considered to be an independent (IN) response. If the child needed a verbal prompt from the teacher, it was considered to be a verbal prompt (VP). Finally, if the child still did not respond after a VP the teacher would physically assist the child (Sampath et al., 2013). During the initial sessions most children needed to be physically assisted, but as time pressed on the need for this became less frequent and most children started responding to VP. An important finding in this study was that while concentrating on usability of AT for the children was important; the usability for caretakers also needs to be considered (Sampath et al., 2013).

Venkatesh, Greenhill, Phung, Adams, and Duong (2012) conducted a case-control study with 16 autistic children between the ages of two to seven. This group of scholars created an iPad-based application called Playpad that provides automated multimedia early intervention for children with autism. This application teaches basic skills designed by trained therapists, software for delivering therapy activities, and collecting progress results. Over a course of four weeks, therapy using the application was implemented and incorporated into the children's daily activities at home. The application specifically increased receptive and expressive language skills using partner activities in which the child and parent interact with the iPad and each other (Venkatesh et al., 2012). To increase expressive language, Playpad presents the image of an object and the child is required to verbally name it. Expressive language requires the child to use language as an expression, where the Playpad application says the name of an object and the child selects the image on Playpad (Venkatesh et al., 2012). To increase receptive language, Playpad presents pictures of objects from the categories and prompts the child to identify the correct object. Receptive language requires the child to use language receptively, where the Playpad application shows an object and the child names it (Venkatesh et al., 2012). This particular application was extremely successful because it not only incorporated a reinforcement system to motivate the child participating, but tracks and records each trial conducted. Over time, the children in this study decreased the number of errors created and the level of prompting needed, along with an increased number of correct responses (Venkatesh et al., 2012).

Ganz, Boles, Goodwyn, and Flores (2014) conducted a case-control study that included children with autism between the ages of 8 to 14. The study used computer-based visual scripts on vocabulary, and found that all the participants showed an increased use of verbs or nouns with the treatment materials. Also, all of the children required less prompts as the trials progressed over time.

Hill, Belcher, Brigman, Repper, and Stephens (2013) conducted a study with eight participants over the age of 18 with ASD in which the use of the iPad as an AT was tested. All participants at the beginning of the trial had difficulty in communicating and engaging socially while at the workplace, which resulted in a decrease of productivity (Hill et al., 2013). This study found that the use of the iPad's many features helped enhance interpersonal skills needed to communicate and contribute to a positive work experience. An important note in this study was that while the iPad does not replace the need for therapeutic engagement, this type of intervention does indeed improve daily communication for those with ASD (Hill et al., 2013). As described in Table 1, there were a wide variety of high technology AT tools tested and used included voice output communication aids, micro-switch communication systems, touch-sensitive screens, and computer-based language tools.

Kasari et al. (2014) conducted a randomized control study of 61 children with ASD. The study examined the effects of communication interventions which utilized an AT tool created to improve "spontaneous, communicative utterances in school-aged, minimally verbal children with autism" (Kasari et al., 2014, p. 635). The children were randomly assigned a condition of the "developmental/behavioral intervention with or without the augmentation of a speech-generating device (SGD) for 6 months with a 3-month follow-up" (Kasari et al., 2014, p. 2). SGD is a communication AT intervention that "displays symbols that produce voice output communication when selected" (Kasari et al., 2014, p. 3).

In a longitudinal study, the treatment was broken into two phases. In Phase one, all children received 21 one-hour sessions for three months with a clinician, utilizing an SGD. In Phase two, all children received 24 one-hour sessions, for three months with their parents present. It is noted that in phase two, parents received "systematic parent training consistent with the treatment variation to which the child was assigned" (Kasari et al., 2014, p. 5). This experiment, utilizing adaptive interventions, found that in a short amount of time all children improved significantly in spontaneous communication and utterances (Kasari et al., 2014).

Table 1

Results of Assistive Technology Impacting Speech Difficulties

Author	Sample Size	Type of Study	Age of Participants	Measures	Main Findings
Ennis-Cole & Smith (2011)	85	Case-Control	10-17 years	Variety of high-tech AT tools: PDAs, robots, vibrating pagers, switch training, voice output communication aids, microswitch communication systems, touch-sensitive screens, and computer-based language tools	Devices were successfully used to improve a wide variety of skills including communication, self-help, motivation, and appropriate behavior
Sampath et al., (2013)	24	Case-Control	7-8 years	AutVisComm	This application was used at a special school for autistic children in whom each child had two one-on-one sessions per week with a teacher. In order to receive a food item, the child had to use AutVisComm to choose the appropriate picture on the tablet. As sessions progressed, the need for PA and VP became less frequent and the children starting responding independently.

Venkatesh et al., (2012)	16	Case-Control	2-7 years	Playpad	One month of intervention improved receptive and expressive language through trails of matching tasks, verbal interaction, and reinforcement. Learning was apparent because of the decreasing number of errors and increasing proportion of correct responses and unprompted responses.
Ganz et al., (2014)	3	Case-Control	8-14 years	Tablet computer-based visual scripts on vocabulary	Results indicated that all the participants showed increase use of verbs or nouns with the treatment materials, all the participants required less invasive prompts as the project progressed.
Hill et al., 2013	8	Case-Control	18 years +	iPad	Support not only independence in daily living, but enhanced the interpersonal skills needed to communicate and contribute to a positive work experience and success.
Kasari, et al., 2014	61	Randomized-Control			

Social Interaction

Cramer, Hirano, Tentori, Yeganyan, and Hayes (2011) conducted a cohort study involving sixteen students between the ages of six and ten years old. The study focused on the interactive tool vSked used in a classroom based setting. Unlike some other studies in this systematic review, vSked focuses on the classroom as a unit rather than just the individual. The use of vSked encourages group practices within the classroom using visual schedules, choice boards, and a token-based reward system (Cramer et al., 2011). The study was conducted in two autistic classrooms over the course of a year. Focusing on a sense of classroom community, the screens in front of the classroom allowed students to see their progress throughout the day as well as seeing their classmate's progress. By awarding tokens as they complete specific tasks and displaying it in the front of the classroom, this encourages students to continue working diligently as well as encouraging their classmates. It is essential for children to feel important and have a sense of community, especially autistic children, and that is the main focus of vSked.

Escobedo, Nguyen, Boyd, Hirano, and Randgel (2012) observed a cohort of twelve children, three who were autistic and nine who were neurotypical (NT), between the ages of eight and eleven year olds in a public school located in Southern California. They studied the examined the effects of a mobile assistive technology named MOSOCO: A Mobile Assistive Tool to Support Children with Autism Practicing Social Skills in Real-Life Situations. MOSOCO is a social compass interactive tool that works on Android smartphones with features that encourage children to make good eye contact, have appropriate spatial boundaries, engage in conversation, identify appropriate communication partners and end an interaction in an appropriate way (Escobedo et al., 2012).

The three students with autism were paired up with NT students as their interaction partners. Video cameras were set up during social exchanges to observe non-verbal communication. Weekly interviews were then conducted to ask participants how the technology was working and how it is impacting their interactions (Escobedo et al., 2012). MOSOCO had a positive influence on the social aspect of children with autism spectrum disorder and changed the group dynamic of student groups. This study can be related back to vSked in that they both work on the individual social skills, but it also focuses on the group dynamic in a school based setting.

Cannella-Malone et al. (2016) conducted a study in which video prompting was utilized to teach new leisure skills. This study included nine students with severe disabilities, including autism spectrum disorder, aged 10 to 22 years (Cannella-Malone et al., 2016). Prior to the study, parents and teachers completed an interview with each student to rank and select specific leisure tasks they are interested in or have done in the past. All videos used in this intervention were created from the perspective of a spectator, and displayed on an iPhone 4. Each video began with a verbal prompt to begin the task, and consisted of a series of short clips for each step of the task. Video prompting was effective in teaching 14 new leisure skills to eight out of the nine students including origami, darts, Lite-Brite, dominos, and painting nails (Cannella-Malone, et al., 2016). This study suggests that the development of new leisure skills leads to an increase in many other skills such as social interactions, positive emotional effects, and increased activity level (Cannella-Malone et al., 2016).

Kim et al. (2013) conducted a randomized controlled experiment to study the effects of a social robot and its interactions of children with autism. Twenty-four children between the ages of four and twelve diagnosed with high-functioning autism spectrum disorder were observed. A social robot was programed with ten social interaction behaviors and three non-verbal movements designed to replicate a social interaction. An adult stimulus was present during all robot-simulated situations to control the movements of the robot. It was noted that most children did not interact with the adult while the robot was present, only one participant verbalized suspicion that the adult was controlling the robot (Kim et al., 2013). It was found that there was more verbalization while interacting with the robot. This study suggests that in comparison to real therapy support animals, robot animals can be used as a better interactive tool for autistic children. In that, they can be specially customized for each child, controlled by an adult more easily, and are much more affordable compared to training a service animal (Kim et al., 2013).

Lang et al. (2014) performed a cohort study using video self-modeling. Two students with autism spectrum disorder all who are between the ages of four and five years old were the participants. First, there was video footage of children with ASD interacting with other children. During this time, teachers would encourage students to interact more with their peers. After the footage was captured, the raw footage was edited to cut out

the teachers interacting with the children as well as poor behavior or solitary play. The students then watched the footage for seventeen school days. Students were then brought out to play with fellow classmates and teachers were instructed not to interfere. The goal was to prompt participants to socially interact more with peers and increase the occurrence of this without the encouragement of teachers. The results indicated an increase in overall social interactions.

Ploog, Scharf, Nelson, and Brooks (2013) conducted a case-control study using computerized visual representations of emotional facial expressions to simulate real life situations. The use of a 3D avatar was used in three stages to study and improve emotion recognition in children with autism spectrum disorder. Stage one, participants were asked to interpret what emotion the avatar was feeling. Stage two participants were given different scenarios and were asked to guess what emotion the avatar was feeling based on that specific scenario. In stage three, the children were a certain emotion that the avatar was feeling and was asked what scenario or event they thought caused this emotion. This virtual environment indicated that children were able to communicate more effectively with other people and that 90% of the participants were able to interpret, recognize and predict emotions from the avatar (Ploog et al., 2013).

Wainer and Ingersoll (2011) conducted a randomized control study with ten participants' ages 16 to 40 using computer treatment. Participants were randomly assigned to a computer treatment group or a no-treatment control group. This computer treatment program was an interactive program that used photographs of faces and eyes. There was a significant increase in emotion identification of the pre-test to post-test. This study relates to the previous studies in that it worked to improve the social skills and emotion recognition in children with autism spectrum disorder.

Table 2

Results of Assistive Technology Impacting Little Social Interaction

Author	Sample Size	Type of Study	Age of Participants	Measures	Main Findings
Cramer et al., (2011)	16	Cohort	6-10 years	vSked	Promoted student independence and encouraged consistency and predictability as well as socialization within the classroom between students as well as staff.
Escobedo et al., (2012)	12	Cohort	8-11 years	MOSOCO	Students learned the basic proper steps to a social interaction including the DO's and DON'Ts and how to help others interact. Learning to apply these skills outside of the classroom was key.
Cannella-Malone et al. (2016)	9		10 to 22 years		

Kim et al., (2013)	24	Randomized Controlled	4-12 years	Social Robots	More verbalization during robot interactions. Found that robot animals serve as a better interactive tool for children rather than real live animals, due to the fact that robots can be customized, controlled and more affordable.
Lang et al., (2014)	2	Cohort	4-5 years	Video self-modeling	Students with ASD were able to learn how to visualize themselves being successful in social situations. Demonstrated an increase in social engagement that was maintained after the study concluded.
Ploog et al., (2013)	34	Case Control	N/A	CAT (3-D Avatar)	Was found that 90% of participants were able to interpret, recognize and predict emotions in the avatar. Which lead to children being able to communicate more effectively with other people in real life situations.
Wainer et al., (2011)	10	Randomized Controlled	16-40	Computer treatment	Participants in the computer treatment group made significant improvements in emotion identification compared to the control group.

Motor Skills

Ament et al. (2015) conducted a case-control study to find evidence for the specificity of motor impairments such as in catching objects and balance in children with autism. The study consisted of two hundred participants with an age range between eight to thirteen years old. All of the children participating needed to meet on the basis of a clinical judgment and if they were diagnosed. The participants for this study were pulled from local schools, pediatrician's offices, outpatient clinics, and the local Autism Society of America chapters. The results of the study indicated that two of the standard scores had main effect on the group [F (2, 197) = 62.04, $p < 0.001$]. Conferroni post hoc test was used during this study to show the differences in the MABC-2 score for the groups. "This test revealed there was a big difference in the total score of MAB-C2 between the TD group (M = 8.90, SD = 2.52), ADHD group (M = 6.38, SD = 2.67), and ASD groups (M = 4.14, SD = 2.19)" (Ament et al., 2015, p. 748).

Barbeau, Meilleur, Zeffiro, and Mottron (2015) conducted a case-control study, which included 39 people ranging from age 14 to 30 years old. The people used in this study were randomly found from database of the Specialized Autism Clinic at the Rivie re-des-Prairies Hospital located in Canada. The study was on comparing motor skills in autism spectrum individuals with and without speech delay. For this study the researchers excluded individuals with a visual impairment, used alcohol (more than two drinks a day) or drugs. The procedure for the study addressed the handedness assessment. This assessment includes ten items monitoring

a subject's preferred hand during activities such as throwing a ball. A motor skill assessment was also was completed by subjects. Subjects were required to pay a game with a wooden board made of two parallel rows of ten holes each of them are eight inches apart. “A trial was considered valid when no pegs were dropped and no significant distraction interfered” (Barbeau et al., 2015, p. 685). Simple reaction time was a visual trigger that was used to obtain the approximant movement speed. The participant’s task was to look at the computer screen and each time a black box would appear to the right of the screen they needed to press the button. Results of this study concluded that the use of three standard deviation (3 SD) instead of two standard deviation (2 SD) not affect the overall results. “Planned contrasts revealed that AS-SOD participants were 772, 876, and 913 milliseconds (ms) slower than typical individuals in the DH” (Barbeau et al., 2015, p. 686).

Behere, Shahani, Noggle, and Dean (2012) study was on the motor functioning in Autistic Spectrum Disorders. This is a case-control study; this study focuses on 26 individual’s age ranging from six to twenty years old. These individuals were referred for a neuropsychological evaluation. Thirteen of the 39 original participants were excluded from the study because of missing data. This study was divided with the first group having sixteen patients diagnosed with autism with an age range of six to twenty-three, education ranging from first to twelfth grade and the second study consisting of 10 participants with Asperger’s disorder age ranging from eleven to thirty-two years old with an education of first to twelfth grade. Participants were administered a DWSMB which is “standardized and norm-referenced measure of cortical and subcortical sensory/motor functioning” (Behere et al., 2012). The participants were then scored based on two different score values of ‘W’ (different sampling) and ‘WD’ (norming sample). The results of this study was found by using SPSS “No univariate or multivariate within-cell outliers, at [alpha]=0.001, were found. Assumptions of normality, linearity, homogeneity of variance/covariance matrices, and multicollinearity were met. Also, the covariate of age was found to be reliable for covariance analysis” (Behere et al., 2012, p. 90).

Lloyd, MacDonald, and Lord (2013) study was on Motor Skills of toddlers with Autism Spectrum Disorder. This is a cohort study; this study focuses on a hundred and sixty-two participants ranging from age twelve months to thirty-six months old. This study took place in three different areas including the North Carolina state-funded autism centers; the Chicago autism clinic associated with a private university, and an autism center in Michigan. The participants in this study are part of two investigations for toddlers at risk to become autistic. All of the participants took place in the MSEL testing intended for babies who are from birth to sixty-eight months old. “Scores on the MSEL are organized into five domains including, gross motor, fine motor, visual perception (nonverbal problem solving), receptive language, and expressive language” (Lloyd et al., 2013, p. 4). The calculations that were used during this study was the ratio verbal IQ. This was calculated by taking the mean age; divide by chronological and multiplied by 100. The ratio non-verbal IQ was found by using the age equivalents from fine motor and visual perception tests. The results of the first study revealed no differences in motor skills between the three sites. However, this study showed even though the children had cognitive delays the older children in the study had more delays than the younger children. The second study showed that the fifty-eight children that are autistic in this study showed a delay in gross and fine motor skills, this means the children had significantly fallen behind their chronological age (Lloyd et al., 2013).

MacDonald, Lord, and Ulrich (2013) study was on the relationship of motor skills and adaptive behavior skills in young children with autism spectrum disorders. This is a cohort study focusing on a hundred and fifty-nine participants aging from fourteen to forty-four months. The type of testing used for this study is GML testing; Almost all of the data collected for this study was in an autism clinic. This study focused on testing the

relationship between fine and gross motor skills in autistic children. Both gross and fine motor skills were measured utilizing The Mullen Scales of Early Learning (MSEL) (MacDonald, Lord, & Ulrich, 2013). The results for the study were dependent variable on "fine motor skills, nonverbal problem solving, ethnicity and calibrated autism severity" (MacDonald, Lord, & Ulrich, 2013, p. 6). No interactions happened during these results and the fine motor skills were significant of adaptive behavior composite ($p < .001$), daily living skills ($p < .001$), adaptive social skills ($p < .05$) and adaptive communicative skills ($p < .001$).

LeBarton and Iverson (2013) conducted a cohort study on the fine motor skills that predict the expressive language in infant siblings of children with autism, also diagnosed with ASD. Based off of thirty-four participants age ranging from twelve to thirty-six months, a measure of fine motor skills were used to tap motor planning and fine motor control for the children ranging in age from 12-18 months they also used a measure of vocabulary for the children at 36 months. Along with using both of those during this study they used standardized observational measures of fine motor and language skills as a "complementary source of information" (LeBarton & Iverson, 2013). The results of this study showed that the "composite scores were significantly lower for the HR group ($M = 3.62$, $SD = 1.86$) than the LR group ($M = 5.20$, $SD = 1.41$) ($U = 215.0$, $p = .001$)" (LeBarton & Iverson, 2013, p. 6).

Mostofsky, Burgess, and Larson (2008) study examined increased motor cortex white matter volume as a predictor of motor impairment in children with autism. The case-control study included 56 participants ranging in age from eight to twelve years old. The type of testing used during this study is the Physical and Neurologic Examination of Subtle Signs (PANESS). The study's goal was to see if the white matter in the primary motor cortex of these children would predict or not predict impaired motor skills in children with Autism. The results for this study had concluded that the groups did not differ from the amount of age difference between each person in the study (Mostofsky et al., 2008).

Table 3

Results of Assistive Technology Impacting Poor Motor Skills

Author	Sample Size	Type of Study	Age of Participants	Measures
Ament et al., (2015)	200	Case-Control	8-13 Years	Clinical judgment, Autism Diagnostic Observation (module 3), stimulant medications, Performance-based assessment evaluating motor skill ability (MABC-2)
Barbeau et al., (2015)	39	Case-Control	14-30 Years	Handedness assessment, Motor Skill assessment, Clinical diagnosis
Behere et al., (2012)	26	Case-Control	6-20 Years	Neurological exams, DWSMB, MANOVA

Lloyd et al., (2013)	162	Cohort	12-36 Months	MSEL
Macdonald et al., (2013)	159	Cohort	14-44 Months	GLM testing,
LeBarton et al., (2013)	34	Cohort	12-36 Months	Non-parametric Mann-Whitney tests.
Mostofsky et al., (2008)	56	Case-Control	8-12 Years	Physical and Neurologic Examination of Subtle Signs (PANESS)

The three tables in this section discuss the main findings of research conducted on the impact of assistive technology on children in the autism spectrum disorder. Table 1 explains how the studies pertaining to how AT impacts speech and communication difficulties. Table 2 addresses the information found on how AT impacts social interaction, and Table 3 showcases the studies that found how AT impacts poor motor skills.

Discussion

The majority of the studies found during the search for language improvement and motor skills in autistic children included case-control studies. All of the studies range in age from the time of birth until the age of thirty years old. The average amount of participants in the studies was ninety-six people, ranging from twenty-six up to two hundred participants. The main similarity between the studies on motor skills in children with autism is that the participants were randomly selected and found in an Autism Society of America area. All of the studies found impacting speech in people with ASD were similar in that they either created an application for a tablet or used an iPad.

Studies that focus on the development of social skills in autistic children aim to improve social interactions as well as emotional recognition. The majority of the studies used computer based technology in a classroom setting with both the individual as well as the collective body. Video modeling was also found to be an important tool helping participants improve their emotion recognition as well as social skills. The main takeaway from these studies is that after repetition there was a positive improvement. A sense of success and independence is key for all children but especially for children with autism spectrum disorder.

Limitations and future research

The promising outcomes of this particular systematic review indicate that the use of assistive technology devices with autistic children is warranted, and that available evidence indicates that the devices are likely to promote more effect speech, greater social interaction, and better motor skills of children in the autism spectrum. The effectiveness of assistive technology devices is no guarantee that children with ASD will be routinely used. Additionally, findings showed that large numbers of investigators failed to use evidence-based

training procedures. Thus, the basic questions that remain open is the importance of future research regarding the effective use of AT and various procedures applicable to individuals with autism and the training or education of professionals and parents.

Conclusion

This systematic review not only discussed the impacts of assistive technology on language, but on social interaction and motor skills. All of the studies selected showed a positive increase in all three objectives with the assistance of AT. This information is not only beneficial to children with ASD, but teachers and parents. Studies focused on the individual as well as students as a collective body. Studies also focused on the importance of an individual with autism to have a sense of independence and a sense of belonging in the community. With new technologies rising, we will be able to better support children with ASD in various aspects of their lives. In conclusion, we have learned that all of the studies we used show an increase in abilities of children with autism.

Autism is a growing occurrence in the world and it is best if people are well informed by researching how technology impacts speech, social interaction, and motor skills. Furthermore research and assessment is needed to measure the benefits of individualized assistive technology tools to aid with other complications associated with ASD. Additionally, future research regarding best practices in teaching approaches and accessibility to assistive technology to help individual ASD and their families should further be explored.

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Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) in Children: Fact Sheet for Education Professionals

Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) can affect a child's experience at school. This fact sheet provides information for education professionals such as teachers, guidance counselors, and other school staff about supporting students with ME/CFS and other chronic conditions in the school environment. For the purposes of this fact sheet, adolescents are defined as children between 11 and 18 years old and "parent" refers to adults who are either parents or guardians.

Helping Students Who Have Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)

When teaching adolescents or younger children with ME/CFS, it can be helpful to understand more about the problems faced by these students. A key to helping students with ME/CFS is to work as a team with their teachers, parents, administrators, other education professionals, and healthcare professionals. This team approach can provide flexibility with educational plans and school resources that are customized to target and reflect the student's needs.

ME/CFS affects each student differently. Each child may experience different symptoms and the duration of their symptoms may differ as well. Symptoms can fluctuate from day to day and week to week, affecting a young person's ability to attend school regularly and perform consistently.

ME/CFS can affect children and adolescents in many ways, including their:

- Attendance
- Ability to participate both inside and outside of the classroom
- Relationships with peers
- Ability to complete assignments
- Overall school success

Understand How ME/CFS Affects Students Inside and Outside the Classroom

Teachers and administrators who are not familiar with ME/CFS could mistake a child's illness and fatigue for laziness or avoidance of social interaction. Below are a few examples of how ME/CFS can affect students:

- School performance or attendance can be affected by a student's ME/CFS symptoms, such as memory or concentration problems, unrefreshing sleep, and headaches.
- Adolescents and younger children with ME/CFS can experience problems when trying to do several things at once—for example, doing their homework and keeping track of time.

- Many children with ME/CFS experience more severe symptoms in the morning hours and may have trouble getting to school on time or staying alert in the morning at school.
- Children with ME/CFS can have problems with attention, response time, information processing speed, and delayed recall of verbal and visual information.
- Teachers may notice that students with symptoms mentioned above may be able to complete grade-level tasks, but might require more time to do so.
-

Tips for Teachers and Administrators*

Because ME/CFS is a complex disorder that affects how students learn and participate in school, teachers and administrators may want to be creative in developing strategies to foster an encouraging learning environment for their students with ME/CFS. Teachers and administrators may want to:

- Help students with note taking.
- Give them extended time on exams and assignments.
- Schedule rest periods during class or throughout the day.
- Avoid information overload.
- Be open to combining school and home tutoring.
- Permit students to attend school in shorter periods rather than a full day, as necessary.
- If advised by the student's doctor, allow students to participate in modified physical education classes, or exempt them from class, if needed.
- Give students an extra set of books to use at home.
- Offer and encourage the use of organizers, schedulers, and other tools for time management.

*NOTE: The list above is not exhaustive. Teachers and administrators may need to explore other strategies to accommodate the particular needs of each individual student with ME/CFS.

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Latest Employment Opportunities Posted on NASET

* **Special Education Teacher** - Oakes Children's Center's Counseling Enriched Education Program, or CEEP, is a school-based mental health program for children in grades K – 8, who present with significant emotional and academic needs. Most students are referred to Oakes' CEEP because they have been unsuccessful in small classrooms within their district and need a school with on-site mental health providers. To learn more - Click here

* **Special Education Teacher** - Chester Community Charter School (CCCS) proudly serves students in grades K-8 on four campuses in nine school buildings in the Chester Upland Community. More than 4,000 students — two thirds of the district — call CCCS their school. We are offering competitive salaries AND a $6,000 signing bonus for full-time Special Education teachers hired for the 2018-2019 school year! To learn more - Click here

* **Director of Diverse Learners/Special Education** - Responsibilities include; Supervise, direct, coach SPED teachers, Supervise, direct, coach paraprofessionals, Create/oversee all SpEd team structures Support teachers in progress monitoring for IEPs and Attend all Chicago Public Schools SpEd policy meetings and communicate outcomes/updates to team. To learn more - Click here

* **Special Education Teacher** - will provide support to the instructional process by serving as a teacher with specific responsibility for developing diverse learners success in academics, interpersonal skills and other activities. The special education teacher will collaborate closely with all other teachers at Moving Everest Charter School to ensure the success of diverse learners. To learn more - Click here

* **Special Education Teacher** - EdTheory is currently looking for Special Educational Teachers (SPED) for multiple full-time positions in the Hollister,Santa Rosa and San Jose area in California. Candidates with certification and experience working with children preferably in school based settings are welcome to apply!. To learn more - Click here

* **Special Education Teacher** - AppleTree Early Learning Public Charter School seeks a motivated, passionate, and experienced Special Education Teacher to provide case management and direct services to children identified for special education and related services. The Special Education Teacher ensures that all children and families with special needs receive optimal developmentally appropriate educational experiences. The Special Education Teacher will implement students' Individual Education Plans (IEPs) in inclusion, push in and/or pullout settings.To learn more - Click here

* **Special Education Coordinator** - AppleTree Early Learning Public Charter School seeks a motivated, passionate, and experienced Special Education Coordinator to provide case management for students identified for special education and related services. The Special Education Coordinator ensures that all children and families with special needs receive optimal developmentally appropriate educational experiences. To learn more - Click here

* **Certified Special Education Teachers: K-12 (TEXAS)** - Uplift Education has Special Education Teacher positions open at primary, middle, and high school levels at our schools in the Dallas/Fort Worth, Texas area. Uplift Education is the largest public charter school network in North Texas. Our schools have received national recognition and 100% of our graduates have been accepted to college.To learn more - Click here

* **Special Education Teacher** - Rivermont Schools are now hiring special education teachers at multiple locations throughout Virginia. Sign on bonus of $2,000 and relocation assistance of $5,000 are available for those who qualify. To learn more - Click here

* **Special Education Manager** - The Special Education Manager supports teachers, administrators, and staff in ensuring that AppleTree Early Learning Public Charter School and AppleTree@ programs (collectively "AppleTree") provides optimal support to all children. The Special Education Manager develops knowledge of all stakeholders of the inclusion setting in order to best support students with disabilities. The Special Education Manager ensures high quality specialized instruction and optimal compliance within special education law. This is a supervisory position. To learn more - Click here

* **Special Education Teacher - Primary Level** - The duties of this job include providing specialized instruction to meet the unique needs of students with disabilities. The teacher will evaluate and assess student progress. The teacher will be responsible for classroom instructional activities and implementation of IEP's, including behavior plans. To learn more - Click here

* **Special Education Teacher** - DCD Center Based at Roosevelt Elementary School - Provides research-based specialized instruction to address the instructional goals and objectives contained within each student's IEP. Assesses student progress and determines the need for additional reinforcement or adjustments to instructional techniques. Employs various teaching techniques, methods and principles of learning to enable students to meet their IEP goals. To learn more - Click here

* **Head of School** - The Parish School www.parishschool.org is a private, non-profit, coeducational school, for children ages 2-12, with a maximum enrollment of 150. The person chosen to assume the Head of School will be offered an extraordinary opportunity. This national search will identify a candidate who will inherit a qualified and tenured faculty, devoted families, and excellent institutional reputation. To learn more - Click here

* **Special Education Teachers-All Areas** - Stafford County Public Schools is actively seeking certified Special Education-All Areas Teachers for the upcoming 2018-2019 school year. We also offer Travel Reimbursement for out of state applicants available ONLY with a signed contract. To learn more - Click here

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