



Developing an Effective Learning Environment
for Children with Asperger Syndrome
A Meta-Synthesis

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Abstract

This meta-synthesis of the literature on developing an effective learning environment for children with Asperger Syndrome examines four critical areas that help support academic and social growth and self-advocacy. Early intervention and social skills instruction, while considering the specific needs of the child are foremost and provide the foundation from which all future learning will evolve. Effective learning not only encompasses approaches that are person-centered but also requires adaptations that support transition. For the Asperger child, as he moves into adulthood, transitioning can be especially challenging. As an adult, with ongoing support and interventions, transitions can be opportunities for self-awareness and growth.

1. Introduction

1.1. The problem

Asperger syndrome (AS) is a developmental disability that is defined by impairments in social relationships and verbal and nonverbal communication and by restrictive, repetitive patterns of behavior, interests, and activities (Barnhill, 2001). Asperger syndrome is one of the conditions under the umbrella of Autism Spectrum Disorders (ASD), which has received a great deal of attention since the 1990s. AS was first described in 1944 by Hans Asperger (Griswold et al., 2002) but was somewhat ignored until it was initially included in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR), which was published by the American Psychiatric Association for the purpose of providing a common language and standard criteria for the classification of a variety of mental disorders. In 2005, Fombonne's conservative estimate of the prevalence of AS was 2.6 in every 10,000.

Given that AS research is still in its infancy and that characteristics differ from child to child, currently this is no preferred education intervention. As educators we must address several issues and develop effective strategies. Areas that should be considered include: (a) visual strategies, which takes advantage of the child's more intact learning modality; (b) structural strategies, such as preparing students for changes in schedules and routines; and (c) providing an instructional sequence that follows a logical progression for learning (Myles & Simpson, 1998). While many strategies and interventions have been identified and tested, there remains a gap. Children, who have been identified with AS, especially those in the pre-adolescent stage, are forced to "fit-in" with mainstream children in inclusive environments. This often causes great frustration and often failure especially when appropriate social skills have not been developed. In general, AS children are gifted with unique talents and a method of thinking this is unlike his or

her peers. The charge for our public school system is to provide an instructional environment that is structured and geared towards AS children. This environment would be one that taps into the unique talents and interests of the child, while allowing them to maintain dignity and self-respect. Rather than allowing these children to slip through the cracks and possibly lead a life of unfulfillment and disappointment which leads to downward spiraling, we need to provide an atmosphere that fosters self-expression through inventive practices. I believe that children with AS are better served in a formative period of their life – which sets a tone that encourages positive community involvement, success and achievement.

1.2. Author's beliefs and experiences

This is now my fifth year of teaching in special education, and possibly one of my most challenging years of teaching I've yet to encounter. I have always had a certain comfort level using effective instruction when teaching students with academic challenges either due to low cognition, learning disabilities or the presence of ADD/ADHD, however, as of the latter part of last school year I have found myself to be challenged beyond what most days I feel to be outside my realm of expertise.

My feelings of inadequacy with relation to children on the autistic spectrum, specifically high-functioning AS, have much to do with identifying the effective strategies and methods of instruction as it relates to social skills. I often think to myself, how do you teach skills that, to most, come naturally? It is frustrating to see a highly intelligent child who has unlimited potential held back primarily due to a lack of social awareness and the inappropriate behaviors that follow. Not only do I feel the frustration, but the child himself is often disinterested in school and often gives up, which only results in a downward spiral of repetitive vocalizations or outbursts and the resulting consequences of such actions.

While effective teaching strategies as it relates to academics was my first choice of research, I quickly realized and learned that without the social skills/behavior component, no amount of teaching can take place. Day after day I struggle using a variety of methods and approaches in hopes of finding what works. Recently, a substantial amount of time, energy and input from various providers/educators in our building allowed our team to identify triggers which then allowed us to draft a functional behavior analysis and behavior plan. However, identifying the tools needed to effectively *teach* social skills was lacking. This is the point at which, while searching articles on educating students with AS, I decided how crucial this information is to the success of my student AND my ability to be an effective educator in this area.

Interestingly enough, just the other day when at a Department Chair meeting, the same concern was raised by a fellow colleague. Our district, as I'm sure with many others, provides a wealth of information, trainings, and supports. All of this guidance is wonderful and necessary; however, additional steps need to be taken when there are still questions related to how to put that guidance and training into practice. The facilitators of the meeting acknowledged that there was insufficient direction as it relates to supporting the needs of our autistic population and that it would come at a later date. This is all fine and good; however, what do we do in the meantime? For me this was another very good reason to investigate and research the theories and practices of those that have the expertise in this area. The research questions I have formulated are:

1. For AS children, why are having good social skills so critical to being able to effectively teach them?
2. What is the most effective learning or instructional environment for high-functioning AS children?

3. How can primary and secondary schools best prepare high-functioning AS children for life beyond high school?

4. What have employers found to be the most successful workplace environments for employees who have AS?

Developing social skills in AS children, especially at the pre-adolescent level, is a challenge for even the best of educators. However, for the child to function within and among his peers, and to be able to take advantage of the curriculum being taught, he must have or possess good social skills. I have recently questioned whether the mainstream environment is what is best for this type of child and whether we are appropriately preparing him not only for middle and high school, but for the outside world as we know it. It would be shameful to hinder or hold back the knowledge and interests that this child obviously possesses. What is especially alarming is when he makes comments that he doesn't "belong" here – whether "here" means the current educational environment or the world in which he is living. Through this research I hope to uncover more than information, but rather open up new doors for many of our struggling and hopefully not "...left behind" children.

1.3. The purpose of this meta-synthesis

The purpose of this meta-synthesis was to collect and analyze articles related to the development and implementation of education programs for students with AS. I was particularly interested in articles that addressed interpersonal competence, effective learning environments, transitional programs, and employment issues. I hope to use what I have learned from this meta-synthesis to strengthen the educational programs I offer my students with AS.

2. Methods

2.1. Selection criteria

The 37 journal articles included in this meta-synthesis met the following selection criteria:

1. The articles examined issues related to interpersonal competence and children with AS.
2. The articles discussed issues related to effective educational environments for students with AS.
3. The articles examined issues related to transition programs available to students with AS.
4. The articles discussed issues regarding work environments as they related to adults with AS.
5. The articles were published in professional journals typically read by educators.
6. The articles were published between 1992 and 2009.

2.2. Search procedures

I conducted database searches and ancestral searches to locate articles for this meta-synthesis.

2.2.1. Database searches

I conducted systematic searches of the Education Resources Information Center (ERIC, EBSCOhost) database, using the following search term combinations:

1. ("Asperger Syndrome") AND ("Interpersonal Competence").
2. ("Asperger Syndrome") AND ("Educational Environment").
3. ("Asperger Syndrome") AND ("Transitional Programs").
4. ("Asperger Syndrome") AND ("Work Environment").

5. (“Asperger Syndrome”) AND (“Job Skills” OR “Vocational Education” OR “Vocational Rehabilitation” OR “Employment”).

The various database searches yielded a total of 37 articles that met the selection criteria (Adreon & Stella, 2001; Attwood, 2000; Barnhill, 2007; Bernad-Ripoll, 2007; Black, 1999; Boutot, 2009; Bullard, 2004; Cameron et al., 2005; Chung et al., 1998; Delano, 2007; Dunn et al., 2002; Elias & Schneider, 1998; Emerich et al., 2003; Freedman & Silverman, 2008; Gibbons & Goins, 2008; Graetz & Spampinato, 2008; Gutstein & Whitney, 2002; Hurlbutt, 2008; Hurlbutt & Chalmers, 2004; Jennes-Coussens et al., 2006; Jindal-Snape et al., 2005; Jordan, 2005; Kagan & Neuman, 1998; Koning & Magill-Evans, 2001; LaCava et al., 2007; Linn & Smith-Myles, 2004; Mawhood & Howlin, 1999; Mayton, 2005; Nesbitt, 2000; Odegaard & Heath, 1992; Owens et al., 2008; Rao et al., 2007; Safran, 2002; Sansosti & Powell-Smith, 2006; Simpson & Myles, 1998; Tantam, 2000; Wilkerson & Wilkerson, 2004; Williams, 1995).

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). The author conducted ancestral searches of the reference lists of the articles and chapters retrieved through the database and hand searches. These ancestral searches yielded ten additional items that met the selection criteria (Black, 1999; Elias & Schneider, 1998; Hurlbutt, 2008; Jennes-Coussens et al., 2006; Kagan & Neuman, 1998; Koning & McGill-Evans, 2001; Mawhood & Howlin, 1999; Odegaard & Heath, 1992; Tantam, 2000; Williams, 1995).

2.3. Coding procedures

I used a coding form to categorize the information presented in each of the 37 articles. This coding form consisted of: (a) publication type; (b) research design; (c) participants; (d) data sources; and (e) findings of the studies.

2.3.1. Publication type

I evaluated and classified each article according to publication type (e.g., research study, theoretical work, descriptive article, opinion piece/position paper, guide, annotated bibliography, review of the literature). *Research studies* describe systematic methods for collecting and analyzing quantitative and/or qualitative data. *Theoretical works* are articles that explain and/or develop theory. *Descriptive articles* describe a phenomena or experience but do not employ systematic methods for collecting and analyzing data. *Opinion pieces/position papers* express an author's opinion about a topic. *Guides* are "how to" publications that describe how to go about doing something. *Annotated bibliographies* are alphabetical lists of articles or books that include brief summaries that explain what the article or book is about. *Reviews of the literature* aim to describe critical points of current knowledge and findings presented in the professional or empirical literature on a given topic.

2.3.2. Research design

I classified each empirical study by research design (i.e. quantitative research, qualitative research, mixed methods research). *Quantitative* researchers collect and analyze numerical data. *Qualitative* researchers use language (as opposed to numbers) to describe experiences and phenomena, and to tell people's stories. *Mixed methods* research combines quantitative (i.e., numerical) and qualitative (i.e, non-numerical) research methods within a single study.

2.3.3. Participants, data sources, and findings

I identified the participants in each of the studies (e.g., Asperger children and adolescents, adults with and without Asperger syndrome, and parents of children on the autism spectrum). I also identified the data sources that were analyzed for each study (e.g., interviews, observations, surveys, standardized tests). Finally, 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 37 articles included in this meta-synthesis. I first identified significant statements within each article. For the purpose of this meta-synthesis, I defined significant statements as statements that addressed issues related to: (a) Asperger syndrome and social skills; (b) Asperger syndrome and effective instructional and learning environments; (c) Asperger syndrome and transitioning; and (d) Asperger syndrome and effective workplace environments. I then developed a list of non-repetitive, non-overlapping (verbatim) significant statements with (non-verbatim) formulated meanings. These formulated meanings represented my interpretation of each significant statement. Finally, I grouped the formulated meanings from all 37 articles into theme clusters (or emergent themes). These emergent themes represented the essence (or content) of the entire body of literature (Table 3).

3. Results

3.1. Publication type

I located 37 articles that met my selection criteria. The publication type of each article is delineated in Table 1. Twelve of the 37 articles (32.4%) included in this meta-synthesis were research studies (Bernad-Ripoll, 2007; Cameron et al., 2005; Chung et al., 1998; Delano, 2007; Emerich et al., 2003; Jennes-Coussens et al., 2006; Jindal-Snape et al., 2005; Lacava et al., 2007;

Mayton, 2005; Nesbitt, 2000; Owens et al., 2008; Sansosti & Powell-Smith, 2006). Ten of the articles (27.0%) were guides (Adreon & Stella, 2001; Boutot, 2009; Bullard, 2004; Hurlbutt, 2008; Hurlbutt & Chalmers, 2004; Linn & Smith-Myles, 2004; Safran, 2002; Simpson & Myler, 1998; Wilkerson & Wilkerson, 2004; Williams, 1995). Six of the articles (16.2%) were opinion pieces (Attwood, 2000; Black, 1999; Freedman & Silverman, 2008; Graetz & Spampinato, 2008; Gutstein & Whitney, 2002; Jordan, 2005). Six of the articles (16.2%) were reviews of the literature (Barnhill, 2007; Dunn et al., 2002; Gibbons & Goins, 2008; Kagan & Neuman, 1998; Odegaard & Heath, 1992; Rao et al., 2007). Two of the articles (5.4%) were descriptive articles (Koning & Magill-Evans, 2001; Mawhood & Howlin, 1999). One of the articles (2.8%) was a theoretical work (Tantam, 2000).

Table 1

Author(s) & Year of Publication	Publication Type
Adreon & Stella, 2001	Guide
Attwood, 2000	Opinion Piece
Barnhill, 2007	Review of the Literature
Bernad-Ripoll, 2007	Study
Black, 1999	Opinion Piece
Boutot, 2009	Guide
Bullard, 2004	Guide
Cameron, Shapiro, & Ainsleigh, 2005	Study
Chung, Elias, & Schnieder, 1998	Study
Delano, 2007	Study
Dunn, Saiter, & Rinner, 2002	Review of the Literature
Emerich, Craghead, Grether, Murray, & Grasha, 2003	Study
Freedman & Silverman, 2008	Opinion Piece
Gibbons & Goins, 2008	Review of the Literature

Graetz & Spampinato, 2008	Opinion Piece
Gutstein & Whitney, 2002	Opinion Piece
Hurlbutt, 2008	Guide
Hurlbutt & Chalmers, 2004	Guide
Jennes-Coussens, Magill-Evans & Koning, 2006	Study
Jindal-Snape, Douglas, Topping, Kerr, & Smith, 2005	Study
Jordan, 2005	Opinion Piece
Kagan & Neuman, 1998	Review of the Literature
Koning & Magill-Evans, 2001	Descriptive Article
Lacava, Golan, Baron-Cohen, & Smith-Myles, 2007	Study
Linn & Smith-Myles, 2004	Guide
Mawhood & Howlin, 1999	Descriptive Article
Mayton, 2005	Study
Nesbitt, 2000	Study
Odegaard & Heath, 1992	Review of the Literature

Owens, Granader, Humphrey, & Baron-Cohen, 2008	Study
Rao, Beidel, & Murray, 2007	Review of the Literature
Safran, 2002	Guide
Sansosti & Powell-Smith, 2006	Study
Simpson & Myles, 1998	Guide
Tantam, 2000	Theoretical Work
Wilkerson & Wilkerson, 2004	Guide
Williams, 1995	Guide

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

I located 12 research studies that met my selection criteria (Bernad-Ripoll, 2007; Cameron et al., 2005; Chung et al., 1998; Delano, 2007; Emerich et al., 2003; Jennes-Coussens et al., 2006; Jindal-Snape et al., 2005; Lacava et al., 2007; Mayton, 2005; Nesbitt, 2000; Owens et al., 2008; Sansosti & Powell-Smith, 2006). The research design, participants, data sources, and findings of each of these studies are delineated in Table 2.

Table 2

Author	Research Design	Participants	Data Sources	Findings
Bernad-Ripoll, 2007	Mixed Methods	9 year-old child with Asperger syndrome	Videotaped segments of emotions and social stories	This method was effective in recognizing and understanding emotions; however, future research is needed to validate the effectiveness of persons at different ages and developmental stages while in different environments.
Cameron, Shapiro, & Ainsleigh, 2005	Quantitative	9 year-old boy with Asperger syndrome	Interviews and direct observations	When a person-centered approach is utilized, positive behavior supports can be used to develop an educational program.
Chung, Elias, & Schnieder, 1998	Mixed Methods	99 early adolescents from a primarily blue-collar, multiethnic ancestry during an ecological transition from elementary to middle school (no specific disability identified)	Piers-Harris Self-Concept Scale, Social Support Resource Measure, Psychological Distress Measure, School Environment Questionnaire, SAT-MS Measure, AML Teaching Rating Scale, and the measure of academic achievement from school records	Different paths of adaptation to the middle school transition need to be understood in order to accurately identify adolescents at risk and provide them with appropriate early intervention services for their specific needs.
Delano, 2007	Qualitative	An adolescent with Asperger syndrome	Informal interviews and responses	By using Self-Regulated Strategy

				Development (SRSD) writing instruction, students are able to demonstrate gains in both the quantity and quality of their writing.
Emerich, Creaghead, Grether, Murray, & Grasha, 2003	Quantitative	Adolescents with Asperger's syndrome or high-functioning autism and an age matched group of typical adolescents	Subjects participated individually in one testing session	Comprehension of humorous materials (cartoons and jokes) by the adolescents with autism was significantly poorer than that of their peers who are typically developing.
Jennes-Coussens, Magill-Evans & Koning, 2006	Mixed Methods	12 men ages 18 to 21 with Asperger syndrome and 13 men ages 18 to 21 without Asperger syndrome	Two self-administered mailed questionnaires and a semi-structured interview	The physical and social domain of young adult males with Asperger syndrome should be addressed to enhance quality of life and allow individuals to successfully participate in meaningful, age-appropriate activities. Through the assessment of motor skills, physical fitness, and sensory issues, appropriate job selection could be supported.
Jindal-Snape, Douglas,	Qualitative	Parents of 5 male children ages 12 to	Interviews	Parent opinion is that whatever the

<p>Topping, Kerr, & Smith, 2005</p>		<p>13 years old with autism spectrum disorder making transition from primary to secondary education and professionals working with these children</p>		<p>educational provision, teachers should have adequate autism-specific training. Parents see the advantage of their child being mainstreamed; however, need to understand this needs to be decided on a case by case basis. The quality of delivery, staff attitude, curriculum modification, etc. all plays an important part in creating an inclusive environment.</p>
<p>Lacava, Golan, Baron-Cohen, & Smith-Myles, 2007</p>	<p>Mixed Methods</p>	<p>2 girls and 6 boys, ages 8 through 11 year old, who were European American and had a formal diagnosis of Asperger syndrome</p>	<p>Cambridge Mindreading Face-Voice Battery for Children, Child Feature-Based Auditory Task, Reading the Mind in Films Test-Children's Version, and Mind Reading (this software served as the independent variable) and pre and post-tests</p>	<p>Social skills training and emotion recognition growth by those with Asperger syndrome is supported by the use of Mind Reading technology.</p>
<p>Mayton, 2005</p>	<p>Qualitative</p>	<p>10 year-old Caucasian girl with Asperger's syndrome who, except for one hour of speech therapy per week, was being educated</p>	<p>Structured interviews, observations, artifact analysis (e.g. IEP, schoolwork samples)</p>	<p>The findings indicated a need for social skills instruction and individualized instruction in non-applied abstract</p>

		in a general education 4 th grade classroom		learning activities. The study also found that there is a need for a more comprehensive individualized education program (IEP) and more rigorous implementation.
Nesbitt, 2000	Mixed Methods	Organizations using Prospects - The National Autistic Society's Supported Employment Service	Questionnaire/survey	The findings offered insights into factors that are important to organizations when making employment decisions. The use of Prospects, can best position employers and how they view employment for individuals with Asperger syndrome.
Owens, Granader, Humphrey, & Baron-Cohen, 2008	Quantitative	6 to 11 year olds with high functioning autism and Asperger syndrome	Wechsler Abbreviated Scales of Intelligence (1999), Gilliam Autism Rating Scale (1995), Spence Children's Anxiety Scale (2000), Conner's ADHD index (2001), Child Behaviour Checklist (2001), questionnaires and interviews	LEGO therapy and the Social Use of Language Programme (SULP) are promising social skills interventions for children with Asperger syndrome.
Sansosti & Powell-Smith, 2006	Quantitative	Three elementary-aged boys, ages 9.9 to 11.6 years with a current diagnosis of Asperger syndrome	Observations	The study investigated the effect of social story interventions and provided some

				<p>support from previous positive findings regarding the use of social story interventions for children with autism. There was also support for clinical recommendations for using social story intervention to teach prosocial skills in children with Asperger syndrome.</p>
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3.2.1. Research design

Three of the 12 studies (25.0%) included in this meta-synthesis employed a qualitative research design (Delano, 2007; Jindal-Snape et al., 2005; Mayton, 2005). Four of the studies (33.3%) used a quantitative research design (Cameron et al., 2005; Emerich et al., 2003; Owens et al., 2008; Sansosti & Powell-Smith, 2006). Five of the studies (41.7%) employed a mixed methods research design, collecting and analyzing a combination of both quantitative (i.e., numerical) and qualitative (i.e., non-numerical) data (Bernad-Ripoll, 2007; Chung et al., 1998; Jennes-Coussens et al., 2006; Lacava et al., 2007; Nesbitt, 2000).

3.2.2. Participants and data sources

The 12 studies included in this meta-synthesis analyzed data collected from early adolescents with Asperger syndrome, adults with and without Asperger syndrome, parents of adolescent males with Asperger syndrome and professionals working with students with Asperger syndrome. Nine of the studies (75.0%) collected data from early adolescents with Asperger syndrome (Bernad-Ripoll, 2007; Cameron et al., 2005; Chung et al., 1998; Delano,

2007; Emerich et al., 2003; Lacava et al., 2007; Mayton, 2005; Owens et al., 2008; Sansosti & Powell-Smith, 2006). One of the studies (8.3%) analyzed data collected from adults with and without Asperger syndrome (Jennes-Coussens et al., 2006). One of the studies (8.3%) analyzed data collected from parents of adolescent males with Asperger syndrome and professionals working with students with Asperger syndrome (Jindal-Snape et al., (2005). One of the studies (8.3%) did not collect primary data from human subjects (Nesbitt, 2000).

3.2.3. Findings of the studies

The findings of the 12 studies included in this meta-synthesis can be summarized as follows:

1. Social skills instruction is imperative to the needs of Asperger children. Effective social skills and emotion training can be taught in a variety of ways to include the use of videotaping, Mind Reading technology, LEGO therapy and social stories.
2. Teaching and instruction should be considered on a case by case basis. When using a person-centered approach and proven instructional strategies, an inclusive environment can be achieved when supported with positive behavior modifications.
3. Early interventions and adaptations must be provided to help support the transition process, not only from elementary to middle school, but as the Asperger child moves towards high school and beyond.
4. When addressing job selection and employment, motor skills, physical fitness and sensory issues need to be taken into account. Many employers utilize a service called Prospects, which helps employers' best position individuals with Asperger syndrome.

3.3. Emergent themes

Four themes emerged from my analysis of the 37 articles included in this review of the literature. These emergent themes (or theme clusters) include: (a) methods and strategies when teaching interpersonal competence or social skills to children with Asperger syndrome; (b) most effective general education instructional methods and supports; (c) supporting and preparing for transition at various stages; and (d) supported employment for high-functioning adults with Asperger syndrome. These four theme clusters and their associated formulated meanings are delineated in Table 3.

Table 3

Theme Clusters	Formulated Meanings
<p>Methods and Strategies when Teaching Interpersonal Competence or Social Skills to Children with Asperger Syndrome</p>	<ul style="list-style-type: none"> • Allow for many opportunities where the child can observe and interact with ordinary children. • Social stories, to include comic strip conversations, have been proven to be effective to assist the child to acquire the necessary cognitive mechanisms and to help them learn more about other people and what they are thinking and feeling. • Social skills groups support the application of modeling and role playing. • Videos combined with social stories help Asperger children understand emotions. • The “I Will” card strategy helps children monitor their own behavior by using self-talk in social situations. • Visual supports help the Asperger child to organize his physical and temporal space. • Frequent adjustment needs to occur that allows for creativity in order to meet the varying needs of AS children. • The use of experience-sharing allows for constant referencing of emotions and actions as AS children communicate with partners. • Using assistive technology, such as Mind Reading software, helps teach emotion recognition based upon basic and complex emotions in faces and voices. This strategy incorporates photographs, short movie clips, and audio clips and can be used in multiple setting. • LEGO therapy, which is based on the idea of using the child’s natural interests, helps to improve social interaction.
<p>Most Effective General Education Instructional Methods and Supports</p>	<ul style="list-style-type: none"> • Establishing a schedule that provides for consistency is very important because AS children function best when they know what will happen next. • Make use of visuals whenever possible. These can be in the form of visual cues as well as charts and schedules that provide for routines. • Expectations, as well as boundaries, should be clear and readily accessible to the child for reference as needed. • In addition to verbal instructions, written directions aid in comprehension. Instructions can also be provided in picture format. • Encourage the child to verbalize or repeat instructions and directions, using his or her own words, to ensure that understanding is clear. • The use of timers supports academic development as they limit

	<p>perseveration on objects or ideas.</p> <ul style="list-style-type: none"> • Provide for breaks or “free time” to motivate the child and encourage productivity. Breaks can be geared towards his or her specific interest. • Teach other children and their peers how to interact with the AS child. This can be accomplished through role-playing, modeling and discussion. • Supply or provide a social skills notebook. Stories that display correct and incorrect behaviors help to guide and enhance the child’s social success. • Depending on the needs of the child, visual cue cards help as prompts of expected behaviors. Pre-teaching must first take place so that the child understands the purpose. • Whenever possible, try to connect written messages to visual pictures when a desired behavior is expected. • AS children can be overstimulated or have difficulty adjusting to a new activity or environment. For this reason, provide a safe place in or out of the classroom when the child can calm down and get control again. • Provide for sequential instruction when teaching story writing skills. The use of Self-Regulated Strategy Development, or SRSD, provides for planning, writing, revising, editing and monitoring that is explicit and gradual. • To help reduce anxiety, allow the student to use a stress ball or to stand up while doing work. Also, allow the child access to a school counselor or a peer buddy. • Modify tests or assignments and allow extra time and a private space when testing. • As educators, understanding AS enables us to correctly identify a child’s learning needs as no single approach works for all.
<p>Supporting and Preparing for Transition at Various Stages</p>	<ul style="list-style-type: none"> • Hold a transition-planning meeting that includes personnel from both the sending and receiving schools. • Staff should understand how to implement the necessary modifications and adaptations as well as have an understanding of AS. • Acquaint the student with those people who are assigned as “safe” and/or peer buddies. • Provide direction regarding rules for behavior at the new school. • Allow for a variety of classroom adaptations and modifications depending on the student’s needs. • Because unstructured times are particularly difficult for AS students, extreme care in planning is crucial. Activities that may be most challenging include, but are not limited to, transportation, class changes, lunch and physical education. • Promote self-advocacy and self-determination. This can begin as

	<p>early as elementary school and should continue on into high school and beyond.</p>
<p>Supported Employment for High-Functioning Adults with Asperger Syndrome</p>	<ul style="list-style-type: none"> • <i>Prospects</i>, the National Autistic Society's supported employment service, and similar services, help to address the needs of more able individuals by offering orientation services, identification of training needed, job analysis, disability awareness, social training, and the development of effective working relationships. • A <i>Master and Apprentice</i> model serves as an excellent support that allows the individual to work at his or her own rate while becoming skilled through training first and first-hand learning on the job. • A <i>Supported Employment</i> model allows the individual to first be placed on the job then learns the job; however, certain settings and situations may not work effectively for some AS adults.

4. Discussion

In this section, I summarized the major themes that emerged from my analysis of the 37 articles included in this metasynthesis. I then connected these emergent themes to my current and future teaching practice as a special education teacher.

4.1. Methods and strategies when teaching interpersonal competence or social skills to children with Asperger syndrome

Teaching a skill that, for many, comes naturally, can be a daunting task for educators. Teaching social skills is unlike teaching an academic subject where guidelines and curriculum drive instruction. When teaching interpersonal competence, or social skills, many methods and strategies have been implemented and researched proving that some are more effective than other; however, it is the unique child that will drive the type or types of strategies that are implemented. Immersing the child in an environment where he or she is allowed to observe the positive interactions of others is just one of many approaches.

From early on, children love stories read to them, but it is social stories, especially those that provide pictorial representations of a person's thoughts and actions that appear to intrigue them. For the child with Asperger's, comic strip conversations go a long way in helping a child acquire those very necessary brain functioning thought processes. Visualizing what people are saying with this method allows a child to better understand the thoughts and feelings of others while hoping to understand his or her very own feelings.

As the Asperger child matures into early adolescence, many other strategies are used with varying success. For the child, understanding his or her emotions can be supported through social skills groups where they can engage in a variety of role playing activities and modeling of appropriate and inappropriate behaviors.

For those children that are visual or auditory learners, the use of videos to help understand emotions has been another effective approach. Videos can be followed by social stories specific to any given situation or challenge the child may be encountering. After instruction, ongoing learning can be implemented through the use of visual supports which also help the Asperger child organize his personal space whether it is physical or temporal.

As with any instruction, frequent adjustments will be necessary in order to meet the needs of the child. Encouraging the child to monitor his or her own behavior and providing for many opportunities to communicate emotions will support social interaction and growth.

4.2. Most effective general education instructional methods and supports

While there are many methods and strategies for teaching social skills or interpersonal skills, not all of them are effective or particularly relevant when in a general education setting. In fact, when it comes to the general education setting, it can often be difficult to implement tailored strategies especially when the educator is also meeting the academic needs of a group while maintaining an environment that is structured and supportive. What may be most helpful to educators is to keep in mind how it is that the supports for an Asperger's child can often be tailored to meet the needs of the entire class.

The research is clear that consistency is of utmost importance for the Asperger child. Establishing schedules can not only be effective for high needs children but can additionally be beneficial for all students. Even as adults, we feel more comfortable knowing what will happen next or what to expect. Schedules and consistency fill this very need or void for the Asperger's child as well, which is vital to their optimal functioning.

It is not enough to simply establish schedules and routines as they must also be visible. Depending on the child, the schedule may be posted on a board, on a desk or even in a student's

binder. It is often useful for the schedule to be accompanied by visuals or pictures that depict the environment or activity the child will be engaged in. Again the type of schedule will be dependent upon the specific needs of the child.

As educators we all know that expectations and boundaries are crucial to classroom management. Not only should rules be taught, but opportunities to reference back to specific rules and expectations should be accessible to the Asperger child. Unwanted or inappropriate behaviors can and do have a negative impact on classroom instruction. Interruptions are counterproductive and can be avoided by taking some very basic steps and precautions.

Educators need the necessary tools in order to effectively work with special needs children. This can be achieved through ongoing education, team discussion, communication and collaboration. However, not only do our educators need support, but our children and their peers require education. Often when behaviors that impede learning are observed, students are unsure how to react or they may not understand the dynamics of the situation. By providing role-playing opportunities, modeling and discussion, the negative effects of classroom interruptions or disruptions can be minimized. Effective instruction must always be coupled with knowledge, thoughtful preparation and a thorough awareness of the Asperger child's specific needs.

4.3. Supporting and preparing for transition at various stages

Transitions for the Asperger's child need to be carefully planned and should include the child. Again, the level of involvement will depend on the individual student's needs; however, when older students are given opportunities to be self-advocates challenging obstacles can be addressed before tenuous situations arise. As with instructional methods, there are some crucial steps that should be initiated to encourage a smooth transition.

Gathering all related staff and individuals that will be working with the student and providing an open forum for discussion will often help reduce any uncertainty while promoting a team centered approach. Discussion related to the student's specific characteristics, needs and behaviors, coupled with the implementation of program modifications are just the first steps in understanding and managing transitions.

Any and all pre-planning and education relative to Asperger's will communicate to staff, and the student, the message that each and every individual involved in the transition process is valued for their input and involvement. During the pre-planning, acquainting the student with peer buddies will help to ease anxiety. Throughout the transition process, there should be an ongoing effort to delegate roles and responsibilities to specific staff members in support of the student. At any stage, the continual promotion of self-advocacy and self-determination should be paramount.

4.4. Supported employment for high-functioning adults with Asperger syndrome

While there has not been a great deal of research in this area, one thing is certain. More and more employers are recognizing the importance and benefits of supported employment for high-functioning adults with Asperger syndrome. Their unique talents and contributions have only begun to be recognized.

Several models and supports have been exposed as excellent sources when it comes to addressing the employment needs and interests of Asperger adults. A variety of services are offered from orientation, to identifying training needs and job analysis to disability awareness, social training and effectively developing positive working relationships. A number of employers offer master and apprentice models that allow the Asperger adult to work at his own pace while learning on the job. Then other models first offer job placement followed by on the job training.

Through education and awareness, it is hoped that more employers will recognize the invaluable contributions Asperger adults have to offer to society.

5. Conclusion

This meta-synthesis has revealed that an effective learning environment requires thoughtful and careful planning coupled with relationship building and ongoing communication. Early interventions begin with an awareness of how to recognize children with Asperger Syndrome. The early years also require an understanding of how to advocate for these children so that they can succeed not only in the school setting but on into the future as adults. No single approach fits every situation which is why it is so critical that staff have the knowledge and skills to understand Asperger Syndrome.

There have been many proven and effective strategies that help support positive interpersonal skills; however, in order for those strategies to be meaningful, situations need to be relevant for the child. Instruction and support cannot be provided in a vacuum and developing an understanding while acknowledging the feelings and thoughts of others must be through engaging and self-reflective activities. Relationships need to be nourished and no amount of teaching or instruction will be effective without some measure of social competence.

Determining a learning environment that is best suited to the child often requires forethought and planning. Environments that are well adapted to meet the needs of AS children are ones where adjustments can be made to reduce stress while enabling learning and social adjustment. Explicit teaching that encompasses academic, as well as a focus on social skills instruction, must be key elements. As the child approaches adolescence, the delivery or method of instruction may need to be altered always keeping in mind that each child is different.

From childhood to adulthood, it will not only be the experiences of someone with Asperger Syndrome that will support social growth and achievement, but the significant contributions and commitment by caregivers, educators and the community that will dictate success. For this reason, we must be vigilant to ensure that no stone is unturned and the unique qualities and characteristics of Asperger Syndrome children and adults are supported and valued.

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