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ADOLESCENTS WITH ASPERGER'S: THE EFFECTS OF SPECIAL INTEREST AREAS

Madeline J. Gale
Southern Illinois University Carbondale, mgale@siu.edu

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by

Madeline Gale

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Dr. Kenneth O Simpson, 1st Reader

Kirsten Shaper, 2nd Reader

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TITLE: ADOLESCENTS WITH ASPERGER'S SYNDROME: THE EFFECTS OF SPECIAL INTEREST AREAS

MAJOR PROFESSOR: DR. KENNETH SIMPSON

Asperger syndrome (AS) is a neurodevelopmental disorder that affects a child's ability to communicate, use language, and socialize effectively. Children with AS often have unusual speech patterns, peculiar mannerisms, obsessions, and limited facial expression. A consuming characteristic of AS is the special interest area (SIA). A special interest can rnge from a mild interest to profound obsession. Interests of these individuals are unique to each person, ranging from airplanes to snakes.

This research paper investigates the impact of special interest areas on several key deficits characterized by individuals with AS. According to Winter-Messiers (2007), as participants were interviewed, speech patterns shifted when participants were talking about any topic versus their SIA. Affect and animation expanded during communication, and some of those who had shown a flat affect previously, improved. Research with this group also indicated more focused conversation, advanced vocabulary, and appropriate body language when the individual is engaged in SIAs (Winter-Messiers et al., 2007, p.71). Parents also noted positive changes in emotions, self-esteem, and communication abilities when talking about their special interests.

If areas such as communication abilities, emotions, self-esteem, executive function skills, and social skills can be improved by utilizing the special interests of adolescents with AS, the individual's quality of life may improve. Not utilizing SIAs of adolescents may result in a lesser quality of life and no improvement in existing deficits.

This is the investigation of adolescent's with AS and the effects of special interest areas on communication abilities, emotions, self-esteem, executive function skills, and social skills. Some educators have included special interests into lesson plans, activities, assignments, etc. I believe speech language pathologists may incorporate client's special interests into therapy in order to facilitate learning.

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Asperger syndrome (AS) is a neurodevelopmental disorder that affects a child's ability to communicate and socialize effectively. Children with AS often have unusual speech patterns, peculiar mannerisms, obsessions (also known as special interests), and limited facial expression. Those with AS typically have language disorders, and may be viewed as socially immature. Recent research establishes the prevalence of AS as approximately two in every 10,000 children. AS is a disorder falling under the umbrella term of autism spectrum disorder (ASD), sometimes called a "higher functioning" autism.

A common characteristic of AS is the special interest area (SIA). A special interest can range from a mild interest to profound obsession. Interests of these individuals are unique to each person. For example, snakes, airplanes, picture frames. Individuals with special interest areas often know a great deal about their area of interest, and may spend a large amount of time consumed by this interest. Individuals will usually direct their full undivided attention to their SIA. Outgrowing the interest or becoming less interested in special interest areas can be a challenge for individuals with AS. Not all children with AS have a special interest, and this is often an area of a stereotyped behavior.

Recently, some research evidenced that the characteristic of special interest areas (SIAs) in adolescents with AS may have a positive impact on deficits. If SIAs do have a positive effect on the deficits of adolescents with ASD, it may be beneficial to find out which deficits are affected.

If areas such as communication abilities, emotions, self-esteem, executive function skills, and social skills can be improved by utilizing the special interests of adolescents with ASD, the individual's quality of life may improve. Depending on the adolescent's special interest, not utilizing the SIA of adolescents may result in a lesser quality of life and no improvement in existing deficits. Special interests may also interfere with adolescent's ability to function in areas other than those mentioned.

This is the investigation of adolescents with AS. This literature review investigates the effects of special interest areas on (a) communication abilities, (b) emotions (c) self-esteem, (d) executive function skills, and (e) social skills.

Literature Review

Defining Characteristics of AS

There are several characteristics of AS that set the disorder apart from others. Research shows that it is possible to identify these characteristics at a young age. According to Johnson and Myers (2007, p. 1192), early detections could be: lack of appropriate eye gaze, lack of joyful expressions, lack of recognition of the caregiver's voice, disregard for vocalizations yet keen awareness for environmental sounds, lack of to-and-fro pattern of vocalizations between the infant and caregiver (happens around 6 months), delayed onset of babbling past 9 months, decreased or absent use of prespeech gestures, lack of interest or response of any kind of neutral statements, and less verbalized commenting such as "oh oh" and "huh." Some common characteristics of individuals with AS include lack of speech, scripted speech, parroting without communicative intent, pop-up (words said out of context, spontaneously) and giant words, and other earlier prespeech deficits (Johnson & Myers, 2007, p.1192).

Individuals with AS may also have difficulties with the social use of language, also known as pragmatics (Johnson & Myers, 2007, p.1193). Facial expression, body language, turn taking, producing appropriate prosody and tempo, reading non-verbal communication, and unique delivery of speech are also some challenges individuals face with AS (Johnson & Myers, 2007, p.1193). Deficits in sensory motor, cognitive abilities, executive functions, play skills, learning, and general communication are usually present as well (Johnson & Myers, 2007, p.1193, 1194).

Relation to Autistic Disorder

Differentiating between ASD and AS is often a challenge for diagnosticians because of the similarities existing between the two. Research has shown that both AS and ASD have nearly the same level of executive function abilities (Macintosh & Dissanyake, 2004, p.426). Individuals with ASD and individuals with AS also have extreme social difficulties (Macintosh & Dissanyake, 2004, p.427). Fine motor skills are also a deficit in both ASD and AS (Macintosh & Dissanyake, 2004, p.427), though this is not a criteria for differentiation.

Several deficit areas exhibit differences between individuals with AS versus ASD. For example, persons with ASD often display greater communication dysfunction than those with AS (Macintosh & Dissanyake, 2004, p.424). Limited verbal mediated knowledge, and strong visuo-spatial reasoning skills are also present in ASD when compared to AS (Macintosh & Dissanyake, 2004, p.424). Overall, the difference is that there are no language or cognitive delays for individuals with AS. The prognosis for those with ASD is often not as positive as the prognosis for those with AS (Macintosh & Dissanyake, 2004, p.428).

Woodbury-Smith and Volkmar (2008) demonstrated that individuals diagnosed with AS often have higher verbal functioning than those with ASD. It has been said that AS is a milder

form of ASD, and that it is a socially motivated form of autism (Woodbury- Smith & Volkmar, 2008, p.3), although some individuals with AS may not wish to interact with others.

Diagnosis and Evaluation

The diagnosis and evaluation of individuals with AS involves careful consideration and observation. According to Johnson and Myers (2007), the most basic form of evaluation starts with a referral from the parent or caregiver of the child. Parents are now becoming more aware of ASD and often refer their child to their primary care pediatrician (PCP). The PCP plays an important role in the early recognition of children with AS (Johnson & Myers, 2007, p.1183). Caregivers may also obtain a list of developmental characteristics to indicate potential referral to a specialist (Johnson & Myers 2007, p.1192).

Woodbury-Smith and Volkmar (2008) suggested using the gold standard diagnostic approach, clinical judgment with the Autism Diagnostic Interview Revised (ADI-R), and the Autism Diagnostic Observation Scale (ADOS). The ADI-R is based on a semi-structured interview with a primary caregiver, while the ADOS is more of a play-based/interactive semi-structured session. A diagnostician trained specifically in administration is required for both the ADOS and ADI-R (Woodbury-Smith & Volkmar, 2008, p.4).

Another type of diagnostic approach suggested by Johnson and Myers (2007) is *The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Edition* (DSM-IV-TR). In this manual, terminology and diagnostic criteria are given in the form of a clinical report (Johnson & Myers 2007, p.1184). Other therapists report this diagnostic approach to be a very inaccurate way to diagnose AS.

Etiology

The etiology of AS seems to be a controversial topic today. According to Johnson and

Myers (2007), ASDs are highly heritable, biologically based disorders. However, the exact cause is still unknown. Much research is currently being composed to understand the etiology of AS and ASD (Johnson & Myers, 2007, p.1186). The most current research today suggests that the disorder is genetic with some indication of environmental triggers.

Communication Abilities

Special interest areas can improve the communication abilities of adolescents with AS. In the following discussion, research will reveal the degree to which this belief is true.

According to Paul et al. (2008, p.116), a variety of conversational problems have been reported in the ASD population, such as reduced engagement in turn-taking, less frequent varied speech acts (Landry & Loveland 1989), asking appropriate questions in conversation (Hurting et al., 1982), and providing substantial responses (Lord & Schopler 1989). Paul et al. (2008, p. 120) also pointed out the challenges in responding to partner cues, and inabilities to clarify and repair breakdowns in conversation. These conversational difficulties pertain primarily to the pragmatics of speech and conversation, which contribute to the larger whole of communication. Other challenges include knowing the right time and place to open a topic, understanding the correct way to communicate with teachers and employers, and using context- appropriate styles and levels of speech (Winter-Messiers et al., 2007, p.68). Because communication is a large part of what as human beings do, it is important to diminish this deficit in order to improve daily functioning abilities. Temple Grandin (2006), a person with ASD, recently observed that for her, "there is nothing more frustrating than not being able to communicate" (Winter-Messiers et al., 2007, p.68).

Supporting Evidence

According to Hans Asperger (1944/1991) "a special interest enables them [adolescents

with Asperger's] to achieve quite extraordinary levels of performance in a certain area." In a study by Winter-Messiers et al. (2007), 30 extended school year participants diagnosed under the category of autism and between the ages of seven and 21 were observed and interviewed. In this study, 18 parents took a survey about their child. According to Winter-Messiers (2007), as participants were interviewed, speech patterns shifted when the participants with AS were talking about any topic versus their SIA. Affect and animation expanded during communication, and some of those who had shown a flat affect previously, improved. Research with this group also indicated more focused conversation, advanced vocabulary, and appropriate body language when the individual was engaged in SIAs (Winter-Messiers et al., 2007, p.71). Interviewers noted that when students with AS were engaged in SIAs, they communicated more effectively, used more fluent speech, used advanced vocabulary, and had good conversation skills. Students' use of language improved as conversation changed from topics that were not as interesting to topics involving their SIAs (Winter-Messiers et al., 2007, p.71). When discussions with the participants were centered around the SIA, improvements were noted in body language, direct eye gaze, gestures, orientation of the body towards the speaker, and a decrease in "fidgeting" (Winter-Messiers et al., 2007, p.72). In many cases, participants went from having communication deficits, to smiling and engaging in communication when switching the conversation to their SIA (Winter-Messiers et al., 2007, p.72). Park (2001, p.132), stated of her daughter with AS and her SIA, art, "It brings her into contact with other people. It enhances her communication skills" (p.132). A participant's mother stated "my son inspires my respect and admiration for all he knows and his amazing brain" (Winter-Messiers, 2007, p. 147).

Refuting Evidence

While some replicated and unreplicated research supports the claim that SIAs enhance

communication abilities, some viewers disagree. One mother shared that her son's SIA "keeps him from learning new possibilities." Other parents were concerned for their child's future and whether or not the SIA could become a career (Winter-Messiers, 2007, p. 147). Some therapists find the SIA to trigger the child to begin talking obsessively about that topic with no awareness of the listener's interest. Another parent said of their child's SIA, "It's obsessive and gets old" (Winter-Messiers, 2007, p. 147).

Reflection

While many parents and educators have their views about the effects of special interest areas, research has indicated several pieces of evidence. Most participants, when engaging or communicating about their special interest area, exhibit improved communication. Body language, eye gaze, gestures, focus, vocabulary, affect, and animation are all areas that were observed to be improved in the study involving adolescents labeled under the category of autism, conducted by Winter-Messiers (2007). To conclude, SIAs can influence these communication abilities, all of which are common deficits in individuals with AS.

Emotions

Special interest areas may improve positive emotions amongst adolescents with AS. The following discussion will indicate the degree to which this is true.

Emotions are often hard to deal with during adolescence, not only for typically developing individuals, but especially for adolescents with AS. Temple Grandin observed, "Emotions are hard to figure out; they're not logical. My emotional make-up is simple. Everything I think falls into… happy, sad, scared, or angry" (Grandin & Barron, 2005, p.34). A challenge of the AS deficit is something called "emotional confusion," which happens when individuals with AS have trouble differentiating facial expressions, verbal expressions, and body

language. They may confuse these expressions to mean something other than what is intended (Winter-Messiers et al., 2007, p.68). When Whitehouse et al. (2005) interviewed 35 adolescents with AS, those individuals with AS displayed higher levels of depression than the general population, and 13 of the 35 participants qualified for a co-morbid diagnosis of depression (Whitehouse et al., 2009, p. 311). Emotional deficits in AS can destroy self-esteem, and can trigger rebellion, anxiety, and depression (Winter-Messiers et al., 2007, p.70). This is why it is important to help adolescents with AS improve their self esteem and increase positive emotions.

Supporting Evidence

The participants with AS in Winter-Messiers (2007) investigation reported that they felt positive emotions such as enthusiasm, pride, and happiness, when engaged in their SIAs (Winter-Messiers, 2007, p. 146). In this study, adolescents with AS used their SIA to help regulate stress, anxiety, frustration, and even to calm themselves (Winter-Messiers, 2007, p. 146). The participants learned to think of their SIAs, in order to cope with negative emotions (Winter-Messiers, 2007, p. 146). One young person with AS said, "I wish that other people, especially my parents, knew that whenever I'm around horses, I don't think about anything else… like if I was stressed about one thing, and I went to see a horse or get on a horse, that thing I was stressed about, I wouldn't be stressed about anymore." (Winter-Messiers, 2007, p.146). Winter-Messiers et al. (2007) also stated that, through their SIAs, individuals had a strong ability to communicate their emotions (Winter-Messiers et al., 2007, p. 72).

Refuting Evidence

On the other hand, Alvarez (1992), shared his thought that SIAs in individuals with AS become just a pattern that started out as defense anxiety, becomes a repetitive shield, employed at all times, whether a potential source of anxiety exists or not (Mintz, 2008, p. 175).

Reflection

Emotions during adolescence are a critical aspect for individuals, due to the fact that relationships and friendships are forming, and hormones are increasing along with the body changing with puberty. Adolescents with AS are at risk for much higher negative emotions and emotional deficits, which is why it is important to help increase positive emotions in adolescents with AS. Research has shown that an individual with AS who is engaged in their SIA shows an increase in their positive emotions and thoughts. Adolescents with AS have even shown that they use their SIA to decrease and cope with negative feelings (Winter-Messiers, 2007, p. 146). Winter-Messiers (2007) revealed that individuals with AS felt happy and more enthused when engaged in their SIA.

Self Esteem

Special interest areas may improve the self esteem of adolescents with AS. The following discussion includes research that discloses the degree to which this holds true.

Whitehouse et al. (2009) investigated 35 individuals with AS and reported increased levels of loneliness and depressive symptomatology compared to typically developing adolescents (p.312). Similarly, Winter-Messiers (2007) discovered that the self images of individuals with AS were strongly negative (p. 144). Perhaps the self esteem deficit associated with AS relates to the frustration from their inability to communicate, socialize, think, feel, and act the way other typically developing individuals do.

Supporting Evidence

Research has shown that SIAs positively affect the self esteem of adolescents with AS. In the previous SIA study conducted by Winter-Messiers (2007), 30 extended school year participants diagnosed under the category of autism, between the ages of seven and 21 were

observed and interviewed. When involved in activities related to special interest areas, the participants felt more positive feelings about themselves. This may be due to the fact that having knowledge and expertise about a subject increases self confidence (Winter-Messiers, 2007, p.144).

Refuting Evidence

In the Winter-Messiers (2007) study, participants were disinclined to tell interviewers that they were often misunderstood about their SIAs, and frequently held back their interests in fear of becoming rejected, therefore frustration inevitably takes place in the individual after these occurrences. They realized that their SIAs were socially unacceptable and simply wanted to be accepted by their peers (Winter-Messiers, 2007, p.144). A participant named Peter confided "Oh, I don't usually like, tell a lot, not until…I know that they won't start getting on me, just because I like video games" (Winter-Messiers, 2007, p.145). These feelings and the awareness of rejection prevents the child from sharing their true thoughts with peers, which may inhibit negative feelings or attitudes.

Reflection

Self esteem for any individual during the adolescence stage is crucial, especially for those with AS who often have self esteem deficits. Supporting evidence has revealed that, when individuals are engaged in their SIAs, they feel more self confidence due to their knowledge and expertise of the subject over others' (Winter-Messiers, 2007, p.144). In the study conducted by Winter-Messiers (2007), it was clear that SIAs became entwined with the individual's self image (Winter-Messiers, 2007, p.144). Refuting evidence suggests that individuals with AS become frustrated with the fact that their SIA may cause them to be socially unacceptable, misunderstood, or rejected by peers (Winter-Messiers, 2007, p. 144).

Executive Function Skills

Special interest areas may improve the executive function of adolescents with AS. The following discussion includes research indicating the degree to which this belief is true.

Winter-Messiers et al. (2007) indicated a deficit in executive function skills of individuals with AS. A deficit in executive function skills (also known as the EF deficit) can range anywhere from the inability to set goals, make plans, monitor performance, inhibit distractions, and easily change from one point of focus to another (Winter-Messiers et al., 2007, p.69). Winter-Messiers et al. (2007) noted EF deficits such as: difficulties with organizing, planning, sequencing tasks, regulating emotional awareness, setting goals, initiating plans, screening and prioritizing stimuli, managing transitions, and monitoring personal behavior (Winter-Messiers et al., 2007, p.73).

Mintz (2008) stated that a challenge for his student, Michael, with AS, was focusing attention on lessons and participating in class (Mintz 2008, p. 173, 174). This deficit can indeed have lasting effects on academic tasks, learning, interacting, and living independently.

Supporting Evidence

Mintz (2008) discovered that, after incorporating the student's SIA into the lesson, Michael would sit upright and seem more alive and involved with the class (Mintz, 2008, p. 174). The increased attention drawn from the student's SIA then helped to increase the child's motivation and ability to perform executive function sills such as initiation and follow through with tasks. This is one method that seemed to be most effective with increasing executive function skills.

In the study mentioned previously by Winter-Messiers (2007), 30 extended school year participants diagnosed under the category of autism, between the ages of seven and 21 were

observed and interviewed. Although there was no control group in this research, interviews were used as a measurement tool in order to obtain a variety of detailed information regarding the adolescent's SIAs. Many of the participants believed their SIA would help in achieving future goals (Winter-Messiers, 2007, p.148). Some participants saw their involvement with SIAs as helping them to learn new skills and strategies (Winter-Messiers, 2007, p. 148). Researchers from this study also saw improved focus and memory, as well as better planning and organizational skills as a result from the engagement in SIAs (Winter-Messiers et al., 2007, p.71). In addition, interviewers noted examples of children and youth initiating conversation on their SIAs; speaking in more sequential, organized thoughts and speech patterns, using professional vocabulary, advanced planning during discussion, describing enjoyment in reading, researching, and learning from reading materials and the internet, and confidently sharing their plans for SIA-related college and careers (Winter-Messiers et al., 2007, p. 73). Every aspect of their organization abilities came into sharper focus and improvement during the SIA discussions in this study.

Refuting Evidence

As Mintz (2008) stated earlier, involving (his student) Michael's SIA into lessons and activities helped Michael become more alert and focused during class. However, Mintz later stated that this strategy did not seem to increase overall engagement with the task of learning in the class, nor did Mintz see any significant development in his basic numeracy and literacy skills when incorporating the SIA into lessons (Mintz 2008, p. 174). No other refuting evidence has been found that suggests SIAs do not increase executive function skills. In addition, the evidence found supporting this claim may be moderately weak.

Reflection

Evidence from Winter-Messiers et al. (2007) reveals significant improvements in the EF deficits associated with AS. In the study conducted by Winter-Messiers (2007) participants were seen to have better organizational skills, improvements in planning, speech patterns, vocabulary, learning and reading, and more, all from engaging in their SIAs. Participants even agreed that they could see themselves achieving future goals including careers and college in relation to their SIAs (Winter-Messiers et al., 2007). Partial evidence was found by Mintz (2008), stating that when trying to involve the SIA of a student with AS into lessons and learning, increased awareness and engagement of the task was not achieved.

Social Skills

Special interest areas may improve the social skills of adolescents with AS. The following discussion includes research indicating the degree to which this belief is true.

The social deficit in individuals with AS is often the most disabling of the syndrome. Inabilities to maintain and develop friendships, experience empathy, maintain personal space, distinguish genuine friends, infer the perspective of another, use appropriate behavior in social situations, and understand the hidden curriculum of society are just a few social deficits that most individuals with AS possess (Winter-Messiers et al., 2007, p. 68). In a study by Whitehouse et al. (2009), many of the same deficits were identified in individuals with AS, in addition to the recognition of their inabilities and lack of motivation to form friendships.

According to Johnson & Myers (2007), children with ASDs generally demonstrate deficits in social relatedness- the inherent drive to connect with others and share complementary feeling states. They often do not appear to look for “connectedness” and are content with being alone. It is also common that they do not seek attention from others, and seldom make eye

contact. They have difficulties sharing emotional states of others, and may have few friends (Johnson & Myers, 2007, p. 1190-1191).

Supporting Evidence

In the study mentioned previously by Winter-Messiers (2007), 30 extended school year participants under diagnosed under the category of autism, between the ages of seven and 21 were observed and interviewed. When participants engaged in conversation about their SIA topic, the whole mood of conversations changed. The adolescents became animated and enthusiastic, used more appropriate social interaction, they exhibited improved verbal and body language, and their communication skills improved. Students even attempted to engage with peers about their SIAs. Most students displayed a level of social sophistication when approaching others about their SIAs. Overall, the participants were more motivated to interact, and were able to discern social cues and develop social strategies (Winter-Messiers et al., 2007, p. 70-71).

According to Mintz (2008, p.179), allowing his student, Michael, to pick his topic of interest allowed for more openness to social interactions during activities such as art projects. Consciously aiming to mold the environment to Michael's perceived needs was an aim made by Mintz. Using a buddy system for Michael on the playground was also an effort made to promote social interactions and reduce isolation (Mintz 2008, p.179).

Reflection

The social deficit in adolescents with AS is crucial to improve because it is one of the most common and most hindering characteristics in AS. Studies by Winter-Messiers (2007) suggest that SIAs increase individuals' attempts to engage with peers, improve communication in conversation, and use more appropriate social interaction. Mintz (2008) suggests using SIAs,

buddy systems, and molding the environment to the individual's needs in order to reduce seclusion and promote social interaction. I have found no evidence suggesting that SIAs do not increase social skills in individuals with AS, however; some research suggests other methods to decrease the social deficit. In addition, the research found to support this may be somewhat weak and lacks a sufficient amount of evidence. In the near future, I would like to further examine the effects of SIAs on social skills in the classroom. I will do this by promoting conversation and creating activities related to the child's SIA. I will then begin to observe and record the quality and quantity of interactions made by the individual with AS. No studies have yet been conducted.

Parents' Views

Some parents view special interest areas as unusual traits hindering their child from the real world. One parent shared, "I have tried to limit his access and time on video games. It was always a fight and nothing gained." While a grandparent stated, "My grandson needs someone to help him meet reality head on. What will he do in the future?" One parent affirmed that "the intensity [of his SIA] is not acceptable." Another parent agreed saying, "It's obsessive and it gets old." The primary concerns of these caregivers was that their child's SIA was socially unacceptable, not age appropriate, or would not lead to college or careers. Some parents felt that it kept them from learning new possibilities and were concerned for their child's future (Winter-Messiers, 2007, p. 147).

On the positive side, many parents expressed appreciation about their child having a special interest area. A mother confirmed "It's part of what makes him special!" While a grandmother wrote, "I'm glad to see if Justin has an interest he can go far with. If he chose a scientific study, he could be a genius." A mother added "I am willing to do whatever he needs."

Asperger observed, “We can see in the autistic person, far more clearly than with any normal child, a predestination for a particular profession from earliest youth. A particular line of work often grows naturally out of their special abilities” (p. 88). Some parents also described their support, one parent stating, “He has a special area set up in the garage for his interests.” (Winter-Messiers, 2007, p.147-148).

Making the Most of Special Interest Areas

Research has shown that the special interest areas of adolescents with AS can indeed have positive effects on communication, emotions, self esteem, executive function skills, and social skills. Educators and parents today are learning to incorporate their child’s SIA into activities to encourage participation and learning. Because little research has been done on the involvement of SIAs, trial-and-error methods are still being used. In the following paragraph, I will point out research that suggests methods for incorporating SIAs, and using SIAs to maximize learning for children and adolescents of all ages.

In a recent case study, a two year and six month old child, Anna, was studied in order to help diagnosticians provide a full assessment of her case. Researchers used a room set up with the main interests of the child, such as puzzles, water, and shaving cream. The client was provided with visual schedules to facilitate transitions of the stations, and the room was not overly stimulating. The room was organized in sections according to each interest, and the mother interacted with the child throughout the session. Once unable to provide any attention during previous assessment, Anna gradually engaged in imitations, vocalizations, and play. Although her behavior remained restricted as usual, the mother noted her daughter’s smiles after given praise, and touching, actions she had never seen before. Because each interest remained in a separate space from the other, Anna was able to move from each area while showing increased

participation and patterns of behavior. She had visual cues for each task, and made sure not to over stimulate the children by too many toys and activities (Vacca, 2007, p. 53-56). This is a well known therapy procedure incorporating preferences into work times.

Safran (2005) indicated assigning students a task related to their special interests, but only if they adhered to a stipulation encouraging something else. For example, asking a student whose interest was the Internet, to serve as a group research specialist, but only if they worked together with the group. This could encourage social interaction and communication, while increasing confidence. Students could also be asked to give a short presentation on their topic, teach other classmates about their topic of interest, or allow them to choose a topic of their own interest for a particular assignment (Safran, 2002, p. 65).

Participants from the Winter-Messiers (2007) study shared that they would like to see their SIA incorporated into all aspects of school, especially reading. The author also indicated that encouraging the student to merge their SIA with their academic work may help them demonstrate their true levels of ability. Research from Winter-Messiers (2007) gives examples of topics and how to create assignments and learning opportunities based on those specific topics. For example, a student with reading and writing impairments who has an SIA relating to World War I biplanes, could be assigned to read *Biggles Over France* and write a research paper about the Red Baron. Many examples like this can be created to facilitate students' learning and decrease existing deficits (Winter-Messiers, 2007, p. 149).

Conclusion

Due to research literature and previous experience I have had with AS and special interest areas, I hold the belief that special interest areas can improve the self esteem of adolescents with AS. Research from a study by Winter-Messiers (2007) found that, when engaged in conversation

about their SIAs, participants communicated more effectively, used more fluent speech, used advanced vocabulary, and had good conversation skills. Students' use of language improved as conversation switched to their topic of interest, and deficits in nonverbal and verbal communication decreased. Other researchers and interviewers noted similar findings supporting the claim; however, these studies are limited in the aspect that there were no control groups or pre test and post test measures. In addition, some parents and therapists have different views about the effects of their child's SIA.

Earlier in this paper, I stated that I held the belief that special interest areas could increase the positive emotions of adolescents with AS. Winter-Messiers et al. (2007) and Winter-Messiers (2007) found that, when engaged in their SIAs, adolescents' positive emotions, including enthusiasm, pride, and happiness, increased. Participants even stated that they used their SIA to deal with stress and cope with negative emotions. While most researchers agreed that the feeling of expertise associated with SIAs increases positive emotions, Alvarez (1992) disagreed stating that the individual's SIA becomes just a repetitive shield.

Another belief I hold is that special interest areas can increase self esteem, an aspect which I think is very important during the adolescent years. Winter-Messiers (2007) found evidence supporting my claim, stating that an adolescent's knowledge and expertise about their SIA increases self esteem and positive emotions about themselves. However, the same study also refuted my claim, stating that participants felt hindered by their SIAs, knowing that it may be socially unacceptable and fearing rejection by peers (Winter-Messiers 2007, p.145).

Most individuals with AS possess a deficit in executive function tasks, such as setting goals, making plans, staying on task, organizing, prioritizing stimuli, and monitoring personal behavior. I believe that special interest areas can increase executive function skills in adolescents

with AS. Winter-Messiers (2007) stated that, when lessons were centered around the students' SIAs, the students became more focused and engaged in tasks, and learned new skills and tasks. Participants even saw their SIA as helping them to achieve future goals such as college and careers (Winter-Messiers, 2007, p.148). Researchers from this study also saw improved focus and memory, as well as better planning and organizational skills as a result from the engagement in their SIAs (Winter-Messiers et al., 2007, p.71).

Refuting evidence was established by Mintz (2008), involving (his student) Michael's SIA into lessons and activities that seemed to help Michael become more alert and focused during class. However, Mintz later stated that this strategy did not seem to increase overall engagement with the task of learning in the class, and no significant development in his basic numeracy and literacy skills was found when incorporating the SIA into lessons (Mintz, 2008, p. 174).

My final claim is that special interest areas can increase social skills, a severely impacting deficit found in individuals with AS. Research from Winter-Messiers (2007) stated that overall, participants in the study were more motivated to interact, and were able to discern social cues and develop social strategies when engaged in activities or conversation related to their SIA (Winter-Messiers et al., 2007, p. 70-71). Increased communication in conversation was also seen, as well as improved verbal and body language and increased animation and enthusiasm. No refuting evidence was found, but other strategies such as "buddy systems" (Mintz 2008) are thought to improve social skills.

Inferences

Evidence from extensive research states that special interest areas can increase communication skills, positive emotions, self-esteem, executive function skills, and social skills.

Although some refuting evidence has been found, most researchers state additional routes to incorporate SIAs into curriculum to optimize learning for students with AS. Educators, parents, and researchers are still contemplating the best methods of intervention, but using SIAs may be one potential intervention method that can be used to decrease the effects of deficits in adolescents with AS. Incorporating SIAs may also maximize learning and the individual's quality of life. It has not been *proven* that special interest areas diminish deficits, but instead, SIAs improve upon existing deficits and introduce new opportunities for learning.

Consequences of Condition

Not utilizing special interest areas to increase communication abilities, emotions, self-esteem, executive function skills, and social skills may hinder the improvement of existing deficits, and diminish the opportunity to improve the adolescent's quality of life. Using special interest areas in school curriculum and other aspects can improve the deficits in adolescents with AS, and in turn, improve their quality of life. The findings of the effects of SIAs can also help in narrowing the search for effective intervention methods for individuals with AS.

Future Directions

While SIAs may be a good approach to intervention and therapy for adolescents with AS, the following paragraphs will discuss other intervention methods found to be effective for improving communication, positive emotions, self-esteem, executive function skills, social skills, as well as other areas.

Educators and speech language pathologists have the opportunity to maximize a child's learning by facilitating their situation and environment. Some children with AS may have minimal interest in the subjects used for learning. Some may require frequent re-direction during activities, and some may resist certain activities. Children who lack the focus, self esteem, and

other necessary skills to complete their work are not gaining the knowledge they could potentially gain. Educators can help these children by incorporating the child's special interest into speech and language related activities, in order to capture and sustain the child's attention and focus, which will facilitate learning. Speech language pathologists often have the opportunity to work with children in small groups or even a one-on-one basis. This advantage allows us to center the activity around the child's SIA. I believe that this task will be effective at helping adolescents with AS achieve their educational goals.

Despite the possibilities of interventions, Safran (2002) advises to always be a good role model by showing warmth and acceptance towards students, also anticipate consequences to prevent unstructured events. Communicate with families and work together, and embrace diversity in all its forms. After all, in the words of Safran, "In saving this child, we may, in fact be saving ourselves." (Safran, 2002, p. 65).

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VITA

Graduate School
Southern Illinois University

Madeline Gale September 1, 1987

88 Jaros Ln, Apt B, Makanda, Illinois 62958

95 Liederkranz Ln, Millstadt, Illinois 62260

Southern Illinois University at Carbondale
Bachelor of Science, Communication Disorders and Sciences, May 2010

Special Honors and Awards: Mark & Sue Ashley Scholarship, Tuition Scholarship

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Major Professor: Kenneth O. Simpson