

Educating Students with Autism Spectrum Disorder at a Secondary Level

A Meta-Synthesis

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Abstract

This meta-synthesis reviews literature on current practices being employed for working with students with Autism Spectrum Disorder (ASD) at a secondary level. Specific areas addressed within this meta-synthesis include the characteristics of students with that are higher functioning on the autism spectrum, the inclusion of students with ASD, limitations to including students with ASD into general education classes, and the perceptions of all of the stakeholders (students, parents, educators) in regards to educating this population at a secondary level. Additionally, effective interventions were explored to determine the best practices to utilize as part of an arrangement of supports that create quality learning experiences. This meta-synthesis intertwines the findings from the research studies with the author's experiences as a professional working with students with autism spectrum disorder.

1. Introduction

1.1. Background

Autism spectrum disorders are a disability subtype that historically has been seen as a low-incidence disability (Smith et. al, 2012). This disability is often studied, researched and explored by various professionals in order to gain a greater understanding into its causes, symptoms, and rapid growth across the globe. There is a broad consensus in the literature that children and young people on the autism spectrum experience difficulties with social communication, social interaction, and flexibility of thought and imagination (Ravet, 2011). This trio of impediments can also be accompanied with difficulties with learning, speech and language, emotion regulation, sensory sensitivity and executive function (Tobin et al., 2012). The means by which it has been studied and diagnosed over the years has expanded and allowed society to clarify how this disability affects individuals. This clarity has led to improved interventions and strategies that promote self-reliance and self-determination.

Autism's evolution into being viewed on a dual spectrum has led to a greater prevalence of diagnosis. As released in 2009 by the Centers for Disease Control, the rate of children being diagnosed with autism spectrum disorders (ASD) has risen dramatically, to an estimated 1 in 110 children (Hendricks, 2011). The accelerated growth of diagnosis results in autism being the fastest growing group of students being served through special education. As a result, most schools will inevitably have students in attendance that are on the autism spectrum, and teachers can expect, in some facet, to educate them.

Characteristics that are displayed by individuals with autism vary significantly; some individuals assimilate into the community whereas as others have major difficulties achieving any sort of independence (Smith et al, 2012). Students that are considered to be high functioning on the autism spectrum (HFASD) often display an above average to advanced intellectual functioning; therefore, are often able to attend general education classrooms. Being as this may, the disorder they face is far from being managed through minimal classroom adaptations. Due to the severity of their social skills limitations, students with HFASDs are at an increased risk of being socially isolated by their peers. In addition, many students on the autism spectrum can become easily stressed and emotionally uncontrollable when faced with change and/or environmental stressors, leading to an increased risk of tantrums, noncompliance, and at times, aggressive behaviors (Sansosti & Sansosti, 2012).

The challenges that often face an individual with ASD in regards to socialization and their development of social relationships often are found in relation to their executive functioning. These challenges become more pronounced during adolescence and young adulthood where new social challenges are embarked upon, such as: working with peers on more complex and abstract tasks, understanding rules that often have more variability due to the increase of courses/teachers, and navigating through a social milieu that contains subtle nuances that often are confounding. Executive functioning or the ability to regulate ones emotions, inner speech, and analysis of problems are often affected in an individual with ASD (Smith et al, 2012). A lack of control in this area results in not understanding subtleties in other people's

actions or overreactions to minor events, understanding how to filter generalized statements, and changes to the environment. Responding in this way can become challenge in a classroom setting in which many perspectives are brought together to learn a common subject matter. As students progress through school more perspectives are placed into a classroom to study increasing complex academic content.

Since students with autism present with a unique set of needs, school placement as they progress through early childhood, primary, and secondary levels of education becomes one of careful consideration and deliberation. To include or to deliver intensive interventions outside of their typically developing peer group becomes the ever pressing issue facing school districts across the globe. The inclusionary movement has gained momentum over the last quarter century and influences current policy both in the USA, with the Individuals with Disabilities Education Act (IDEA) and in the United Kingdom through their Special Education Needs (SEN). Inclusion has been a mixed blessing for many students on the autism spectrum. From one perspective, experts contest the potential for significant social gains through modeling and peer support (Reed et al., 2012). Often these studies are limited, with significant gains made by the population of students with co-occurring disabilities, primarily downs syndrome. Another perspective championed by other experts discusses how students with ASD perform particularly poor within an inclusionary, general education setting; and that the social aspects of general education placement are what students with ASD find the most stressful (Humphrey & Lewis, 2008). For example, students with ASD can exhibit behaviors that display a lack of emotional control, an inability to take turns, and heightened anxiety levels. When these behaviors are observed by their peers' ridicule and alienation often follow. Students with ASD are up to three times more likely

to be bullied and report receiving less social support from their peers than students that do not possess a disability (Humphrey & Symes, 2013). If they do not receive the support from their peers, they need to be provided that somehow, in some way. Without supports, either natural or prescribed through an Individualized Education Plan (IEP), students with ASD will struggle to become employable.

Employment rates for adults with ASDs remain low and among the lowest rates compared to other adults with disabilities (Burke, Andersen, Bowen, Howard, & Allen, 2010). These challenges have contributed to an increased focus by school districts to identify and utilize evidence-based interventions, in turn improving future outcomes for individuals with ASD. This challenge of underemployment often is a result of communication barriers paired with an inability to take on another's perspective. In a school setting, not being able to understand another person's perspective can be extremely challenging and often results in students finding other ways to cope with the stress (e.g. self-stimulating behaviors, individual reclusive activities, or repetitive sensory actions). These deficits can be especially difficult for students with ASD because the demands in high school require frequent complex social interactions with a variety of social partners across numerous contexts (Plavnick et al., 2013). If social challenges are part of the disability as well as a barrier to accessing education within a general education setting, then this may be a particularly significant obstacle for the students with a diagnosis (Kempe, 2012).

1.2. Author's experiences and beliefs

Working within the field of special education during my professional career was not a burning desire for me growing up. In fact, entering college it was not even a consideration for me. My mother, brother, and various extended family members are all educators. I respected their career choices; however, upon graduating high school I vowed that I would take the road less traveled. This desire to blaze my own trail exposed me to the field of hospitality and tourism management. After enrolling and navigating my way through classes such as Introduction to Restaurant Management, Front Office Operations, and Food Science, I had an epiphany. I came to the conclusion that helping and servicing others is what I am passionate about doing; however, doing that within the private service industry was not for me. This reexamination of my career path led me to take part in a variety of career exploration inquiries and assessments. The results recommend career options that sent me diverging back to a course with deep familial roots, education. Being a general education teacher was the farthest from what I felt truly passionate about, so I decided to explore special education. At this time, the university I attended as an undergraduate student, the University of Wisconsin-Stout, only offered special education as a concentration within the Vocational Rehabilitation major. Vocational Rehabilitation became the foundation upon which my professional career was constructed.

Throughout my career transformation into a strong advocate for individuals with disabilities I also started to experience changes within my physical/emotional self. What lay dormant in me for twenty-one years of my life, raged onto the scene during a collegiate football career. During a standard blocking drill in practice I encountered a flood of confusion. Between the intensity of the drill, the screaming of the coaches and the stifling heat I found myself in a position I could not manage. The environment became overwhelming; with my nervous system

overloaded I entered into my first anxiety/panic attack. The events that followed, and the increased being frequency of anxiety in my life sent me looking for answers. All of my questions about my anxiety have yet to be fully answered, but I believe my experiences have brought me greater understanding of the challenges that many students with disabilities face on a daily basis.

Because my trailblazing idea with my career path eventually circled me back to education, I still had a desire to do something unique, something never done in my family before. So I decided to take the love of my life, fifty pounds of luggage a piece and venture towards Alaska. The product of my desire has been a seven year career as a special educator at Soldotna High School in Soldotna, Alaska. I have spent the last four years in a very unique teaching placement.

Structured resource rooms or nest programs at a secondary level are currently in the infancy stage within the Kenai Peninsula Borough School District. These programs target students that are higher functioning on the autism spectrum, students with significant anxiety disorders, and students that benefit from more involved structure and support during their school day. This new service model is a result of student population shift. Since 2001 the Kenai Peninsula Borough School District has seen a 362% increase in the number students served under the eligibility category Autism Spectrum Disorder (ASD).

After working with students that are high functioning on the autism spectrum for the last four years, it has become apparent that a unique educational experience must be created in order to meet their academic, behavioral, and social needs. The techniques I employ have been integrated after attending trainings and collaborating with other special educators; however, I felt

like I needed to take a closer look into the factors that go into educating students with ASD at a high school.

With this meta-synthesis, I hope to investigate the following research questions:

1. Has empirical evidence been produced to determine the effectiveness of full inclusion of students with autism spectrum disorder?
2. What are the perceptions of teachers and parents regarding the education of students with ASD at a high school?
3. What perceptions do students with ASD have regarding their high school experience?
4. What does the current research show to be the best strategies for providing interventions/services to students with autism at a secondary level?

1.3. Purpose of the meta-synthesis

This meta-synthesis, which reviews literature that focused on the examination of learners on the autism spectrum, effectiveness of inclusion at a secondary level, best practices that are employed in schools to best assist this population, and the perceptions of all of the stakeholders (students, parents, staff) in regards educating students on the autism spectrum during adolescence. The first purpose was to review the literature that examined the effects of inclusion for individuals with high-functioning autism spectrum disorders in inclusionary settings. A second purpose was to identify articles that provide a full scope of perceptions into educating students on the autism spectrum including parents, students and educators. The third purpose was to explore effective instructional strategies educating students on the autism spectrum. The fourth purpose of this meta-synthesis was to classify articles according to publication type,

research design, and emergent theme. The final purpose was to coalesce the themes that emerged from this body of literature to my current position as a special educator working within a structured resource room.

2. Method

2.1. Selection criteria

The 41 journal articles included in this meta-synthesis met the following selection criteria:

1. The articles addressed issues related to educating students with ASD within inclusive settings at a secondary school.
2. The articles explored evidence based instructional practices that can be applied while working with students that are high functioning on the autism spectrum.
3. The articles explored issues related the perceptions of teachers, students, and parents in regards to educating students with autism spectrum disorder once while attending high school.
4. The articles explored key players' attitudes and opinions regarding effective supports within a high school for students that are high functioning on the autism spectrum.
5. The articles were published in peer reviewed journals related to the field of education.
6. The articles were published between 2006 and 2013.

2.2. Search Procedures

Database searches and ancestral searches were conducted to locate articles for this meta-synthesis.

2.2.1. Database searches

I conducted searches within the Education Resources Information Center (ERIC,Ebscohost) using the following search terms:

1. (“autism”) and (“full inclusion”)
2. (education+interventions+autism)
3. (“autism”) and (“resource room”) and (“high school”)
4. (“autism”) and (“high school”) and (“mainstream”)
5. (“autism”) and (“inclusion”)
6. (“autism”) and (“loneliness”)
7. (“evidence-based”) and (“autism”)
8. (“Asperger syndrome”) and (“pupil perspective”)
9. (“sensory integration”) and (“autism”)
10. (“ASD nest”)

The database searches yielded a total of 36 articles for a total of 41 documents.

(Callahan, Mehta, Magee, Wie, 2010; Carter, Lane, Cooney, Weir, Moss, & Machalicek, 2013; de Bruin, Deppeler, Moore, & Diamond, 2013; Emam & Farrell, 2009; Graetz & Spampinato, 2008; Hendricks, 2011; Hume & Reynolds, 2010; Hume, Plavnick, & Odom, 2012; Iovannone, Dunlap, Huber, Kincaid, 2003; Jobe & White, 2007; Kasari & Smith, 2013; Koenig, 2010; Koenig, Bleiweiss, Brennen, Cohen, Siegel, 2009; Lequia, Machalicek, & Rispoli, 2012; Locke, Ishijima, Kasari, London, 2010; Lytle & Todd, 2009; Machalicek, O’Reilly, Beretvas, Sigafos, & Lancioni, 2007; Morrison, Sansosti, & Hadley, 2009; Odom, Collet-Klingenberg, Rogers, & Hatton, 2010; Panerai, Zingale, Trubia, Finocchiaro, Zuccarello, Ferri, & Elia, 2009; Plavnick, Sam, Hume, & Odom, 2013; Poon, 2012; Probst & Leppert, 2008; Ravet, 2009; Reed,

Osborne, & Waddington, 2012; Saggars, Hwang, & Mercer, 2011; Sansosti & Sansosti, 2012; Schall & McDonough, 2010; Schmidt & Stichter, 2012; Schreck & Mazur, 2008; Sterling-Turner & Jordan, 2007; Stichter, Herzog, Visovsky, Schmidt, Randolph, Schultz, & Gage, 2010; Suk-Hyang, Simpson, & Shogren, 2007; Syriopoulou-Delli, Cassimos, Tripsianis, Polychronopoulou, 2011; Tobin, Staunton, Mandy, Skuse, Hellriegel, Baykaner, Anderson, Murin, 2012)

2.2.2. Ancestral searches

An ancestral search involves reviewing the reference lists of previously published works to locate literature relevant to one's topic of interest (Welch, Brownell & Sheridan, 1999). I conducted ancestral searches on the reference lists of the articles retrieved through my database searches. These ancestral searches yielded six additional articles that met the selection criteria (Bereznak, Ayres, Mechling, Alexander, 2012; Humphrey & Lewis, 2008; Humphrey & Symes, 2013; Mechling, Gast, & Cronin, 2006; O'Malley, Lewis, & Donehower, 2013; Wainscot, Naylor, Sutcliffe, Tantam, Williams, 2008).

2.3. Coding procedures

I used a coding form to categorize the information presented in each of the 26 research studies. This coding form was based on: (a) publication type; (b) research design; (c) participants; (d) data sources; and (e) findings of the studies.

2.3.1. Publication types

Each journal article was evaluated and classified according to publication type (e.g., research study, theoretical work, descriptive work, opinion piece/position paper, guide, annotated bibliography, and review of the literature). *Research studies* use a formal research design to

gather and/or analyze quantitative and/or qualitative data. *Theoretical works* use existing literature to analyze, expand, or further define a specific philosophical and/or theoretical assumption. *Descriptive works* describe phenomena and experiences, but do not disclose particular methods for attaining data. *Opinion pieces/position papers* explain, justify, or recommend a particular course of action based on the author's opinions and/or beliefs. *Guides* give instructions or advice explaining how practitioners might implement a particular agenda. An *annotated bibliography* is a list of cited works on a particular topic, followed by a descriptive paragraph describing, evaluating, or critiquing the source. *Reviews of the literature* critically analyze the published literature on a topic through summary, classification, and comparison.

2.3.2. *Research design*

Each empirical study was further classified by research design (e.g., quantitative, qualitative, mixed methods research). Quantitative research utilizes numbers to convey information. Instead of numbers, qualitative research uses language to explore issues and phenomenon. Mixed methods research involves the use of both quantitative and qualitative methods to present information within a single study.

2.3.3. *Participants, data sources, and findings*

I identified the participants in each study (e.g., students with autism spectrum disorder, teachers of students with autism spectrum disorder, parents of students with autism spectrum disorder). I also identified the data sources used in each study (e.g., observations, surveys). Lastly, I summarized the findings of each study (Table 2).

2.4. *Data analysis*

I used a modified version of the Stevick-Colaizzi-Keen method previously employed by Duke (2011) and Duke and Ward (2009) to analyze the 41 articles included in this meta-synthesis. Significant statements were first identified within each article. For the purpose of this meta-synthesis, significant statements were identified as statements that addressed issues related to: (a) inclusion of students with autism; (b) limitations to full inclusion for students with ASD; (c) experiences and needs of educators working with student on the autism spectrum; (d) experiences and needs of adolescents with autism; (e) and arrangements of supports needed for students with ASD to create quality inclusive learning environments. I then generated a list of non-repetitive, verbatim significant statements with paraphrased formulated meanings. These paraphrased formulated meanings represented my interpretation of each significant statement. Lastly, the formulated meanings from all 41 articles were grouped into theme clusters, represented as emergent themes. These emergent themes represented the fundamental elements of the entire body of literature.

3. Results

3.1. Publication type

I located 41 articles that met my selection criteria. The publication type of each article is located in Table 1. Twenty-six of the 41 articles (63%) included in this meta synthesis were research studies (Bereznak et al., 2012; Callahan et al., 2010; Carter et al., 2013; Emam & Farrell, 2009; Hendricks, 2011; Hume et al., 2012; Humphrey & Lewis, 2008; Humphrey & Symes, 2013; Jobe & White, 2007; Locke et al., 2010; Mechling et al., 2006; Morrison et al., 2009; O'Malley et al., 2013; Panerai et al., 2009; Plavnick et al., 2013; Probst & Leppert, 2008; Reed et al., 2012; Saggars et al., 2011; Sansosti & Sansosti, 2012; Schall & McDonough, 2010;

Schmidt & Stichter, 2012; Schreck & Mazur, 2008; Stichter et al., 2010; Syriopoulou-Delli et al., 2011; Tobin et. al., 2012; Wainscot et. al., 2008). Two of the 41 articles (5%) were theoretical works (Kasari & Smith, 2013; Ravet, 2009). One of the 41 articles(2%) was a descriptive work (Graetz & Spampinato, 2008). Six of the 41 articles (15%) were guides (Hume & Reynolds, 2010; Iovannone et al., 2003; Koenig et al., 2009; Lytle & Todd, 2009; Odom et al., 2010; Sterling-Turner & Jordan, 2007). Six of the 41 articles (15%) were reviews of literature (de Bruin et al., 2013; Koenig, 2010; Suk-Hyang et al., 2007; Lequia et al., 2012; Machalicek et al., 2007; Poon, 2012).

Table 1

| Author(s) & Year of Publication | Publication Type |
|--|--------------------------|
| Bereznak, Ayres, Mechling, Alexander, 2012 | Research Study |
| Callahan, Mehta, Magee, Wie, 2010 | Research Study |
| Carter, Lane, Cooney, Weir, Moss, Machalicek, 2013 | Research Study |
| de Bruin, Deppeler, Moore, Diamond, 2013 | Review of the Literature |
| Emam & Farrell, 2009 | Research Study |
| Graetz & Spampinato, 2008 | Descriptive Work |
| Hendricks, 2011 | Research Study |
| Hume & Reynolds, 2010 | Guide |
| Hume, Plavnick, & Odom, 2012 | Research Study |
| Humphrey & Lewis, 2008 | Research Study |
| Humphrey & Symes, 2013 | Research Study |

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| Iovannone, Dunlap, Huber, Kincaid, 2003 | Guide |
| Jobe & White, 2007 | Research Study |
| Kasari & Smith, 2013 | Theoretical Work |
| Koenig, 2010 | Review of Literature |
| Koenig, Bleiweiss, Brennen, Cohen, Siegel, 2009 | Guide |
| Lequia, Machalicek, & Rispoli, 2012 | Review of Literature |
| Locke, Ishijima, Kasari, London, 2010 | Research Study |
| Lytle & Todd, 2009 | Guide |
| Machalicek, O'Reilly, Beretvas, Sigafos, Lancioni, 2007 | Review of the Literature |
| Mechling, Gast, & Cronin, 2006 | Research Study |
| Morrison, Sansosti, & Hadley, 2009 | Research Study |
| Odom, Collet-Klingenberg, Rogers, Hatton, 2010 | Guide |
| O'Malley, Lewis, & Donehower, 2013 | Research Study |
| Panerai, Zingale, Trubia, Finocchiaro, Zuccarello, Ferri, Elia, 2009 | Research Study |
| Plavnick, Sam, Hume, Odom, 2013 | Research Study |
| Poon, 2012 | Review of the Literature |
| Probst & Leppert, 2008 | Research Study |
| Ravet, 2009 | Theoretical Work |
| Reed, Osborne, & Waddington, 2012 | Research Study |
| Saggers, Hwang, & Mercer, 2011 | Research Study |
| Sansosti & Sansosti, 2012 | Research Study |
| Schall & McDonough, 2010 | Research Study |
| Schreck & Mazur, 2008 | Research Study |
| Schmidt & Stichter, 2012 | Research Study |
| Sterling-Turner & Jordan, 2007 | Guide |
| Stichter, Herzog, Visovsky, Schmidt, Randolph, Schultz, & Gage, 2010 | Research Study |

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| Suk-Hyang, Simpson, & Shogren, 2007 | Review of Literature |
| Syriopoulou-Delli, Cassimos, Tripsianis, Polychronopoulou, 2011 | Research Study |
| Tobin, Staunton, Mandy, Skuse, Hellriegel, Baykaner, Anderson, Murin, 2012 | Research Study |
| Wainscot, Naylor, Sutcliffe, Tantam, Williams, 2008 | Research Study |

3.2. Research design, participants, data sources, and findings of the studies

As stated previously, I located 26 research studies that met my selection criteria (Bereznak et al., 2012; Callahan et al., 2010; Carter et al., 2013; Emam & Farrell, 2009; Hendricks, 2011; Hume et al., 2012; Humphrey & Lewis, 2008; Humphrey & Symes, 2013; Jobe & White, 2007; Locke et al., 2010; Mechling et al., 2006; Morrison et al., 2009; O'Malley et al., 2013; Panerai et al., 2009; Plavnick et al., 2013; Probst & Leppert, 2008; Reed et al., 2012; Sagers et al., 2011; Sansosti & Sansosti, 2012; Schall & McDonough, 2010; Schmidt & Stichter, 2012; Schreck & Mazur, 2008; Stichter et al., 2010; Syriopoulou-Delli et al., 2011; Tobin et. al., 2012; Wainscot et. al., 2008). The research design, participants, data sources, and findings of each of these studies are identified in Table 2.

Table 2

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| Authors | Research Design | Participants | Data Sources | Findings |
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| <p>Bereznak, Ayres, Mechling, Alexander, 2012</p> | <p>Quantitative</p> | <p>Three male high school students with autism spectrum disorders that receive special services via a self-contained class.</p> | <p>Task analysis of three tasks (using a washing machine, making noodles, and making copies). Data collection on student's ability to perform tasks correctly without prompting, other than the use of the iPhone, during three stages (baseline, intervention, maintenance)</p> | <p>Prior to baseline sessions, students were taught how to use the iPhone. This study supports use of an iPhone as an effective self-prompting device to teach chained daily living and vocational tasks to adolescents with ASD. Each student was able to increase their correct responding without verbal prompting, which averaged from 10-25% correct responses/accuracy at baseline with all tasks, to mid-80%-high 90% accuracy. This study also supports literature on using visual prompting as an effective intervention.</p> |
| <p>Callahan, Mehta, Magee, Wie, 2010</p> | <p>Quantitative</p> | <p>54 Teachers, 16 administrators, and 95 parents</p> | <p>Survey</p> | <p>Special educators, parents, and administrators were majority in favor of incorporating both TEACCH and ABA into classroom instruction for students with ASD. As exclusive treatments, TEACCH was more preferred to be utilized within a classroom by all three groups of respondents.</p> |

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| <p>Carter, Lane, Cooney, Weir, Moss, Machalicek, 2013</p> | <p>Quantitative</p> | <p>627 parents or caregivers of school-aged children and youth served under special education categories of intellectual disability or autism.</p> | <p>Survey</p> | <p>Parents emphasize the importance of their children with an intellectual disability or autism to learn the seven self-determination skills: choice making, decision making, problem solving, goal setting, self-advocacy, self-regulation, and self-awareness. Self-regulation and the ability to solve problems were seen as the areas of highest importance. Study also found that common barriers to self-determination were determined to be communication and their child lack of ability to communicate their needs (either verbally or nonverbally). The assessment conveyed striking differences between the skills they considered important for their children, especially self-regulation and problem solving, and the degree to which their children presently performed those skills.</p> |
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| <p>Emam & Farrell, 2009</p> | <p>Mixed methods</p> | <p>17 students with ASD who are all in an inclusionary setting on full-time basis.</p> <p>Teachers, teacher assistants, and a special education coordinator for the students were interviewed.</p> | <p>semi-structured interviews and observations</p> | <p>Evidence suggest that tension which arise for teachers due to the inclusion of students with ASD are shaped by ASD-related manifestations, especially those associated with self-regulation (ability to maintain expected classroom behaviors when unexpected events occur), language (student’s understanding of tone, idioms, application of general statements), perspective taking (student being able to take a teacher’s perspective), and social understanding (expectations of the classroom, knowing how to work in groups, participating appropriately in class discussions). Teachers who were given training in intervention strategies (i.e. TEACCH or ABA) were more willing to create ‘autism-friendly’ environments and exhibited a lower burnout rate. The utilization of a teacher assistant often proved effective with increasing success in inclusionary settings and decreasing the observable bullying. Teachers expressed support for the teacher assistant in the class to ensure students’ needs are being met.</p> |
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| <p>Hendricks, 2011</p> | <p>Quantitative</p> | <p>498 Special education teachers from Virginia that have taught at least one student with autism within the last five years.</p> | <p>Self-report survey consisting of a compilation of best and promising practices identified (within the <i>Virginia Skill Competencies</i>) as critical to address the needs of individuals with autism.</p> | <p>Special educators who serve students with autism present with a wide array of qualifications and experience. This finding is critical, as students with autism present needs vastly different from those with other disabilities. Distinctive supports and interventions are required given that cognitive ability is interwoven with social and communication limitations and the presence of stereotypical patterns of behavior and sensory processing difficulties interfere with learning. These educators provide service delivery to students with autism in a variety of educational settings. Special education teachers who serve students with autism have low to intermediate levels of implementation of effective teaching practices.</p> |
| <p>Hume, Plavnick, & Odom, 2012</p> | <p>Mixed methods</p> | <p>3 students with autism participated in an intervention package while their staff members, both special education and general education teachers completed a pre and post social validity</p> | <p>Data collection and pre and post surveys.</p> | <p>Following intervention, student accuracy, independence (completion without adult prompting), and generalization increased per staff member observations and completed social validity questionnaire post-intervention. Use of individual work system resulted in improved accuracy, decreased levels of adult prompting, and setting generalization (from the special education training setting to the general education setting) for all three participants.</p> |

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| | | questionnaire | | |
| Humphrey & Lewis, 2008 | Qualitative | 20 students with ASD, ages 11-17 located Northwest of England. | Semi-structured interviews, pupil diaries, and pupil drawings | <p>Results reveal a majority of students with ASD in the study view themselves and their disability through the feedback they receive from others. Peer relationships proved to be both a barrier and an enabler to their successful inclusion in school.</p> <p>Results also revealed the school environment itself as a considerable source of anxiety. Majority of participants felt that the order and predictability provided by their additional supports acted as a 'security blanket' to allow them to function. These supports often included the addition of a support staff within the general education setting. This person was overall viewed in a positive manner, assisting with problem solving, social understanding, and being a presence to deter bullying.</p> <p>Findings also produced a theme in regards to students navigating/negotiating their differences within a school environment. Within this context, students often feel both very different from their peers but also the same; feeling forced to adapt themselves in order to assimilate.</p> |

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| <p>Humphrey & Symes, 2013</p> | <p>Mixed methods</p> | <p>53 educators from 11 secondary school across north-west England</p> | <p>Questionnaire that covered: demographics, perceptions of inclusion, experience working with pupils with ASD, influence on integration of pupils with ASD, ability to cope with behaviors associated with ASD, and benefits/concerns with integrating pupils with ASD into inclusionary settings.</p> | <p>Educators that have experience working with pupils with ASD have more confidence managing the behaviors that may occur during a class period. Results also indicated that strategies for working with pupils with ASD can vary within the same educational setting. An overwhelming majority of the educators indicated that teacher assistants are crucial to successful inclusion of pupils in a general education setting. Social inclusion was seen as both a potential benefit and a potential problem.</p> |
| <p>Jobe & White, 2007</p> | <p>Mixed methods</p> | <p>97 undergraduate students enrolled in a large, urban university in the Southeast United States</p> | <p>Four measures were utilized: Autism spectrum quotient (AQ), UCLA loneliness scale, Adaption of Striving Assessment Scale (SAS), and a dating and friendship history.</p> | <p>Individuals with a stronger ASD phenotype reported having shorter duration friendships while also having longer romantic relationships. In participants with many characteristics of ASD, a relationship between decreased motivation to maintain and seek out friendships and the lack of social skill development emerged. Outcomes such as loneliness and diminished social motivation are related to social skill and communication difficulties.</p> |

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| <p>Locke, Ishijima, Kasari, London, 2010</p> | <p>Mixed methods</p> | <p>7 adolescents with autism (4 male and 3 female) and 13 typically developing peers that attend a public school in the Los Angeles area.</p> | <p>Two rating scales used: <i>Loneliness Scale</i>(Asher et al. 1984). 24-item questionnaire to assess individuals feelings of loneliness and social dissatisfaction . <i>Friendship Qualities Scale</i> (Bukowski, Bolvin, and Hoza, 1994). 23-item questionnaire that examines fives features of friendship quality: companionship, help, security, closeness, and conflict. Friendships surveys used identify social networks. A school activity questionnaire used to elicit a discussion on friendships.</p> | <p>Results reveal adolescents with autism experience significantly more loneliness than their typically developing classmates. All of the adolescents with autism in the study identified their best friend as another peer with autism. The results of the <i>Friendship Qualities Scale</i> revealed students with autism had significantly poorer friendship quality in regards to companionship and helpfulness. The examination of social networks indicated that students with autism were either isolated on the periphery of the classroom 75% of the time. The seven adolescents either isolated themselves or connected to their other peers with autism, forming two smaller groups on the periphery of the classroom. A lack of connection between their understanding of the definition of friendship and what they think about themselves appeared during the open-ended activity. All of the students with autism listed ‘someone you can relate to’ and ‘someone you can talk to’ when defining and determining what qualities they desire in a friend. Conversely, when asked to list qualities they like about themselves, responses pertained to their talents and abilities, not qualities about their personality.</p> |
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| <p>Mechling, Gast, & Cronin, 2006</p> | <p>Quantitative</p> | <p>Two students who attended a self-contained classroom for students with ASD in a public middle school.</p> | <p>Recording of task duration, task errors, and an examination of completed tasks conducted to determine accuracy.</p> | <p>Both students improved their task completion times when high-preference stimuli, presented via video reinforcement. Task duration was lowest when students were provided access to computer-based video recordings with a choice of preferred items and activities. On average, tasks were completed 60% faster after students were given video reinforcement, as compared to a standard tangible reinforcement. Providing choice and video presentation of high-preference stimuli can be effective in decreasing the amount of time it takes a student to complete a task while maintaining task accuracy.</p> |
| <p>Morrison, Sansosti, & Hadley, 2009</p> | <p>Qualitative</p> | <p>Four parents of sons with Asperger's Syndrome (none over the age of 16).</p> | <p>Focus Group with specific prompts regarding: Achieving Competence, Managing Emotions, and Moving Through Autonomy Towards Interdependence. Sessions were recorded and transcribed.</p> | <p>The six main ideas that emerged from the focus groups are: matching students to accommodating professors, permitting alternatives to group work, a professional advocate at the college that will assist in creating positive outcomes, examination of alternatives to traditional 4-year colleges, self-advocacy skill building provided via a college's Student Services Program, and continued parent involvement.</p> |

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| <p>O' Malley, Lewis, & Donehower, 2013</p> | <p>Mixed methods</p> | <p>Seven students (2 females and 5 males) from an urban district in Maryland. All students have a primary diagnosis of ASD. Teachers also completed a survey upon completion of study.</p> | <p>Student demographic questionnaire, technology usage survey, Learning and Achievement Profile (LAP-3), level of teacher prompts data collection, behavior data collection, fidelity of intervention checklist, and follow-up teacher's survey.</p> | <p>The level of teacher prompts needed in regards to independent task completion decreased during the intervention phase (utilization of iPads) by 3%. The iPads were seen as effective tools for differentiating the classroom instruction for each student. Each student in the study improved or maintained their LAP-3 performance while utilizing the intervention. Small survey size makes it difficult to generalize the findings to all students with ASD.</p> |
| <p>Panerai, Zingale, Trubia, Finocchiaro, Zuccarello, Ferri, Elia, 2009</p> | <p>Quantitative</p> | <p>34 males with ASD and/or cognitive disabilities</p> | <p>Pre and Post assessments conducted PsychoEducational Profile-Revised and Vineland Adaptive Behavior Scale</p> | <p>TEACCH appeared to be an effective program for children with autism. TEACCH also appeared to strengthen inclusive environments when used in conjunction with one another. Inclusion itself did not seem to be effective; structured teaching and flexibility must be adopted for optimal development of children with ASD.</p> |
| <p>Plavnick, Sam, Hume, Odom, 2013</p> | <p>Mixed methods</p> | <p>4 individuals 13-17 year old that all have been diagnosed as having ASD. Parents also completed a post intervention survey.</p> | <p>Video-based group instruction intervention sessions over a three month period. Survey.</p> | <p>All participants in the social skills group demonstrated a rapid increase in level of complex social behavior each time VGI was applied to a social domain. Participants also demonstrated the ability to independently engage in the social behaviors at a high level as the videos were faded. Parents indicated high levels of</p> |

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| | | | | satisfaction with the procedures and outcomes of VGI. |
| Probst & Leppert, 2008 | Quantitative | 2 groups consisting of 10 special education teachers (5 in each group) within the Hamburg, Germany area. | <p>Three group training sessions took place, all one month from each other. After that, teachers were given individual training sessions for six months. Each teacher averaged six sessions for a duration of 30 minutes each.</p> <p>Three separate surveys: <i>Classroom Child Behavioral Symptoms Questionnaire</i> <i>CCBSQ</i>, <i>Classroom Teachers' Stress Reaction Questionnaire</i> <i>CTSRQ</i>, <i>Implementing Structured Learning Strategies in Everyday School Life Questionnaire</i> . All three tools were</p> | <p>The significant reduction of behavioral symptom severity in students with autism as an outcome after TEACCH-teachers reported seeing a reduction in disruptive behaviors, oriented short term training. The reduction in self-reported teacher's stress due to child behavioral symptoms was also found. Teachers become more able to adapt an understanding that it is not actually the wish of many children with ASD to play with other children during breaks. On average, teachers were able to implement two of the five methods of effective structure within a classroom upon completion of the training, with a shortage of personnel being the restriction to more effective implementation.</p> |

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| | | | completed by the teacher. CCBSQ and CTSRQ done Pre and Post training. | |
| Reed, Osborne, & Waddington, 2012 | Mixed methods | 140 children that have been diagnosed with ASD and which 54 attend mainstream school and 86 attended a special school in the United Kingdom. Parents of the children were also interviewed | The Gilliam Autism Rating Scale (GARS), Strengths and Difficulties Questionnaire (SDQ) and Vineland Adaptive Behavior Scale (VABS). Baseline measures were obtained through parent interviews. Follow-up measures, the SDQ and VABS, were completed 9-10 months following initial interviews. | Based off of the overall mean change of scores, on the SDQ and VABS, children placed in special schools made greater improvements in their behavior problems (conduct and hyperactivity) than children in the inclusion/general education schools. Students made progress in areas of adaptive behaviors in both settings; however, students placed in inclusionary/mainstream schools did not make greater progress than children placed in special schools in regards to socialization and conduct. |
| Saggers, Hwang, & Mercer, 2011 | Qualitative | 9 Australian high school students (7 males and 2 females) between the ages of 13 and 16 that all have a | Two sets of interviews of 20-30 minutes in length. | Six categories emerged as having either positive or negative effect on participation and learning of students with ASD in an inclusive educational setting. Categories were: teacher characteristics, curriculum-related issues, |

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| | | medical diagnosis of ASD. | | support mechanisms, friendships, environmental considerations, teasing and bullying. |
| Sansosti & Sansosti, 2012 | Qualitative | 15 educators (2 administrators, 2 related service providers, 3 general education teachers, and 8 special education teachers), split in to two focus groups | Focus Group with specific questions regarding: roles in educating students with autism, support needs, student characteristics, instructional strategies, and support that are needed to support students with autism. Sessions were recorded and digitized. Individual interviews followed the focus group to gain greater depth into: participants experiences, beliefs, and attitudes regarding inclusion. | Inclusive education was necessary and beneficial for students with HFASD's who are especially likely to benefit from access to typically developing peers who model age-appropriate social skills and behaviors. Some degree of participation in general education with typically developing peers can be beneficial; however, full-time inclusion may not be appropriate for every student with an HFASD. Two considerations appeared to influence educators' placement recommendations: access to intensive academic curriculum and access to intensive behavioral supports. Students that cannot regulate his or her emotions, and that display frequent inappropriate behaviors or outbursts, may not experience the full benefits of inclusion due to the result of peer rejection. |

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| <p>Schall & McDonough, 2010</p> | <p>Qualitative</p> | <p>3 adolescents with ASD.</p> | <p>Case Study</p> | <p>Each individual in the study required higher intensity services than are typically offered to transition aged youth. These services would focus on the deficiencies all three displayed (communication, social skills, and practical problem solving/ decision making). The skills that were commonly occurring as deficiencies that needed to be addressed are: communicating with supervisors, following a schedule, social aspects of jobs, and career development.</p> |
| <p>Schmidt & Stuchter, 2012</p> | <p>Mixed methods</p> | <p>6 adolescents from Midwestern a middle school, all with ASD, and all participate in a general education setting for at least one hour. Three typical peers also utilized to be the peer mentors.</p> | <p>Observations conducted through all phases of implementation: Baseline, social competence program training, peer-mediated initiation, and peer-mediated proximity.</p> | <p>Peer mediated interventions increased the total social interactions above the natural levels observed at baseline. Results also indicate that during the peer initiation phases, social interactions often only occurred with the trained peer. Even though target students were responding at higher levels and were maintaining conversations for longer, they were not independently initiating these conversations. As the students with ASD entered the peer proximity phase, students' social behavior (recognition of facial expressions, sharing ideas, turn taking in conversation, recognition feelings and emotions (self & others), and problem solving) decreased to baseline levels.</p> |

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| <p>Schreck & Mazur, 2008</p> | <p>Quantitative</p> | <p>469 Board Certified Behavior Analysts (BCBA)</p> | <p>Online autism treatment questionnaire</p> | <p>BCBAs reported using Applied Behavior Analysis, Discrete Trial Instruction, and Picture Exchange Communications System, and Positive Behavior Supports the most often with student with ASD (all treatments listed above had over 50% usage by the surveyed BCBAs). ABA returned the highest percentage of usage, ease of implementation, and cost effectiveness. Evidence was provided that BCBAs continue to use treatments that are not scientifically supported (i.e. Facilitated communication, sensory integration, and auditory integration) for people with autism.</p> |
| <p>Stichter, Herzog, Visovsky, Schmidt, Randolph, Schultz, & Gage, 2010</p> | <p>Quantitative</p> | <p>27 students between the ages of 11-14 that have a current medical diagnosis of an ASD, an IQ above 75, and that have access to neurotypical peers for at least part of their day.</p> | <p>Social Responsiveness Scale (SRS), Sally-Anne false belief task, Smarties false belief task, Faux Pas Stories, Diagnostic Analysis of Non-Verbal Accuracy-2, Child Facial Expressions (DANVA-2-CF), Reading the Mind in Eyes test, Behavior Rating Inventory of Executive Function</p> | <p>Participants in the SCI curriculum showed improvements social competence and social functioning. Parents perceived the most significant improvement in their social cognition and their characteristically autistic mannerisms. Participants demonstrated improvements in labeling someone's emotional/mental state and recognizing facial cues. Parents noted significant improvements in participants' abilities to regulate their behavior.</p> |

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| | | | (BRIEF), Test of Problem Solving-3 (TOPS-3) | |
| Syriopoulou -Delli, Cassimos, Tripsianis, Polychronopoulou, 2011 | Quantitative | 228 teachers who teach within the formal educational system of Greece | Survey; structured questionnaire. | The majority of the Greek teachers' cohort believes that autism is the most serious mental-health disorder among children. In regards teachers' perceptions, three-quarters of the cohort believe and children with ASD should attend a special school. Moreover, a strong majority support the idea that a teacher with the appropriate training can effectively deal with a child with autism. Findings also points towards children with ASD tend to improve in a strictly structured environment. |
| Tobin, Staunton, Mandy, Skuse, Hellriegel, Baykaner, Anderson, Murin, 2012 | Qualitative | Seven participants (five mothers, two fathers) from England. Between them they had six children with ASD(one girl & five boys). Four parents consented to post-transition telephone interviews. | Focus Group Interview with specific prompts regarding: transitioning children to secondary school, vision for successful transition, support needed through the transition process, Sessions were recorded and transcribed. Telephone post interviews | The goal of successful inclusion in mainstream education was perceived as unrealistic. These perceptions were rooted in: breakdowns in communication between the school and parents, staff's lack of resources and training to meet their child's needs, teachers not fully understanding ASD and how to apply appropriate techniques to manage behaviors, an escalation of bullying by peers, increase demand of homework, the elevated social demands of secondary school, and a lack of access to areas in which their child could de-stress or receive help on understanding the changes they are experiencing. Parent expressed that their child's learning, experiences a |

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| | | | were conducted with same themes rephrased. | massive drop due to high anxiety. |
| Wainscot, Naylor, Sutcliffe, Tantam, Williams, 2008 | Qualitative | 57 secondary students, 30 with ASD, 3 with dyslexia, and 24 students without an IEP | Structured Interviews with a case/control groups. | There was no statistical difference between the students with ASD and the control group in the following areas: enjoyment of school, attending school, and likelihood of having a best friend at school. Areas that stood out as major differences occurred in the following areas: spending time alone, taking lunch in smaller settings (classrooms opposed to lunchroom or outside), having smaller social networks, less physical activity and the increase perception of being bullied. All of these areas appeared more common in the responses given by students with ASD. Students with ASD are both excluded by their peers (peer-exclusion) and exclude themselves (self-exclusion) from engaging in physical activity or unpredictable environments. |

3.2.1. Research design

Ten of the 26 research studies (38%) included in this meta-synthesis used a quantitative research design (Bereznak et al., 2012; Callahan et al., 2010; Carter et al., 2013; Hendricks, 2011; Mechling et al., 2006; Panerai et al., 2009; Probst & Leppert, 2008; Schreck & Mazur, 2008; Stichter et al., 2010; Syriopoulou-Delli et al., 2011). Seven of the 26 research studies

(27%) employed a qualitative research design (Humphrey & Lewis, 2008; Morrison et al., 2009; Sagers et al., 2011; Sansosti & Sansosti, 2012; Schall & McDonough, 2010; Tobin et al., 2012; Wainscot et al., 2008). Nine of the 26 research studies (35%) utilized a mixed methods research design, collecting and analyzing a combination of both quantitative and qualitative data (Emam & Farrell, 2009; Hume et al., 2012; Humphrey & Symes, 2013; Jobe & White, 2007; Locke et al., 2010; O' Malley et al., 2013; Plavnick et al., 2013; Reed et al., 2012; Schmidt & Stuchter, 2012).

3.2.2. Participants and data sources

The 26 studies included in this meta-synthesis analyzed data collected from a variety of participants. Sixteen of the studies (62%) collected data from participants that had a diagnosis of autism spectrum disorder (Bereznak et al., 2012; Emam & Farrell, 2009; Hume et al., 2012; Humphrey & Lewis, 2008; Jobe & White, 2007; Locke et al., 2010; Mechling et al., 2006; O' Malley et al., 2013; Panerai et al., 2009; Plavnick et al., 2013; Reed et al., 2012; Sagers et al., 2011; Schall & McDonough, 2010; Schmidt & Stuchter, 2012; Stichter et al., 2010; Wainscot et al., 2008). Nine of the studies (35%) collected data from educators, administrators, behavioral specialists, and other professionals that interact with students on the autism spectrum (Callahan et al., 2010; Emam & Farrell, 2009; Hendricks, 2011; Hume et al., 2012; Humphrey & Symes, 2013; Probst & Leppert, 2008; Sansosti & Sansosti, 2012; Schreck & Mazur, 2008; Syriopoulou-Delli et al., 2011). Six of the studies (23%) collected data from parents or care providers of students on the autism spectrum (Callahan et al., 2010; Carter et al., 2013; Morrison et al., 2009; Plavnick et al., 2013; Reed et al., 2012; Tobin et al., 2012).

The 26 studies included in this meta-synthesis utilized six different methods to gather data about their participants, including: (a) surveys/questionnaires; (b) observations; (c) standardized measures; (d) interviews; (e) focus groups; (h) and case study. Ten of the studies (38%) used surveys/ questionnaires to gather information from the participants (Callahan et al., 2010; Carter et al., 2013; Hendricks, 2011; Hume et al., 2012; Humphrey & Symes, 2013; O' Malley et al., 2013; Plavnick et al., 2013; Probst & Leppert, 2008; Schreck & Mazur, 2008; Syriopoulou-Delli et al., 2011). Seven of the studies (27%) used observations of the participants to gather data (Bereznak et al., 2012, Emam & Farrell, 2009; Hume et al., 2012; Mechling et al., 2006; O' Malley et al., 2013; Plavnick et al., 2013; Schmidt & Stuchter, 2012). Six of the studies (23%) conducted standardized assessments to gather data on the participants (Jobe & White, 2007; Locke et al., 2010; O' Malley et al., 2013; Panerai et al., 2009; Reed et al., 2012; Stichter et al., 2010). Four of the studies (15%) conducted interviews to gain greater insight into the topic (Emam & Farrell, 2009; Humphrey & Lewis, 2008; Sagers et al., 2011; Wainscot et al., 2008). Three of the studies (12%) utilized focus groups to gather data on the participants (Morrison et al., 2009; Sansosti & Sansosti, 2012; Tobin et al., 2012). One study (4%) used a case study to gather data from the participants (Schall & McDonough, 2010). Ten of the studies (38%) employed two or more methods of gathering data in an effort to strengthen their findings (Emam & Farrell, 2009; Hume et al., 2012; Humphrey & Lewis, 2008; Humphrey & Symes, 2013; Jobe & White, 2007; Locke et al., 2010; O' Malley et al., 2013; Plavnick et al., 2013; Reed et al., 2012; Schmidt & Stuchter, 2012).

3.2.2. Findings of the studies

The findings of the 41 studies included in this meta-synthesis can be summarized as follows:

1. Students with ASD should be included within a general education environment, but an arrangement of services must be provided in order for it to be successful. Just like the disorder, the arrangement of services will vary from student to student; however, clusters of interventions did emerge. Students with ASD at a high school need to have access to: a place in which they can get away from environmental distractions, a person in which they can discuss social situations that recently occurred to better understand what happened and how to proceed, time to work on receptive and expressive communication, time to work on social thinking, technology to assist with task completion and independence, peer mentors, structured work environments, teachers that are trained in employing effective techniques (ABA, TEACCH, PECS, PBIS), and access to staff support within a general education classroom. The staff at a school must be flexible in their delivery of services and maintain their focus on the ultimate goal, which is the student's growth and success.

2. Students with ASD often feel lonelier when they attend general education classes. Their unexpected behaviors, social skill deficiencies, and communication deficits often subject them to peer rejection and an exclusion from the group, often forming their own group outside the group. When placed into environments in which they feel comfortable and experience low level of stress and anxiety, students on the autism spectrum are more productive academically and often grow socially. Students with ASD do want to have quality relationships with their peers. These relationships often occur between other peers that are on the autism spectrum. The ability to share common experiences and to relate to the difficulties that arise in life makes these

social connections easier to obtain and maintain. I believe the school professionals must reexamine their own beliefs of social networks and friendships, and provide opportunities for students on the autism spectrum to build on whatever social network they currently have.

3. Teachers are often very receptive to working with students on the autism spectrum, but do experience tension and classroom management issues when not properly trained. They report needing to rely upon the special services staff members, special educators and para educators, for providing strategies, interventions, and support within a general education classroom. If more intensive trainings were provided, teachers report that they would be more equipped to educate and include students with autism spectrum disorder within their classroom.

3.3. Emergent themes

Five themes emerged from my analysis of the 41 articles included in this meta-synthesis. These emergent themes, or theme clusters, include: (a) inclusion of students with autism; (b) limitations to full inclusion for students with ASD; (c) experiences and needs of educators working with student on the autism spectrum; (d) experiences and needs of adolescents with autism; (e) and arrangements of supports needed for students with ASD to create quality inclusive learning environments. These five theme clusters and their formulated meanings are represented in Table 3.

Table 3

| Theme Clusters | Formulated Meanings |
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| <p>Inclusion of students with autism</p> | <ul style="list-style-type: none"> • Being in some form of inclusion is beneficial for students on the autism spectrum. • Inclusionary settings provide students with ASD time to view their peers modeling age-appropriate behaviors and social skills. • Inclusionary settings provide opportunities for students with ASD to work with their typically developing peers • When structured properly, peer socialization and cooperation within an inclusive environment can prepare students with ASD for interacting with co-workers later in life. • Peer-mediated interventions can increase social interactions for students with ASD. Peer mentors can promote conversations and assist in connecting the student with ASD to their other same-aged peers. |

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| | <ul style="list-style-type: none"> • Inclusion is often seen as a mixed blessing for many students on the autism spectrum. |
| <p>Limitations to full inclusion for students with ASD</p> | <ul style="list-style-type: none"> • Environmental factors within an inclusive setting provide a considerable source of anxiety. • Teasing and bullying that occur within a full inclusion setting increase the likelihood of students with ASD to become more socially isolated and lonely. • Students that have a harder time controlling and regulating their emotions, those prone to outbursts, may not experience the full benefits of inclusion due to peer rejection. • Breakdown in communication between the school and the parents can make full inclusion unmanageable for the student with ASD. When communication needs go unmet, services start to decline and classroom performance decreases. • Parents report that the increase in social demands, along with the increase in academic rigor, creates learning experiences in high school that are less productive and more filled with anxiety for their children. • Students placed within more structured environments, away from inclusive settings have reported making greater gains in regulating their behaviors. Students within a more structured environment also report making greater gains with socialization. |
| <p>Experiences and needs of educators working with students on the autism spectrum</p> | <ul style="list-style-type: none"> • Educators that have had previous experience working with students on the autism spectrum have more confidence managing the behaviors that may arise within the class period. • Teachers report that autism is a serious mental health disorder among children, and that appropriate training can effectively prepare them for including these students in their classroom. • Intensive trainings in employing interventions must be supported and |

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| | <p>provided by school districts in order to better prepare the general education staff. Educators report that trainings that are provided, often during in-service time, are not adequate enough to gain comfort with implementing techniques for educating students on the autism spectrum into practice.</p> <ul style="list-style-type: none"> • When provided with training, teachers often report an ability to better adapt and understand the behaviors that occur within the classroom. • Teachers report that it is often crucial to have a teacher’s assistant, or para educator, within the classroom when instructing a class containing students with ASD. They expressed that it helps with reducing bullying, managing behaviors, and incorporating the student with ASD in with their peers. • Special educators often take lead roles in the training of other staff members within a school. Those that have worked with student with ASD before have low to intermediate levels of implementation of best teaching practices. |
| <p>Experiences and needs of adolescents with autism</p> | <ul style="list-style-type: none"> • Students with ASD often feel not only different from their peers, but also feel that they continually need to adapt themselves in order to assimilate in with their peers. This can lead to an unclear picture of “self” within the student. • Students with ASD need support and opportunities to develop how to define who they are. Opportunities need to be provided in which students can develop a sense of who they are, using personality qualities instead of their talents and abilities. • Adolescents with autism experience loneliness and diminished social motivation at a higher rate than their typically developing peers. This loneliness is linked to social skill and communication difficulties. |

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| | <ul style="list-style-type: none"> • Opportunities need to be provided for students with ASD throughout their school day in which they can unpack social situations that occur. • Students with ASD often have a barrier with peer relationships that can make full participation within an inclusive setting more challenging. • Students with ASD often find more connection with their peers with autism. These peers provide them with someone they can relate and talk to without anxiety or stress. • Parents reported that self-determination, self-regulation, and problem solving are the three key areas in which their sons/daughters need the most continued support. • Parents report that the barriers their children face in regards to self-determination is most closely linked to their lack of ability to communicate effectively. |
| <p>Arrangements of supports needed for students with ASD to create quality inclusive learning environments.</p> | <ul style="list-style-type: none"> • Supports needed within a secondary school setting will vary for each student on the autism spectrum; therefore, much like the disorder, the services need to be spectrum based. • Students with ASD often require more intensive services than what is provided to their same-aged peers. These services are often in place for the duration of their time at high school and include environmental, social, behavioral, and instructional interventions. • Order and predictability provided by additional supports at school allow for students with ASD to meet the academic and social demands of high school. • Students with ASD and their parents report that having a place within a school in which the student could de-stress or receive help on understanding the changes they are experiencing is imperative. |

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| | <ul style="list-style-type: none">• Para educators become an important support service within a high school. They often reduce the amount of bullying that occur within the supervised areas (classroom, lunchroom, locker room, hallways) and are able to assist the general education teacher with managing the unexpected behaviors that may be exhibited by students on the autism spectrum. Educators indicate teacher assistants are crucial to the performance of the classroom, especially as the pupil to teacher ratio continues to increase.• Parents, teachers, and students are all in agreement that parent involvement remains crucial to success and implementation of the services being provided to students with autism while in attendance at high school.• Matching students with autism up with teachers that are comfortable with employing interventions (TEACCH techniques, work stations, Positive Behavior Supports, structured schedules, environmental accommodations, etc.) produced positive outcomes within an inclusive environment.• Structured social thinking, social skill building, and problem solving were seen as paramount aspects to the services being provided to students with ASD in high school by parents and teachers.• Technology, such as iPhones and iPads, are effective tools in differentiating classroom instruction and teaching work independence to students on the autism spectrum.• Video guided instruction can be employed with positive outcomes to enhance students' ability to engage in expected social behaviors.• Structured teaching and flexibility must be adopted by all educators serving students on the autism spectrum. These |
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| | <p>two key factors allow for optimal development to occur.</p> <ul style="list-style-type: none"> • Allowing time for students with ASD to be alone and away from sensory situations actually benefit their overall academic performance. • Using individualized work systems with students with ASD can improve task accuracy, decrease the level of adult support, and promote generalization of a skill. • Computer-based interventions can reduce the time needed to complete a task while maintaining task accuracy. • Applied Behavior Analysis, Discrete Trial Instruction, Picture Exchange Communication System, Applied Behavior Analysis, Discrete Trial Instruction, Picture Exchange Communication System, TEACCH techniques, and Positive Behavior Supports are used most often when working with student on the autism spectrum. |
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4. Discussion

In this section, I summarize the major themes that emerged from my analysis of 41 articles included in this meta-synthesis. I then relate these emergent themes to my professional practice as a special educator at a high school.

4.1. Inclusion of students with autism

Having all students be a part of an inclusive environment at school has become the consensus within the American school system. The extent of this inclusion is based off of creating the least restrictive environment for each student. For students with autism spectrum disorder, inclusive environments provide opportunities to observe their peers modeling

age-appropriate behaviors. Inclusionary settings also provide time for student with ASD to work with their typically developing peers. This provides time to build on skills needed to work as a team as well as structured opportunities to take part in constructive dialogue. When positive peer interactions occur within an inclusive setting, and students with autism have peer mentors/friends that can assist with expanding their social network, inclusive environments become laboratories of academic, emotional, and social growth for the students on the autism spectrum.

Within my practice, I find that determining the placement of a particular student within an inclusionary setting is a team decision. The educators, parents, and student should all provide input into this decision. Allowing each stakeholder's voice to be heard promotes effective educational practices and ensure all team members that the focus will always be on what's best for the student.

4.2. Limitations to full inclusion for students with ASD

Students with autism experience difficulties with social communication, social interactions, flexibility of thought, and processing sensory information. All of these impairments can limit the effectiveness of full inclusion. When full inclusion is seen as the only method of educational delivery, the students' needs are not fully being met. Students with ASD often exhibit unexpected behaviors as a reaction or response to a stimulus/situation they cannot handle or understand. Exhibiting these challenging behaviors within an inclusive setting increases the likelihood of peer rejection and bullying; which in turn, increase the loneliness students with ASD often experience.

As students enter secondary education, high school in particular, the academic rigor and amount of social nuances increase. These demands, especially on the social side of the high

school experience, produce high levels of anxiety. These elevated levels of anxiety lead to decreased academic performance and increased propensity to exhibit unexpected behaviors that inhibit growth. The findings also produced that increased, structured environments allow for students with ASD to make greater gains in self-regulation, socialization, and communication. These structured environments are not limited to intensive pull-out style of classrooms; therefore, effective techniques can be employed in a variety of settings. In order for that to be successful, adequate training and staffing need to be provided.

All settings within a school have environmental factors that can elevate the anxiety level of a student with ASD. The amount of possible environmental demands can often be more in flux within inclusive environments; therefore, the combination of having a hypersensitive nervous system and not knowing where the next unexpected change may occur or come from, place worry, anxiety, and stress into the forefront of the student's school experience. If a student does not possess proper techniques to decoding words and reading passages, we as educators employ interventions to remediate and enhance those areas of weakness. The same principles must be employed in regards to teaching strategies on dealing with environmental demands. Time must be dedicated to providing instruction in this area. Within my own teaching practice, I intend to make these opportunities available to the students I serve. My overall goal is to provide knowledge that will enhance the quality of a student's life. Providing them with these tools to be able to better handle environmental demands will have a trickle-down effect into other life domains such as social, vocational, and academic endeavors. In order to do this, I do believe the students need implicit instruction and that can best be delivered through a specialized structured classroom.

4.3. Experiences and needs of educators working with students on the autism spectrum

Teachers do recognize that autism spectrum disorder is a serious mental health issue facing our school system. The increase number of students with ASD attending public school ensures that most teachers can expect to teach a student with ASD at some point. Teachers that have previous training or experience working with students on the autism spectrum often feel more comfortable managing their classroom and employing strategies to create an inclusive environment. Unfortunately, the percentage of teachers within a school that meet that criterion is often very low. Not having adequate training is the most recorded response in regards to the tensions that arise while educating students on the autism spectrum. I have been fortunate enough to have received training in my undergraduate program, graduate program, and from my school district on how to effectively work with student on the autism spectrum. Most general education teachers at a secondary level do not. Their trainings are very content specific and may discuss basic differentiation, but are not taught about successful interventions such as applied behavior analysis, TEACCH techniques, picture exchange communication systems, and positive behavior supports. Often it is left up to me as the special educator to pass along knowledge and techniques I employ. This method enhances the collaboration and communication in between two professionals; however, the dialogue could be enhanced if we started with a common language and set of techniques we could build from.

Intensive in-depth trainings on effective strategies to employ while working with students on the autism spectrum is critical to the success of the students as they progress through high school. Early intervention has become effective in starting the growth process in regards to communication, problem solving, and flexibility of thought with students on the autism

spectrum; however, these students eventually attend a secondary school in which the level of supports is often adjusted. Schools must become more creative in how they staff and serve this population. Therefore, the greater amount of staff members that have the knowledge and training in regards to employing effective strategies for working with students with ASD within classroom, the more inclusive the school can become. When provided with adequate training, teachers often report having a better ability to adapt their classroom and their instructional practices to meet the needs of students on the autism spectrum.

One of the most impactful findings was how crucial teachers' felt teacher assistants, or para educators, are to their ability to deliver quality instruction. Teachers expressed that para educators assist with reducing bullying, clarifying classroom directions, maintaining the expectations of the classroom, and assist with managing challenging behaviors that may be exhibited. With growing number of students in each classroom at a high school, teachers believe that para educators are crucial to creating inclusive environments for students on the autism spectrum. I know within my own structured resource room, para educators allow for me to do my job. Most of my students do attend general education classes and without support they would struggle socially and academically. The para educators become my eyes and ears in the classroom so I can determine how to tailor my instruction to meet the current needs of the students.

4.4. Experiences and needs of adolescents with autism

Students with ASD often report feeling not only different from their peers, but also feel they have an obligation to conform in order to fit in with their peers. This self-awareness, being aware that the actions/behaviors one exhibits can single them out within a setting increase the

feeling of loneliness within many higher functioning students on the autism spectrum. They lack connection with peers that are not autistic. This does not mean they do not want to seek out friendships with typically developing peers; however, it does mean that they often feel more comfortable with peers that are also on the autism spectrum.

Adolescents with autism often make greater connections with their peers that also are on the spectrum. In my practice, I try to cultivate the friendships I witness being grown in between the students I serve because I know that the friendship I am witnessing grow is just as meaningful as one held by two typically developing students in the same school. I know I cannot make my students call or text one another on the weekends or in the summer, but I can provide opportunities within my classroom for them to become closer friends which can transfer into them taking the initiative to connect outside of school.

Due to the increased academic and social rigor of high school, adolescents with autism reported that they need time to escape the environmental demands and need a person they can communicate with to discuss confusing experiences that have arisen in their life. Students with ASD need support and opportunities to better define who they are as a person. Often students on the autism spectrum will define themselves by what they are good at instead of by what qualities they possess. These experiences are crucial because without them, students with autism may start to define themselves through how their peers treat/view them. A physical space that the students can access throughout the day that has minimal environmental distractions, has a place they can position themselves comfortably, and is staffed with trained teachers and para educators can be the most effective instructional intervention provided at the school. The environment acts as a nest, a secure oasis amongst the chaos of a school building.

Parents reported that they foresee their children with ASD needing support well through their high school years. They feel their child will continue to need assistance with self-determination, self-regulation, and problem solving throughout their educational experience and possibly into adulthood. The barriers they see their children facing stem from a lack of being able to communicate effectively. I notice this within my teaching practice and have seen results in which a communication issue has led to students hindering their peer and staff relationships. As a special educator I feel I must consider how each student struggles to communicate and tailor the means at which I communicate with them. This means within a group of ten students I may be utilizing verbal, written, drawings, and picture communication to assist students with gaining a better understanding of themselves.

4.5. Arrangements of supports needed for students with ASD to create quality inclusive learning environments.

Supports provided to students with ASD within a secondary school setting must be as spectrum based as the disorder itself. Often, students with ASD require a higher intensity of services than those needed by their typically developing peers. These services include, but are not limited to: additional interventions throughout their school day, additional staffing, alternative environments for learning, integrating technology into the instruction, peer mentoring, and expanding their duration of time attending school. It is the job of the IEP team to determine the amount and intensity of supports that will be provided. As a special educator I must be able to understand all of the options and provide my best professional guidance.

Many services can be provided within an inclusive setting. Structure, both classroom expectations and visual schedules, can be implemented within any class and often benefit all of

the students. Proper structure often comes from matching the student up with teachers that are comfortable and knowledgeable about working with student on the autism spectrum. Staff support can also be provided. Para educators often reduce the amount of bullying that occur within supervised areas and are able to assist with managing the unexpected behaviors that can arise within a class. Para educators can also assist the student with becoming more independent. One way I utilize my support staff is to have them working within the background of a classroom and provide the appearance that a particular student or small group of students are in attendance at class independently. Doing this places an expectation on the student to seek out help when needed instead of the support being right by them. This takes time to build up to for many students; however, it is a small step on their road to self-determination and independence.

Individualized work systems can be utilized in most environments and can become a key intervention for students seeking greater independence and task accuracy. Implementing an effective work system within an inclusive setting can occur, but it does take training and time for both the general education and special education teacher to implement successfully.

For students in which a typical general education classes are not the best environment for instruction, alternative placements can be beneficial. Structured resource rooms can provide an environment in which students with ASD can flourish academically. This environment can also be where student can be alone, away from major environmental demands. The findings suggest that this down time actually benefits their overall academic success. Along with being a place to remove one from environmental demands, within my classroom I have many students working through an online curriculum that allows them to continue to pursue their graduation requirements. Much of the work is independently completed; therefore, each student can move

progress at their own speed. This, paired up with a semester calendar of due dates, has produced positive results with the student I work with. The more classes the students take out of my room, the more flexible I am able to be with their schedule. Having flexibility becomes vital when working with students on the autism spectrum. It sounds counter-intuitive, seeing how inflexible they can often be with their thinking, but being able to be flexible allows the teacher to continually adapt and seek out opportunities to meet the needs of the student. To assist with flexibility, the arrangement of service should include assistive technology.

Technology, such as iPhones and iPads, are effective tools in differentiating classroom instruction and teaching work independence to students on the autism spectrum. They provide another means of communication and often act as a comfortable medium for relaying information. Differentiation becomes much more attainable when utilizing technology such as iPads and iPhones. As an educator I can create video tutorials, my students can watch them over and over again as many times as they see fit, and they can then engage me in enrichment questions to increase the depth of their knowledge. These tools help increase the ability for students to work independently as well. Another source of technology that can be utilized with students on the autism spectrum is video guided instruction. This can be employed to teach a variety of concepts, especially social rules and protocols, with positive outcomes to enhance students' ability to engage in expected social behaviors. Video guided instruction often is individualized for a student, or a small group of students, and they must have time built into their day to work of these skills. Time becomes precious in high school and as a team all of the stakeholders must collaborate to determine how to implement the arrangement of services.

No matter what services are provided at school, the parents' involvement in their son or daughter's education is crucial. Parents are able to coordinate what is being done at school with what they do at home. This coordination, when done properly, can be very effective. It can establish consistency within both settings and reduce the amount of unexpected behaviors at school. Parents play a key role because they are the ones who will continue to be with their child after they complete their time at high school. Often they are the ones that need to ensure services are provided within the community after school based services discontinue. Having an open line of communication with parents makes educating students on the autism spectrum much more manageable. From the perspective of a special educator, I am the in-school advocate for the student; therefore, I believe I must be effective with my communication with parents. I need to be the person that explains educational jargon and that can assist with improving their child's quality of life.

Services provided within a school system must be arranged to meet the needs of the individual student. So many interventions and treatments have been proven to work. Therefore, as an educator, it is my job to tailor the strategies to meet my teaching style while also addressing the needs of each student I serve.

5. Conclusion

It is inevitable that all high schools will have students with autism spectrum disorder walking their halls at some point. Most students with autism will require supportive educational programming throughout their academic tenure, even though they may be brilliant academically. They possess difficulties in areas that most typically developing peers learn naturally. Due to

these difficulties, these students have a unique set of needs that must be met in order to improve their future quality to life.

How these needs are met will vary student to student, but what is consistent is the need for all of the stakeholders (teachers, students, and parents) to work together towards a common goal. The findings of this meta-synthesis highlight the complexity of the factors that go into effective secondary education for students on the autism spectrum. The evidence shows that inclusive education is needed for all students with autism; however, the extent to which this occurs must be open to discussion.

A variety of factors are taken into account when developing the arrangement of support services. One of the most important factors to consider is the perspective of the student. Adults often want to assume they know exactly what's best for a child, what classes they should take, and what supports they believe are needed. However, without gaining an understanding of the views and experiences of the student with autism, an effective plan cannot be developed. Supports that can be provided can be intensive and very basic depending on the student, but the success of the intervention is dependent upon the student's willingness to utilize the support.

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