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"I like that we have special brains": A longitudinal study of self-perception in youth with Asperger's Syndrome and high-functioning autism at a summer camp exclusively for children with social difficulties

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"I like that we have special brains": A longitudinal study of self-perception in youth with Asperger's Syndrome and high-functioning autism at a summer camp exclusively for children with social difficulties

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Preface

The idea for this project emerged after spending a summer working as a counselor at a camp for youth with social difficulties. Over the course of the summer, the staff watched campers challenge their fears, make friends, and become more confident in themselves. At the end of the summer when parent came to pick up their children, counselors were greeted with hugs and tears by the grateful parents. Parents said things like, “I’ve never seen her so happy,” and “You don’t know how wonderful it is to see he made friends.” Staff were shocked to hear that the outgoing and sociable child they had grown so familiar with was not the child that went to school everyday during the year. When thinking of a topic for my thesis, the directors of the camp offered to allow me to conduct research at their camp. My hope was to be able to conduct a study that could be useful to the directors and parents of campers, and could benefit future children. I believe research should emerge from real problems and be conducted in the field rather than in isolated experimental conditions (Kaplan, Katz, & Flum, 2012), and this summer camp provided me with an opportunity where I could help fill a need for such research. I decided to develop a study that would quantify and measure some of the effects of the camp that counselors and parents so clearly saw, so that other children may have similar experiences.

Abstract

The literature on youth with Asperger Syndrome (AS) and high-functioning autism (HFA) suggests that they have limitations in how they see themselves, but that many are aware of how they are different from the norm. This has been found to contribute to the development of low self-esteem and high rates of depression and anxiety that are so prevalent in this population. Little research has been dedicated to examining ways in which youth with HFA and AS can be encouraged to feel more positively about themselves. Exposure to peers with similar diagnoses has been found to be helpful in other special populations, but has not been thoroughly studied in youth with HFA/AS. The present study measured youth’s perceptions of themselves before attending a summer camp exclusively for youth with social difficulties, immediately after attending the camp, and several months later. Mirroring the findings of previous studies, these campers displayed awareness of their social difficulties, and were able to reflect on what makes them feel proud. This contrasts the belief that youth in this population are unable to engage in self-reflection. Results from standardized measures did not reveal changes in youth’s perceptions of themselves after being at camp. However participants’ responses to open-ended questions suggested that campers experienced profound changes in their perceptions of their social competence, self-confidence, self-reliance, and sense of belonging. These findings have implications on effective interventions for this population, as well as on accurate methods of assessment of change in this group.

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Introduction

> *"Before camp, I said: 'I'm cool, but I have a disability.' Since camp, the 'but' HAS COMPLETELY disappeared. I now realize that I've had a lot of the skills I thought I'd lacked (mostly social) all along."* (ID 31, F)

Asperger's Syndrome (AS) is an autism spectrum disorder (ASD) that involves "enduring impairments within the domains of social interaction, communication, play and imagination, and a restricted range of behaviors or interests" (Klin, McPartland, & Volkmar, 2005, p. 88). The diagnostic label was developed to refer to those who displayed these features of autism but without delays in linguistic or cognitive abilities (*DSM-IV*; American Psychiatric Association, 2000). The validity of the distinction between those with AS and those with ASD without cognitive delays, called 'high-functioning autism' (HFA) has been a topic of debate. It is likely that the Asperger Syndrome classification will be removed from the forthcoming *DSM-V* and completely substituted by the HFA classification within the autism spectrum diagnosis (Mayes, Calhoun, & Crites, 2001). Due to the controversy surrounding these labels (e.g., Ozonoff & Griffith, 2000), for the purposes of the present study individuals on the autism spectrum with an intelligence quotient (IQ) of 70 or above are referred to as having HFA/AS, as other studies have similarly done (e.g., Tracy, Robins, Schriber & Solomon, 2010; Vickerstaff, Heriot, Wong, Lopes, & Dossetor, 2007). HFA or AS is referenced separately depending on previous researchers' use of these terms.

In comparison to typically developing individuals, youth with HFA/AS more often display low self-esteem, depression and anxiety (e.g., American Psychiatric Association, 2000; Attwood, 2007; Baron-Cohen et al. et al., 2005). However, because of the significant social disabilities associated with the HFA/AS profile, research on this population has primarily focused on developing social skills, and little has exclusively focused on methods of building self-esteem. To promote happiness and high quality of life in this population, attention must not only be given to developing social skills, but to the many aspects that contribute to high self-esteem.

Any attempts to promote high self-esteem in those with HFA/AS must be based on an understanding of self-perception in this unique population. Though research has shown that individuals with autism have limitations in their metacognition, those with HFA/AS have been found to be painfully aware of their differences and disabilities (e.g. Attwood, 2007; Baron-Cohen et al., 2005; Hedley & Young, 2006; Klin, 2005). Some studies have examined youth's perceptions of their competencies as a means of understanding their self-perception, and found that they generally see themselves as having poor social skills, athletic abilities, and physical appearance, and have low self-worth in general (Capps, Sigman, & Yirmiya, 1995; Vickerstaff et al., 2007; Williamson, Craig, & Slinger, 2008). The literature shows that awareness of deficit is a major factor contributing to the prevalence of depression and anxiety in this population, prompting some to look exclusively at how the lack of social skills and friendships affect self-perception in this group (e.g., Bauminger, Shulman, & Agam, 2003; Hedley & Young, 2006; Humphrey & Lewis, 2008; Locke, Ishijima, Kasari, & London, 2010; Meyer, Mundy, Van Hecke, & Durocher, 2006; Williamson et al., 2008). However, few studies have explicitly focused on interventions promoting positive self-perception as a means of preventing anxiety and depression in this population.

A handful of studies have shown that exposure to peers with similar disabilities has improved perceptions of the self in individuals with HFA/AS (Punshon, Skirrow, & Murphy, 2009; Weidle, Bolme, & Hoeyland, 2006). The current inclusion model of public education provides this group with few opportunities for interaction with HFA/AS peers. Recently, some experts have begun to suggest that this classroom structure could be contributing to the development of depression in youth with HFA/AS (Bauminger et al., 2003; Locke et al., 2010; Punshon et al., 2009; Weidle et al., 2006). Summer camps are considered a means of boosting self-esteem in youth, and have become increasingly popular with special populations (e.g., Goodwin, Lieberman, Johnston, & Leo, 2011; Michalski, Mishna, Worthington, & Cummings, 2003; Wu, Prout, Roberts, Parikshak, & Amylon, 2010). They provide opportunities for individuals to interact with peers, and have been shown to positively impact developing self-perceptions in youth with disabilities (e.g., Goodwin et al., 2011; Michalski et al., 2003; Wu et al., 2010). However, no research has been done on summer camps exclusively for those on the autism spectrum, let alone longitudinal studies of their impact on self-perception.

The following is a review of the relevant literature on self-perception and individuals with HFA/AS. This review is organized to address literature relevant to how awareness of difference and deficit resulting from the disorder impact youth with HFA/AS, and how other experiences can mitigate this.

Self-awareness

Much of the research on autism spectrum disorders has focused on how members of this population view others (i.e. theory of mind), and relatively little has focused on how they view themselves. Studies that do exist suggest that those with HFA/AS do not have a globally limited sense of self, as some have suggested, but rather may have specific limitations (Farley, Lopez, & Saunders, 2010). In comparison to neurotypical individuals, those with AS might see their social relationships and psychological states as less central to their understanding of themselves, and focus instead on primarily physical attributes (Jackson, Skirrow, & Hare, 2011; Lee & Hobson, 1998). However, many report engaging in conscious efforts to use self-reflection (Jackson et al., 2011). This suggests that people with AS may be capable of self-awareness, it just might require more explicit education and effort to activate it.

In contrast, other research has shown that those with HFA/AS are often painfully aware of their disabilities (e.g., Attwood, 2007; Baron-Cohen et al., 2005; Capps et al., 1995; Hedley & Young, 2006; Klin, 2005; Vickerstaff et al., 2007). For example, Meyer et al. (2006) found that children with HFA who scored low on social information processing abilities reported awareness of their social difficulties. In addition, these participants displayed emotional disturbances. This may be an indication that children with HFA are aware of their social weaknesses, and are psychologically affected by this. Agreement has also been found between parent reports of impaired social competence and child reports of social anxiety (Meyer et al., 2006). These researchers therefore propose that children with AS have "enough insight to self-report emotional and social problems" (p. 396). The study by Shipman, Sheldrick, and Perrin (2010) indicated that adolescents with HFA report having a lower quality of life than neurotypical participants in three of the four domains: physical, emotional, and social, but not intellectual. The researchers say, "this discrepancy suggests that adolescents with ASDs are aware of and can accurately report about deficits associated with their ASD, especially in the realms of social and emotional functioning" (p. 88). They also found that participants with HFA's perceptions of their well-being were similar to those reported by their parents, and suggest that this is further evidence of their accurate assessment. However, adolescents' perceptions of their quality of life were generally slightly higher than their parents' perceptions of their child's quality of life. The authors propose this discrepancy may not be due to a lack of insight in those with HFA/AS, but rather to a misperception on their parents' part caused by their own parental bias. Alternatively, it could be that participating teens minimized their difficulties for their own benefit, or for the sake of the study. This research shows that because of the gap between the limited social abilities in those with HFA/AS and their at least average cognitive abilities, these individuals are often highly aware of their deficits.

Effects of diagnosis

The effects of diagnosis on self-perception in individuals with HFA/AS has also been studied. Punshon et al.'s (2009) study of the diagnosis of AS in adulthood suggests that the experience of receiving the diagnosis as an adult was generally positive. Participants felt it provided an explanation for past experiences and current behaviors, and provided access to helpful services. However, Punshon et al. (2009) also reported that later diagnosis led to expressions of frustration that they had not known earlier and felt they had wasted time suffering and thinking their atypicalities were a product of poor self-control or deeper psychological problems. Many reported they had tried to pretend they could eliminate their symptoms through effort, which only worsened symptoms and increased anxiety. The authors therefore suggest that their findings "[lend] support to the view that early diagnosis is associated with positive psychological outcomes for these individuals" (p. 281). However, the researchers also propose that models of acceptance of diagnosis in AS must take into account the possibility of feelings of ambivalence. After receiving their diagnosis, many felt they actually had an advantage over those who are neurotypical. However, like others, these authors found that feeling different from others after diagnosis caused great distress in individuals. Several were upset by others' naïve perceptions of the disorder, as well as the media's simplistic portrayal of people with AS. One participant noted, "It's not really you, it's society… they have the problem because we have to fit into the mainstream, and it's difficult. It's lack of understanding really" (p. 280). Many participants seemed to internalize others' perceptions of them, which negatively affected their self-esteem. The authors clarify that reactions to diagnosis depend on the individual, and "appear to be determined by participants' previous negative experiences and their current view of Asperger syndrome as a disability, difference or advantage" (p. 278). It is therefore important to consider individual differences in reactions to diagnosis when describing the nature of self-perception of those diagnosed with the disorder.

In contrast to the above stated findings of the benefits of early diagnosis, a study of youth receiving diagnosis between the ages of 9 and 16 found generally negative responses and indifference to diagnosis (Cazada, Pristang & Mandy, 2011). Participants reported that they found their diagnosis was a disadvantage in that other students might treat them differently if they knew they had a diagnosis. Only a few participants mentioned their diagnosis was helpful in making others more tolerant of their behavior and procuring support. The study found that youth did not deeply identify with their diagnosis as being an integral part of them, and were in fact eager to disassociate themselves from it. They did not show an interest in searching for information about their disability and were hesitant for others to know about it. This seemed to be caused by the fear of being further alienated and differentiated from their typical peers. Similarly, in a study of high schoolers with AS, adolescents who described themselves and their disorder in negative terms tended to frame it in terms of deviations form the norms (Humphrey & Lewis, 2008). The reluctance to embrace diagnosis in both studies of adolescents contrasts the studies done in adult populations. It suggests that self-perception as related to diagnosis is qualitatively different across ages in the HFA/AS population.

Self-perception of competence

In order to understand the quality and nature of perceptions of the self in those with HFA/AS, several questions must be asked. If those with HFA/AS are in fact capable of engaging in self-reflection, how do they see themselves? What do they see as their strengths? What do they see as their weaknesses? In comparison to others on the autism spectrum, research suggests that autistic individuals with higher intelligence are more able to see their weaknesses, or as Kanner says, are "more aware of their peculiarities" (p. 272). Capps et al. (1995) note "the pain one feels in response to visions of the isolated, autistic child is greatly magnified when one imagines the child feels lonely and rejected, rather than detached and unaware" (p. 272). Capps et al. (1995) were the first to systematically study self-perception of competence in this population. They used Harter's (1982) early version of the *Perceived Competence Scale for Children* a measure that originally was developed to test self-perception across four domains: scholastic competence, social acceptance, athletic competence, and global self-worth. Though this is not a measure of self-esteem or depression, Capps et al. (1995) argue that many of the items on the scale are related to psychological functioning. Those studies that have used the measure with HFA/AS youth have generally found that this special population has a low perception of their competence. Interestingly, these studies suggest that the higher the intelligence of the individual, the lower their perception of their social competence.

Capps et al. (1995) administered Harter's (1982) scale and several additional questions assessing emotion identification and empathy to 18 9- to 16-year-old youth diagnosed with HFA, and 20 same-age neurotypical youth. Parents of participants were asked to complete an adaptation of Harter's (1982) scale. The authors found that overall those with HFA performed more poorly on emotion identification and empathy tests, and had lower self-perceived social competence than typically developing participants, suggesting they were aware of their social weaknesses. They also had low perception of their physical appearance and low global self-worth. These domains are remarkably similar to the social, physical, and emotional functioning domains in the quality of life inventory noted earlier on which HFA participants also scored poorly (Shipman et al., 2010). The researchers found that participants with HFA that had a high IQ were more able to understand the emotional states of others and express their own emotions than those with ASD who had a low IQ. Interestingly, their perception of their social competence was *lower* than those with lower IQ. The authors suggest that individuals with

HFA with high intelligence are more able to reflect on their abilities, but might also underestimate their abilities. Capps et al. (1995) additionally found an inverse relationship between youth's perceptions of themselves and their parents' perceptions of them. That is, children who perceived themselves as being less socially competent were reported by their parents as being more socially competent. The authors suggest that one explanation for this discrepancy could be that the ability to recognize weakness in themselves is the type of pro-social behavior on which parents were basing their ratings of high social-competence. Alternatively, those autistics with higher intelligence might focus more on their weaknesses than on their strengths, and thus over-report their weakness and under-report their strengths. This provides a surprising contrast to the results on parent and child reports of quality of life discussed earlier, in which adolescents' perceptions of their quality of life were generally slightly higher than their parents' perceptions of their child's quality of life. It is unclear why these discrepancies occurred.

Williamson et al. (2008) used the revised version of Harter's scale, the *Self-Perception Profile for Children* (Harter, 1985), with a sample of 19 11- to 15-year-olds with and without AS. The revised version measures self-perception across six domains instead of four: scholastic competence, social acceptance, athletic competence, global self-worth, and two new domains, physical appearance, and behavioral conduct. Like Capps et al. (1995) found in youth with HFA, these researchers found that participants with AS had lower perception of their social competence than those who were typically developing. Unlike Capps et al., they did not find that their perception of their physical appearance or global self-worth was lower than typical participants'. However they did find that the perceived athletic ability of participants with AS was lower than that of typically developing participants. This study did not examine the relationship between IQ and perceived social competence.

Vickerstaff et al. (2007) used the social competence subscale from the SPPC to compare the relationship between depressive symptoms and perceived social competence in a sample of 22 7- to 13-year-old youth with HFA. Like Capps et al. (1995) found, these researchers observed that higher intelligence in this population was related to lower perceived social competence. They also found that age was inversely related to self-perceived social competence, such that the older participants were, the more poorly they rated themselves socially. Additionally, the researchers found that high IQ was related to high levels of depressive symptoms. In fact, almost one-third of their participants scored above the cut-off score for depression on the *Childhood Depression Inventory.* Like others, these authors suggest that the perception of social weaknesses enabled by the high intelligence in HFA puts them at greater risk for depression. The study provides substantial evidence of the low esteem in which those with HFA hold themselves. When their self-perception was compared to that of typically developing youth of the same age, the researchers found that those with HFA were in general more likely to perceive themselves as being less socially and physically competent, and had lower global self-worth. Unlike Capps et al. (1995), Vickerstaff et al. (2007) did not find a significant difference between parent and child reports of social competence. They suggest this may be due to their method of sample selection. Their study pulled participants from a social skills training program, and thus participants' parents were clearly aware their children had social deficits. This may have contributed to these parents rating their children more poorly in the social domain than the parents of participants in the study by Capps et al. (1995). The authors did find a significant difference between parent and child reports on depressive symptoms, such that youth with HFA reported less depressive symptomology than their parents, mirroring the findings of other studies.

Social skills

Because of the social disability associated with autism, self-perception in the domain of social competency has been of particular interest to researchers. Much of the research on ASD and HFA/AS has focused on methods to improve social functioning. Several studies of youth and adults with ASD have found that they engage in fewer peer interactions and have higher rates of loneliness than their typically developing counterparts (Bauminger et al., 2003; Locke et al., 2010). But how do they perceive their social difficulties? Studies have revealed that there is a bi-directional relationship between poor self-perception and social difficulties, such that poor social skills contribute to poor self-perception, and poor self-perception exacerbates poor social skills. Researchers suggest that this continuous cycle leads to the development and maintenance of depression and anxiety (e.g., Caldwell et al., 2004; Troop-Gorden & Ladd, 2005).

Bauminger et al. (2003) suggest that youth with HFA often have the social desire to be part of a group, and loneliness in the population is caused by the discrepancy between wanting to be part of a group and not knowing how to join one. Several studies attempting to label predictors of comorbid psychiatric disorders in people with HFA/AS have found that self-perception of social incompetence is highly related to depression and anxiety in this population. In their study of depression and self-perception in the typical population, Furnham and Brewin (1988) found that those that reported greater differences between themselves and the ‘average other’ also rated higher on a depression inventory. Hedley and Young (2006) replicated this study with 10-16 year old youth with AS, and found a similar relationship between the perceived discrepancy of social competence compared to others and the incidence of depressive symptoms. The authors suggest that the combination of new social demands that arise in adolescence, the poor social skills inherent in those with AS, and the awareness of difference enabled by their intelligence often lead to depression in this population. Williamson et al.

(2008) found that adolescents with AS perceive themselves as having lower peer approval ratings than typical adolescents, but still highly value having peer approval. They suggest that holding peer approval in high importance and simultaneously perceiving themselves as not being able to attain it contributes to the incidence of psychological distress in these individuals. This research suggests that perceived difference in social competence may be the greatest predictor of depression in the population of youth with HFA/AS.

Research done in the typical population can also be helpful in understanding why youth with HFA/AS struggle to make friends. Vannatta, Garlstein, Zeller, and Noll (2009) found that physical appearance, athleticism and academic competence all contribute to social acceptance. In their study of youth in the typical population, they found that the relative importance of each of these qualities varies by age and gender. However, they suggest that having high levels of any variable can also lead to peer rejection. For example, students who did very well academically were often unpopular with peers. Interestingly, the researchers found that attractiveness was the strongest predictor of social acceptance. This study suggests that areas other than just social skills contribute to children's ability to make friends and be liked by peers. In regards to the HFA/AS population, it could indicate that their intelligence and academic abilities can be a detriment to their social acceptance. It could also bear relevance on the previously stated findings that youth with HFA/AS have low perception of their athletic abilities and physical appearance, and suggests that these also could be affecting them socially.

Friendship

Social skills are not the only factor that contributes to an individual's perception of their social competence. Social competence is defined as the ability to initiate, facilitate and sustain relationships (Williams & Galliher, 2006). The literature in developmental psychology makes a clear distinction between having social skills and having friends, such that those that have social skills may not have intimate relationships, and conversely those that have deep connections with a friend may not be particularly socially skilled (e.g., Bagwell, Newcomb, & Bukowski, 1998). Though there is overlap between the two, one does not inherently imply the other. Youth's definition of friendship changes as they mature, from being largely based on common interests in early childhood, to revolving around emotional intimacy in adolescence. This aspect makes friendship particularly difficult for those with HFA/AS, as they struggle to create emotional connections. In their study of adolescents with HFA/AS, Locke et al. (2010) found that these teens had realistic ideas about what makes a good friend, but their definition did not match their perceptions of their own qualities. In other words, they did not think they had the necessary characteristics to be a good friend.

However, studies have shown that many individuals with autism do have friends, and that friendship is especially possible for those with HFA compared to others on the autism spectrum (e.g., Bauminger & Kasari, 2000). Bauminger and Kasari (2000) suggest that since one-on-one interactions with familiar people are easier for those with HFA/AS, friendships are also a particular conducive medium through which to improve social skills. Friendships have demonstrated to be highly related to positive self-perception in this population. In their exploratory qualitative study of HFA/AS high school students' experiences and perceptions of education, Humphrey and Lewis (2008) found that participants that described themselves or their disorder in positive terms often made reference to friends they had. Friends and social support have long been identified as a protective factor against depression, and as contributing to positive self-perception in both typical and disabled populations (e.g. Burgess, 2006; Panzarella, 2006). Friendship also gives individuals a sense of belonging (Bagwell et al., 1990). Humphrey and Lewis (2008) suggest that friendships in schools are also important in protecting against bullying and the depression that often results from it, saying:

> …the social isolation and bullying experienced by so many of our sample was counteracted in some instances by support from (and often enduring friendships

> with) peers. As one participant stated, “I do have friends who very often stick up for me.” The importance of such support in facilitating a positive sense of self (and therefore increasing resilience to feelings of depression) cannot be overstated. (p. 35)

Humphrey and Lewis (2008) clearly state that the presence or lack of friendships can have a significant impact on the self-perception of those with HF/AS.

Other studies have similarly found that individuals with ASD are sensitive to peer rejection. In their study of induced ostracism through participation in a videogame, Sebastian, Blakemore, and Charman (2009) found that, like typically developing participants, anxiety and the four social needs (self-esteem, belonging, control, and meaningful existence) were negatively effected by ostracism in adolescents with HFA. The study found individuals’ perception of ‘meaningful existence’ was particularly negatively effected by ostracism for those with HFA, such that those with HFA felt insignificant when they were ostracized. The authors argue this may be because typically developing participants are more likely to have stable and well-developed relationships that acts as a buffer against temporary effects of feeling meaningless and unimportant in a game. They found that anxiety levels in both neurotypical and HFA participants increased and decreased in response to ostracism and inclusion in the game. The authors propose that these findings demonstrate that like neurotypical adolescents, those with HFA seek inclusion into groups, and are able to correctly identify when they are being excluded.

In their longitudinal study of neurotypical individuals, Bagwell et al. (1998) similarly found that peer rejection and friendship were related to self-worth, life adjustment, and psychopathological symptoms. Using Harter’s (1990) *Perceived Competence Scale for College Students*, they found that lower levels of bullying and evidence of a stable friendship in fifth grade were associated with higher levels of self-worth in young adulthood. Conversely, high rates of peer rejection and bullying in childhood were associated with poor overall life adjustment when they reached adulthood. They suggest that friendship fulfills a unique need that is not fully fulfilled by peer acceptance alone, and that long-term friendships have a positive impact on individuals' development of interpersonal competence and self-worth. The quality of the friendship is also important in reducing the incidence of psychopathological symptoms. Mazurek and Kanne (2010) found that youth with HFA had fewer anxious or depressive symptoms if they had friendships that were responsive and reciprocal. Similarly, Bauminger et al. (2004) found that relationships with high levels of companionship, intimacy, and closeness were comprised of individuals who had high self-worth.

HFA/AS peers

Little research has explored the benefits of social support for individuals with HFA/AS from peers with similar disabilities (Weidle et al., 2006). Much of the current educational literature has focused on pushing for the inclusion of all special populations into mainstream classrooms, but recently some have begun to question whether this is always the best approach. Through mainstreaming, children on the autism spectrum have frequent opportunities to interact with neurotypical peers, which has the potential to increase the size of their social networks (Grenot-Scheyer et al., 1998). However, some argue mainstreaming might increase feelings of isolation and loneliness in this special population (Bauminger et al., 2003; Locke et al., 2010). Advocates for those with ASD have argued that these children need opportunities to interact not only with typical peers, but also with peers of similar disabilities (Weidle et al., 2006). Exposure to individuals with similar HFA/AS profiles has been found to help youth feel less different and 'weird,' and more confident and accepting of themselves (Weidle et al., 2006). In their study of mainstreamed high schoolers with HFA, Locke et al. (2010) found that all seven participants identified their 'best friend' to be another student with HFA. This aligns with the theory of homophily in social networks, that individuals find friendship in those that are similar to them (Famer & Farmer, 1996). If individuals with HFA/AS are not provided with opportunities to meet peers they share significant commonalities with, they may be denied opportunities to make friends. One study found that adults with AS reported that perhaps the most valuable aspect of support they received as a result of diagnosis was “meeting other people with Asperger syndrome, making friends and feeling as though they ‘fitted in’ [sic] with a group of people” (Punshon et al., 2009, p. 277). This suggests that peer networks might be highly effective in promoting positive self-image in this population. In their study on the effects of a peer support group for adolescents with AS, Weidle et al. (2006) found that more than half of the 21 parents of adolescents that participated noticed changes in their child’s attitude or behavior after the program. Improvements in self-confidence and sense of identity were the most frequently cited changes. This research suggests that interventions for this special population should include development of peer support groups to foster resilience, protect against depression, and promote positive self-perception.

Summer camp

Because of the positive effects of exposure to peers, and the often negative repercussions of inclusion in mainstream camps on the self-esteem of youth with disabilities (Tassé, 1978), many summer camps have begun to cater to specific populations with disabilities (Kelk, 1994). The little research that has been conducted studying summer camps has found a range of psychosocial benefits. Studies have especially revealed improvements in children’s social skills, self-esteem, self-confidence, self-reliance, and sense of belonging (e.g., Goodwin et al., 2011; Kelk, 1994; Michalski et al., 2003). Very few studies however have examined medium- or long-term effects of participation in summer camps (Michalski et al., 2003). Additionally, though minimal research exists on summer camps that include youth on the autism spectrum, none has focused on camps exclusively this population. The literature on camps for children with other disabilities may be useful in understanding the potential benefits of a summer camp for these children.

Michalski et al. (2003) conducted an evaluation of the effects of a therapeutic summer camp for youth with learning disabilities on participants' psychosocial functioning. They took measures of campers' self-esteem and social skills before camp, after camp, and 6-8 months after completing camp, making it one of the few studies to measure medium-term effects of summer camp participation in a special population. A sub-sample of parents was also interviewed to comment on their child's experience at camp and their perceptions of its effects.

The researchers found that the self-esteem of younger children increased between pre-camp and post-camp, and further increased between post-camp and the follow-up period. Adolescents' self-esteem however did not improve but remained static. The social skills measure used in the study revealed no significant change in campers over time, but interviews conducted with parents suggested that substantial changes occurred in campers. The researchers argue that these results indicated that the standardized tests may not have fully described the scope or extent of the changes in campers. They explain:

> The researchers noticed a discrepancy between the results from the standardized instruments and some of the parents' written comments. Specifically, in some instances the parents wrote about positive changes they had observed n their children that were not revealed in the standardized measures. [...] ...interviews further confirmed the positive net impact of the camp from the perspective of the parents. A clear majority reported witnessing sustained improvements in at least one or more areas, from increased self-confidence and self-esteem to their children thinking more about their actions. (p. 70)

Dramatic changes in campers' self-esteem and social skills were commonly noted by parents, even when they were undetected by the standardized measures. Some parents even perceived drastic positive changes when scores on the instruments indicated *decreases* in an area. This could suggest that the measure was unsuited to detect subtle longitudinal changes in youth's self-perception. Responses to open-ended questions suggested increases in self-confidence, self-reliance, social competence, and sense of belonging across participants. One parent said of her daughter's time at camp, "Just the total experience of being away gave her a lot of confidence. […] She even said, 'For once, I was popular.'" (p. 71-72). Parents said their children felt more positively about themselves after camp. They also commonly noted improvements in independence and self-reliance. Parents reported that campers felt more capable and eager to perform tasks on their own after camp. They also saw improvements in their child's social skills and reported that their child had made friends at camp. Parents believed camp gave their child a sense of belonging. Campers told parents they felt 'special' at camp, but also like they were among peers. Parents were generally very positive about the summer camp experience. They expressed cautious optimism, however, in the possible scope and longevity of the camp's effects in the context of their child's difficulties.

Another study done on a one-week residential summer sports camp for 9-15 year old youth with visual impairments showed the impact that a community of peers can have on individuals' perceptions of themselves. Goodwin et al. (2011) interviewed 13 youth about their experiences at the summer camp, and found that participants commonly spoke about forming connections with others at camp, and how it enabled them to explore their identities. The authors suggest that these descriptions parallel literature on the factors that produce the psychological "sense of community," defined as "… a feeling that members have a belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (McMillan & Chivas, 1986, p. 9). These campers expressed that they neither had many friends at home, nor many opportunities to interact with peers who shared their disability. At camp, however, they formed emotional connections with peers with whom they shared commonalities. This created feelings of belonging and safety, and a sense of identity as a member of the community. The authors explain:

> The restorative qualities of the sense of community experienced enabled the [campers] to express ideas about their cultural group identity. The participants spoke of reaching out to discover a culture of common shared experiences… They also spoke of the role that peers play in providing a sense of community identity. (p. 47)

The youth at the camp created a cultural and group identity through interactions with visually impaired peers. Campers felt they could function free of judgment or constricting stereotypes. Quotes from participants show how acting within a sense of a community caused them to think about how they viewed themselves and reimagine their identities. One camper explained:

> It's actually kind of neat 'cause you can reflect on yourself – who you are to what you feel like. […] It's almost like talking to your conscience but someone is physically there, you know, and they are going through the same problems and having the same accomplishments as you are. (p. 46)

Exposure to peers at camp provided participants with the novel experience of hearing that others had experiences similar to theirs, and campers expressed gaining insight into themselves as well as others. When asked why others should consider attending the camp, one boy said, "…they can learn a lot about the person that is inside of them. They can learn a lot about other people" (p. 48). Even for youth with disabilities that aren't primarily social, it seems there is a need to support the development of positive understandings of others and themselves. Goodwin et al. (2011) propose that "the camp created a landscape that made reaching out to explore one's thoughts, imagination, and personal limits possible" (p. 47). In this safe environment, youth were able to stretch their ideas of their potentials. One camper noted that "camp fulfilled his need to be the author of his own identity" (p. 47). It is clear that youth at the summer camp felt more empowered to tackle new challenges and rewrite their identities within the community at camp.

By grouping peers with the same disability together, Goodwin et al. (2011) suggest that these kinds of summer camps are a form of "segregated inclusion" (Place & Hodge, 2001). Like others, they propose that, "Though *segregated inclusion* carries a negative connotation (i.e., exclusion) because of the educational ideology of inclusion, outside of the educational setting, *segregation…* may promote a sense of community and well-being for those who identify with the group" (Prezza & Costantini, 1998, summarized in Goodwin et al., 2011, p. 51). They suggest that the term 'segregation' has negative connotations that should not be confused with its extremely positive possible effects on those with disabilities. The security youth at these summer camps gained from being amongst peers enabled them to step out of their comfort zones to discover their potentials and a new sense of themselves. Michalski et al (2003) state:

> In conclusion, the current evaluation has provided evidence that therapeutic summer camp programs can be effective with special needs populations, i.e., those children and youth who are not able to manage in more traditional summer camp settings. There appear to be precious few 'sanctuaries' to which parents and children alike can turn for the types of support, learning and growth opportunities provided by therapeutic camp programs. (p. 75)

For children who struggle at mainstream camps, specialized summer camps can act as rare 'safe spaces' that allow youth to access support. The authors, however, indicate that there is a need for more research on identifying which aspects of summer camp are effective, and under what circumstances. Both of these studies provide evidence that summer camps can provide youth with disabilities with a supportive community of peers that can enable them to reflect on their identities and construct positive perceptions of themselves as individuals and as members of a community.

Pride

Pride is seen as critical to the development of positive self-perception and self-esteem (Pelham & Swann, 1989). The literature from summer camps in other population suggest that these participants had increases in their sense of pride in themselves. However it is unclear whether youth with HFA/AS would respond similarly the experience. For an individual to feel 'proud' of something, it necessary that they have some control the outcome (Seidner, Stipek, &

Feshback 1988). They must also be able to reflect on outcomes and engage in self-evaluation (Heckhausen, 1984). Youth with autism have typically been found to struggle with identifying and expressing complex emotions like pride (e.g., Kasari, Sigman, Baumgartner & Stipek, 1993). For example, research has found that children with ASD express pride in social contexts less than typically developing samples (e.g., Hobson, Chidambi, Anthony & Meyer, 2006; Kasari et al., 1993). However, other researchers have found no differences between the typical population and those with ASD. One study, for example, found no difference in the speed with which children with and without ASD were able to recognize pride (Tracy, Robins, Schriber & Solomon, 2010). Another study that asked participants to recount events that made them feel proud found a similar lack of disparity between participants with and without HFA (Capps, Yirmiya, Sigman, 1992). These findings are therefore inconclusive, and it is unclear whether youth with HFA/AS express pride in a manner similar to the typical population.

The Present Study

Much of the literature on HFA/AS has focused on how those in this population understand others, but relatively little has explored how these individuals see themselves (Farley, Lopez, & Saunders, 2010). Our understanding of the self-perception of youth with HFA/AS and what contributes to positive self-perception in them is still very limited. In order to better serve this population, attention needs to not only be given to developing their social skills, but also to developing more positive perceptions of themselves and preventing psychological distress. The present study has two objectives: (1) to add to the existing literature on the quality and nature of perceptions of the self in individuals with HFA/AS, and (2) to explore any changes in self-perception over the course of individuals' participation at a 'segregated inclusion' model summer camp for youth 9 to 18 years of age with social difficulties.

Methods

Participants

A total of 60 (44 male, 16 female) youth and 59 parents at a camp for youth with social difficulties participated in this study. Participation rates in the study decreased from 57 camper participants at T1 to 38 participants at T2 (66.67%). At T3, three new families joined the study, coming out to a total of 21 participants at T3, 36.84% of the original sample size.

Participants were recruited from those enrolled in the camp for the coming summer. Youth were eligible to attend the camp if they had difficulty connecting with peers, regardless of formal diagnosis. All families enrolled were invited to participate. Parents received a description of the project and an invitation to participate in the mail. Those that chose to allow their child join the study completed a letter of consent, and their child completed a letter of assent. Parents indicated whether they would like their child to participate in the survey portion of the study, the observation portion, both, or neither. These forms were mailed back to the researcher in pre-addressed and stamped envelopes.

Participating campers were between the ages of 8 and 18 years (*M* = 13.17, *SD* = 2.05). The majority of parents (55, 88.3%) reported that their children had received a diagnosis of an autism spectrum developmental disorder. Of the sample, 36 (60.0%) were diagnosed with Asperger, 14 (23.3%) were diagnosed with Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), 9 (15.0%) were diagnosed with Nonverbal Learning Disability (NLD), and 7 (11.7%) were diagnosed with high-functioning autism. The parents of 3 (5.0%) campers reported no autism spectrum disorder, and four parents did not complete the background survey. A majority of campers (40, 66.7%) also had diagnoses additional to an autism spectrum disorder, the most common of which was ADHD (22, 36.7% of the entire sample). Interestingly, only 5 (8.3%) had depression, but many (20, 33.3%) had some form of anxiety disorder (GAD, OCD, or PTSD). Other diagnoses included: learning disability, sensory integration disorder, auditory processing difficulties, and poor motor skills. The parents of 35 (58.33%) participants reported their child's full-scale IQ, the mean of which was 112.94 (*SD* = 20.48). Twenty-six reported their child's verbal IQ (VIQ), and 16 reported their performance IQ (PIQ). VIQ spanned a wider range both in the minimum and maximum score, and PIQ had a lower mean. Distributions of IQ scores are provided in Figure 1. Twenty-nine (48.3%) of participating campers had attended the camp in the past, and 28 (46.7%) had never attended (*M* = 0.75, *SD* = 0.89). Three (5.0%) of the participating campers had attended the camp for three summers already, eight (13.3%) had attended for two summers already, and eighteen (30.0%) had attended just one summer before. The camp was entering its fourth year, so three years was the maximum number of summers possible for a camper to have attended the camp before the study.

There are two three-week sessions each summer at the camp. In the year this study was conducted, 92 campers attend each session. Six to nine children are usually placed in each bunk, and youth are placed by age. In the first session of camp there were eight bunks of boys and five bunks of girls. In the second session there were nine bunks of boys and four bunks of girls. In addition to the standard summer program at the camp, the year of this study was also the first year of the camp's new Leaders in Training (LIT) program for the oldest campers who had completed 11th or 12th grade. In the first session, there was one bunk of eight LIT boys, and one bunk of six LIT girls. In the second session there was only one bunk of four LIT boys.

Learning Environment

The standard summer program at the camp mirrors the structure of a 'typical' sleep-away camp for neurotypical children with modifications that are sensitive to the particular needs of those with developmental disorders. A typical day at the camp includes activities like art, swimming, fishing, acting, woodshop, ropes course, and music. Unlike many camps for this population, there are no periods dedicated explicitly to social skills building. Rather, staff are trained to support the development of the skills and others as issues arise. The directors created the camp because they saw a need for children with social difficulties to enjoy a typical summer camp experience without the pressure of being around other kids who didn't understand them. They didn't want the curriculum to be centered around social skill development because they felt that these kids spend a great deal of their time during the school year dedicated to improving their weaknesses, and need some time to take a break and just be allowed to have fun. While counselors and other staff help campers to develop skills, they do so with the perspective that the primary goal of the camp is to give these children a good experience.

In a typical day, campers will have three 50-minute assigned activity periods with their bunk, and two periods in which they can choose their activity. Bunks eat all three meals together at their own table in a dining hall with the whole camp. After breakfast, each bunk has a short meeting to go over the day's schedule, address any concerns, discuss goals, and do some kind of bonding activity. Campers must also complete chores to keep their cabins clean. Before lunch, campers have an hour of 'down time' to play outside with other campers. After lunch, bunks have 'rest hour', in which they can nap, read, write or play quiet games in their bunks. Every evening after dinner there is a camp-wide meeting for campers and staff to publically recognize or thank someone, and for the staff to notify campers of any news. Following evening meeting, there is a camp-wide game or activity. Once teeth are brushed and pajamas are on, counselors invite their campers to share the high and low points of their day, and preview the next day.

The Leaders in Training program at the camp was created to address the needs of youth soon to graduate from high school in their transition into increased independence and adulthood. The curriculum centers around developing life skills, such as learning to cook, doing laundry, learning about sexual health, participating in community service, visiting colleges, and helping camp staff in activity areas.

Data Collection and Procedures

This exploratory study had a multi-method design. Though several sources of data were collected, only two will be utilized for the purposes of this thesis: (1) descriptive information about camper participants provided by their parents in the *Parent Survey* (see Appendix), and (2) survey data provided by campers, including responses to Harter's (1985) *Self-Perception Profile for Children* and open-ended questions assessing self-perception (see Appendix).[1]

Descriptive information

Parents of participating campers completed an online survey before their child left for camp that included demographic questions about age, diagnosis, IQ, and the number of years the child had attended the summer camp.

Camper surveys

Parents who agreed to allow their child to participate in the survey portion of the study were emailed links to the online camper surveys for their child to complete before the child's camp session (Time 1), 2-4 weeks after their camp session (Time 2), and 4-6 months after their camp session (Time 3). Camper surveys were conducted online as studies have shown that in general "children and adolescents are more likely to reveal sensitive information in computerized rather than face-to-face interviews" (Shipman et al, 2010, pp. 86). This is

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[1] Observational data on campers and other survey data from campers, parents, and counselors were collected but are not discussed in this thesis.

especially true for the HFA/AS population, as face-to-face interactions can produce anxiety and less accurate responses (Attwood, 2007).

There were two types of assessments in the online camper surveys.

Self-Perception Profile for Children. Campers completed Harter's (1985) *Self-Perception Profile for Children* (SPPC), a 36-point self-report measure assessing children's self-perception in six domains: scholastic competence, social acceptance, athletic competence, behavioral conduct, physical appearance, and global self-worth. Each camper was presented with a question such as, "Some kids find it hard to make friends, but for other kids it's pretty easy." The camper then indicated which type of kid he or she was most like, and whether this was "really true" or just "sort of true" for him or her. Thus, campers were scored on a scale of 1 to 4 for each question. Participants completed this measure each time data were collected.

Qualitative assessment of self-perception. Open-ended questions were completed at each time, and questions were developed in response to emergent data from the previous surveys. These questions were thus responsive to participants' answers. Questions assessed self-perception in several areas, including: general descriptions of themselves, what made them feel proud, what they saw their strengths and weaknesses to be, how these compared to those of peers at camp, how they saw their relationships with peers, how they felt at camp, and if they saw any changes in themselves after camp. Questions were influenced by previous qualitative studies on the experiences of individuals with HFA/AS, as well as by the existing literature on the impact of the summer camp experience on youth from diverse populations.

Time 1

Specifically, at Time 1 campers completed: (1) the SPPC, and (2) one open-ended question: "What makes you feel proud of yourself?"

Time 2

At Time 2, campers completed: (1) the SPPC, and (2) several open-ended questions. They were asked if they felt any different after being at camp, and if there were any new social or life skills they had learned and wanted to carry over to their lives at home. Campers were asked if they felt like their strengths and difficulties were similar to those of other campers, and if being around kids at camp changed how they felt about these strengths and difficulties. Participants described whether or not they felt like they were part of a community at camp, and how that made them feel. They were asked what in particular at camp made them feel good about themselves. See Appendices for survey details.

Time 3

At Time 3, campers completed: (1) the SPPC and (2) several open-ended questions. They were asked to describe themselves, and whether their feelings about themselves, their strengths or their weaknesses had changed since they took the last survey. Campers also answered whether or not they were still using any of the social or life skills they learned at camp.

Data Analysis

Dependent measures for this study were: (1) campers' self-perception in each of the six domains on Harter's (1985) *Self-Perception Profile for Children* (scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth), and (2) campers' responses to open-ended questions. Independent measures for this study are gender, age, diagnosis, IQ, years at camp, and interest in camp activities.

Harter's Scales

For each question in both Harter's (1985) *Self-Perception Profile for Children* and her *Importance Rating Scale,* participants' responses to each question were coded on a scale of 1 to 4. Scores were reverse coded where dictated by Harter and then averaged within each of the six domains. In accordance with Harter's (1985) methods, there was no overall self-perception score, only six subscale scores. Scores on the subscales were compared between the two protocols.

Open-ended questions

Responses to open ended-questions were coded using the interpretative phenomenological analysis (IPA) method adopted by several researchers in the field of clinical psychology attempting to understand the subjective experience of those with diagnoses (e.g., Humphrey & Lewis, 2008; Punshon et al., 2009). As Smith and Osborn (2007) describe, a coding scheme for this qualitative data was developed using the method by first reading through all submitted responses several times. Second, intriguing aspects of responses were noted. Third, aspects that were similar or different to themes in the existing literature were also recorded. Fourth, emergent themes found across participants' responses to individual questions were compiled into lists. Fifth, these emergent themes in individual questions were synthesized across questions by clustering and labeling them with superior themes. Sixth, all responses were read through again while looking for examples of these themes that were originally missed. Finally, the location of each example of a theme was recorded in a document using the participant's ID number and gender, the survey number, the question, and a short quote.

Results

Consistent with the research questions, analyses in this exploratory study were conducted that would illustrate (1) general tendencies in the self-perception of competence in youth with HFA/AS, and (2) any changes in self-perception over time. Both quantitative and qualitative data were used to answer each research question. Following the organization of prior studies (e.g. Michalski et al., 2003), analyses of quantitative data are reported first for each research question, and analyses of qualitative data are reported second. To answer the first research question, associations among variables were examined within each test wave in accordance with previous research. Independent t-tests were run comparing mean scores on the SPPC by diagnosis and gender. Linear regressions were undertaken to compare mean scores on the SPPC by IQ, age, and number of previous years at the camp. In keeping with Harter's analyses, correlations were run between the domains on the SPPC. Frequencies of themes mentioned in the responses to open-ended questions were calculated for the sample over all and by gender, and correlations were run between categories mentioned in responses to open-ended questions and scores on the SPPC.

To answer the second research question, correlations among variables were examined between test waves. Paired t-tests were chosen to examine changes in scores on the SPPC from pre- to post-camp ($T_1 – T_2$), pre-camp to the 4-6 month follow-up period ($T_1 – T_3$), and post-camp to the follow-up period ($T_2 – T_3$). In the qualitative data, frequencies of themes mentioned were recorded and comparisons were made across test times and between genders.

Research Question 1: Tendencies in Self-Perception

Diagnosis and mean scores on the SPPC

In order to examine whether self-perception differed by diagnosis, t-tests were conducted to compare mean scores on the SPPC. These showed no difference between those diagnosed with either AS or HFA and the rest of the sample at any test time. Because of this and the current state of disagreement in the literature on reliable distinctions between autism spectrum developmental disorders (e.g., Ozonoff & Griffith, 2000), all subsequent analyses were conducted on the sample as a whole, consistent with past studies on autism spectrum disorders (e.g., Tracy et al., 2010).

Mean scores on the SPPC

There were significant differences between mean scores across domains, indicating that perception of competence in some areas was much lower than others. Perception of social competence tended to be low across participants. At all three test times, the mean social acceptance score was lower than all other domains. Each time it was significantly lower than perceived scholastic competence, physical appearance, behavioral conduct, and even global self-worth, $p < .001$. Perceived athletic competence was slightly higher than perceived social acceptance at each test time, though not significantly. Like perceived social acceptance, it was significantly lower than perceived scholastic competence, physical appearance, behavioral conduct, and global self-worth, $p < .001$.

Though no typically developing sample was used in this study, it was possible to compare scores from the present study on 8- to 19-year-olds with HFA/AS to scores from Harter's (1985) research on typically developing 3rd-8th graders. To ensure that this comparison was appropriate, analyses were run comparing scores from the present study of those that were between 3rd and 8th grade age (8- to 14-year-olds), and those that were older (15- to 18-year-olds). These indicated no significant difference between the age groups at any test time, so subsequent analyses comparing the present sample to Harter's (1985) used the entire sample.

Comparison to Harter's (1985) results showed that, like other studies have found (Capps et al., 1995; Williamson et al., 2008), perception of social and athletic competence were significantly lower in those with HFA/AS (see Figure 2). This was true at all three test times ($p < .001$). Similar to what Williamson et al. (2008) found, global self-worth and perception of physical appearance were not significantly lower in the HFA/AS sample, contrasting what Capps et al. found (1995). Interestingly, at T3, perception of scholastic competence was significantly higher in the HFA/AS sample, $t(20) = 2.47$, $p < .05$, as was perception of behavioral conduct, $t(20) = 2.16$, $p < .05$, a previously undocumented finding. However this may be due to an unknown hidden variable in the small remaining sample size at this time.

It was impossible to compare mean scores on the SPPC from the present study to those from other studies on HFA/AS youth because no other studies reported mean scores in a way that allowed comparison (Capps et al., 1995; Vickerstaff et al., 2006; Williamson et al., 2008).

Gender and mean scores on the SPPC

As depicted in Figure 3, independent sample t-tests comparing mean scores on the SPPC between the genders showed that males had higher self-perceived competence than females in several domains across test times. At T1, males had higher self-perceived social acceptance, athletic competence, and global self-worth. Interestingly, the male sample spanned a significantly larger range in self-perceived social acceptance at T1, $SD = .64$, $F = 9.22$, $p < .005$, and T2, $SD = .62$, $F = 5.12$, $p < .05$. At T2, males again had higher perceived social acceptance than females. However, females had higher perceived scholastic competence than males at T2. Females interestingly also had a significantly wider range perceived physical appearance, $SD = 1.06$, $F = 7.94$, $p < .05$, and global self worth, $SD = .90$,

$F = 6.87$, $p < .05$ at T2. However this may be due to the low number of females in this sample. There were no differences in mean scores between the genders at T3, which might also be due to the small sample size at this test time.

Analyses were also run comparing scores from males and females in the present study to males and females in Harter's (1985) study. These showed that even when analyses were run by gender separately, both males and females in the HFA/AS sample had significantly lower perceived athletic and social competencies than Harter's typically developing sample. Results at T2 and T3 also showed that females in the HFA/AS sample had a tendency towards higher perceived scholastic competence than Harter's typical sample, but boys never approached significance. Interestingly, at T1, females in this HFA/AS sample had a significantly lower perception of behavioral conduct than the girls in Harter's (1985) study, $t(22) = -2.38$, $p < .05$. This contrasts the previously stated finding in the whole HFA/AS sample indicating that perceived behavioral conduct was significantly higher at T3 than the typical sample, $t(20) = 2.16$, $p < .05$.

IQ and mean scores on the SPPC

In accordance with past research (Capps, et al., 1995; Vickerstaff et al., 2007), linear regressions were run to examine whether high intellectual functioning was associated with low self-perception in SPPC domains. Regressions were run on SPPC at each test time. Full-scale IQ, performance IQ (PIQ) and verbal IQ (VIQ) were analyzed separately. Results are shown in Figure 4. In contrast to previous studies (Capps et al., 1995; Vickerstaff et al., 2007), high intellectual functioning was generally not predictive of low perceived social competence. No IQ score was predictive of perceived social acceptance at T1 or T2, but high PIQ was predictive of low perceived social acceptance at T3, $r = .73$, $p < .05$. This may be a result of the small sample size at this time, however. It is possible that the lack of association between high IQ and low perceive social-competence was due to the range in IQ scores in this sample. Analyses revealed that participants in the present study (M = 112.94, SD = 20.48) had a significantly higher mean full-scale IQ than those in previous studies, $p < .05$.

IQ predicted self-perception in a couple domains besides social competence. At T1, high PIQ predicted high global self-worth, $r = .55$, $p < .05$. Regression analyses also showed that high VIQ predicted high perception of physical appearance at T1, $r = .42$, $p < .05$. At T3, however, both high VIQ, $r = .69$, $p < .05$, and high full-scale IQ, $r = .58$, $p < .05$, predicted low perception of physical appearance. Also at T3, high full-scale IQ was, not surprisingly, predictive of high scholastic competence, $r = .58$, $p < .05$.

Other variables and mean scores on the SPPC

Regression analyses examining the relationship between self-perception and other variables were conducted in accordance with previous research. Surprisingly, these showed that perception of competence did not differ by age or number of previous years at camp.

Correlations between domains in the SPPC

In keeping with Harter's (1985) analyses, correlations were run to examine whether children's self-perceptions of competence were correlated. Special attention was paid to correlations with global self-worth to assess which domains were most related to individuals' overall self-perception. Correlations were run within the whole sample and for males and females separately in accordance with Harter's (1985) research. Correlations between participants' scores in each domain were calculated at Time 1, 2, and 3 separately. Results are depicted in Figures 5, 6 and 7. Interestingly, for the whole sample at T1, all domains were correlated with global self-worth except scholastic competence. At T2 and T3, only two domains were correlated with global self-worth.

Physical appearance and social acceptance were particularly commonly associated with global self-worth. As depicted in Figures 5, 6 and 7, physical appearance was correlated with global self-worth in the whole sample and for the genders separately at T1 and T2. That there was no significance at T3 may be an artifact of sample size. As shown in Figure 2, at T1, physical appearance was additionally correlated with social acceptance.

Social acceptance was also frequently correlated with global self-worth. Social acceptance was correlated with global self-worth for the whole sample at T1 and T3, and for males separately at T1 (see Figures 5, 6 and 7). Interestingly, social acceptance was not significantly correlated with global self-worth for the whole sample or either gender at T2. Social acceptance was also never correlated with global self-worth for females separately at any time.

Responses to open-ended questions

Participants' descriptions of what makes them feel proud also illustrated the quality of self-perception in this population. These showed that participants experienced pride and were able to express it. Several themes emerged from the responses to open-ended questions assessing pride, as depicted in Figures 8AB, 9AB and 10AB. Many of the responses from participants fit into the six domains from the SPPC. Interestingly, a large number of participants mentioned pride in social skills and relationships at each test time. Examples of campers' responses that highlight the different themes observed are provided below. They are organized by test time and are shown with participants' ID number and gender (M, F).

Time 1. At T1 campers were asked what makes them feel proud. As shown in Figures 8A and 8B, at T1 campers mentioned pride in scholastic aspects more than any other category. For example:

> *I'm mostly proud of my advanced intellect, but I'm also proud of other things I do.* (ID 45, M)

> *The fact that I'm very, very, very good at school, especially math and science.* (ID 12, F)

Several participants mentioned pride in social aspects at T1.

> *... those very rare occurrences when I hang out with friends.* (ID 25, M)

> *Having my friends over and playing video games or riding bikes.* (ID 35, M)

> *When I can make other people laugh or be happy.* (ID 34, F)

Many of the areas campers mentioned did not fit into the SPPC domains. The third largest number of responses were references to success or ability in an area that was not one of the SPPC domains (i.e. athletic or scholastic). For example, participants noted pride in:

I can play the drums, and I'm learning to play the musical instrument the bass. (ID 1, M)

> *My interests... and knowledge of many different areas.* (ID 7, M)

> *My creations that I build.* (ID 43, M)

> *My book, video game, movie and Manga collection.* (ID 32, M)

The highest percentage of participants at T1 said feelings of success or accomplishment in an unspecific area made them proud.

> *I feel proud of myself when I do something that I wasn't sure I could have done.* (ID 10, F)

> *When I am happy and I did some thing very good or do some thing better than my avg.* (ID 11, M)

Some said that receiving recognition or approval for something made them feel proud. For example:

> *What makes me feel proud [is] when I do the right stuff and I don't get in trouble with parents, teachers, students. I feel like I can do anything.* (ID 8, M)

> *I soak up compliments like a sponge. :)* (ID 34, F)

> *Getting a new belt in tae kwon do and getting a good grade on a test.* (ID 57, M)

> *When my family is happy and proud of me.* (ID 27, F)

Two participants mentioned feeling independence as a source of pride. One responded:

> *Finishing a project on my own…* (ID 15, F)

Interestingly, two campers said that being unique in comparison to the norm made them feel proud of themselves. They wrote:

> *That I feel different, and many kids feel that they should be the same as others* (ID 44, M)
>
> *I can do real thinking, as opposed to school thinking* (ID 21, F)

One camper's response was clear evidence of negative perception of his diagnosis, but interestingly simultaneously high perception of other aspects of his identity. In response to the question he said:

> *All of me except Aspergers* (ID 16, M)

Three participants responded such that it was unclear whether they were showing negative self-perception or difficulty with the task of describing themselves.

> *I can't think of anything.* (ID 18, M)
>
> *Nothing* (ID 26, M)
>
> *Not much.* (ID 51, F)

Time 2. At T2, participants were asked what made them feel proud at camp. As shown in Figure 9A and 9B, the most common source of pride described was a social aspect. Campers described several social elements, including being generally more social, building social skills, helping others, and strengthening old relationships. The most frequently mentioned source of pride within this social category was making new friends.

> *I am proud of my time at camp. I feel good about myself because I made more friends and had fun doing it.* (ID 14, M)
>
> *I made so many friends that really seemed to like me and I liked them.* (ID 42, M)

> *The thing that made me feel the most good about myself was the fact that I have someone to keep in touch with and to hopefully come again next summer.* (ID 53, M)

Athletic successes were frequently mentioned as a source of pride at camp, more so than before camp at T1.

> *I am proud of the time when I learned how to sail and control the whole boat simultaneously… Another thing I am proud of is the fact that I can survive in the wilderness and shoot arrows with decent precision.* (ID 37, M)

> *I was very good at tennis at camp. I was very proud of that.* (ID 40, M)

One camper said his behavior made him proud:

> *Everything, really. I didn't get upset; I'm proud of my behavior.* (ID 17, M)

Many campers expressed pride in areas unrelated to the SPPC domains. Accomplishment in camp activities was a common source of pride, as was conquering homesickness.

> *That I built a rocket.* (ID 13, M)

> *I felt good about the projects I did. Sometimes I felt sad or homesick, but I made it through* (ID 17, M)

Many participants described incidents in which they had to display courage or try something new as events that made them feel proud at camp.

> *I feel proud of myself for going on the zip line. I was very scared the first two times. And it was AWESOME!* (ID 50, M)

> *Trying new foods…* (ID 2, M)

> *The fact that I tried new things….* (ID 8, M)

> *The fact that I was able to be brave and face some new sports and adventures that I'd never done before…* (ID 1, M)

Some campers said independence, leadership, and recognition gave them pride. For example:

> *I am proud of what I accomplished. I liked being independent.* (ID 11, M)

> *I liked that my counselors said I was a good leader* (ID 27, F)

> *I'm proud of so many things. The top five are: 1) Helping another camper accept her disability as a part of herself 2) Cooking and cleaning by myself 3) Leading jr. camp*

> *in the Poise-a-thon for charity 4) Being a peacemaker in my bunk 5) Being a leader to my peers :)* (ID 31, F)

Four participants at T2 seemed to have difficulty with this task of self-reflection. Some said they felt unable to identify things that made them feel proud during their time at camp, and a couple cited examples of events that were out of their control, which defies the definition of pride. For example:

> *I am proud of how I saw many amphibians.* (ID 25, M)
>
> *I felt amazing I don't know why.* (ID 33, F)

Time 3. At T3, participants were asked to describe themselves, including what they felt proud of and what they wanted to improve upon. As depicted in Figures 10A and 10B, an even larger percentage of participants noted social aspects at T3 than at T2 or T1. For example:

> *I'm proud of my patience with people, I'm proud of having friends and being social, and I'm proud of being honest.* (ID 1, M)
>
> *I am a kind-hearted person and an extremely loyal friend.* (ID 27, F)
>
> *I am proud of... how well I can get along with peers.* (ID 59, M)

Many participants said they were proud of abilities in a particular area of interest. For example, one girl said:

> *I am proud that I participated in peace marches and impeachment rallies during the Bush era. I also write letters to the editor, and keep in touch with my congress people.* (ID 10, F)
>
> *I am a great writer (in my opinion) and enjoy giving other people enjoyment.* (ID 34, F)

Many campers talked about aspects of their personalities they were proud of.

> *I would describe myself as a nice, thoughtful, smart, sensitive person who could do with some improvement, but is happy about himself for the most part.* (ID 59, M)
>
> *I'm creative and witty. I am able to make jokes, and I usually have pretty good timing.* (ID 34, F)

> *I think I am a bubbly person, and I try to be a fun person to be around.* (ID 39, F)

Like at T1, many participants noted pride in scholastic aspects, though there was a decline. A few noted athletic achievements. One noted a behavioral element.

> *I think I am a well mannered adolescent who respects other people and does well in school. I am proud of the way I act because I think that is how I am supposed to.* (ID 14, M)
>
> *Getting good grades* (ID 38)
>
> *I am proud of my self by doing karate (ID 13)*

Interestingly, two campers mentioned being proud of their functioning or diagnosis. They said:

> *I'd describe myself as someone becoming pretty normal for their age. I have lots of friends now and am good at school. I'm proud of how many friends I've made recently.* (ID 38, M)
>
> *I am proud that I have a really high level of autism.* (ID 53, M)

When asked what they wanted to improve upon, more campers made mention of wanting to work on social skills than any other category (see Figures 11A and 11B).

> *I could do with some help on a few of my social skills.* (ID 59, M)
>
> *I also want to work on paying attention to people when they talk because people I meet at college in 4 months might not be as patient as camp people.* (ID 31, F)
>
> *I would like to work on getting girls to like me.* (ID 53, M)

Many described weaknesses in the other SPPC domains, i.e. scholastic, athletic, and behavioral abilities.

> *I'd like to work on getting better grades, keeping up with work in school, and involving myself in more activities. Also eating habits.* (ID 1, M)
>
> *I'd like to work on trying to control myself and stop lying all the time.* (ID 9, M)

A few campers said they wanted to improve on skills unrelated to the SPPC domains. Some said they wanted to be more independent.

> *I want to work on taking better care of myself. I learned to cook and look after myself at camp, but I've gotten lazy.* (ID 31, F)

Three campers struggled to describe what they were proud of and what they wanted to improve upon. Some gave evidence of low global self-worth by saying they thought they were not very good at anything at all, or by explaining they struggled with low self-esteem.

> *I can't describe myself. I think I am usually nice.* (ID 10, F)
>
> *I have trouble thinking of this I don't think I'm very good at things or proud of myself.* (ID 26, M)
>
> *I want to work on controlling negative thoughts. It is an excruciating habit that happens every day.* (ID 25, M)

Correlations between responses to open-ended questions and mean scores on the SPPC

Independent t-tests were run to examine the relationship between responses to open-ended questions and scores on the SPPC. More specifically, these assessed whether those that mentioned an SPPC domain in a response to an open-ended question had higher scores on the SPPC in that domain than those that did not mention the SPPC domain in their open-ended responses. T-tests were conducted between test times to allow for the possibility that open-ended responses at one test time might predict SPPC scores at another test time. Surprisingly, the results showed that responses to open-ended questions generally did not predict scores on the SPPC. There were two significant predictors, however. Those that mentioned social skills as an area of weakness at T3 had significantly lower perceived social acceptance at T2 than those that did not mention social skills as an area of weakness at T3, $t(20) = 2.302$, $p < .05$. Second, those that mentioned scholastic achievement among the things they were proud of at T3 had significantly higher perceived scholastic competence at T2 than those that did not mention scholastic achievement as an area of pride at T3, $t(20) = -2.199$, $p < .05$.

Research Question 2: Changes in Self-Perception

Longitudinal performance on Harter's scale

To examine whether perceptions of competence changed over time, paired t-tests were conducted comparing SPPC scores at each pair of time points. These were conducted within whole sample and within each gender separately. None of the tests showed any significant changes. However, despite the lack of change seen in response to the quantitative assessment, review of responses to qualitative questions suggests that many participants saw notable changes in themselves.

Responses to open-ended questions

Frequencies of responses were calculated for each test time and compared with one another. As shown in Figures 12A and 12B, mention of social aspects increased at each test wave, more drastically than any other domain. Interestingly, many campers mentioned social skills as both an area of pride and weakness at T3. In addition, more campers reported being proud of athletic accomplishments during camp as measured at T2 than they did before camp at T1 or after camp at T3. Campers reported seeing changes in several areas as well. They said they felt their social competence, self-confidence, self-reliance, and sense of belonging. Examples of quotes are organized by test time and prompt.

Of the 28 who responded to the survey at T2, 14 said they had changed in some way. Of these, 10 reported changes in themselves related to a social area. They said they had improved their social skills, developed new friendships, strengthened existing relationships, and felt they would have more successful relationships in the future.

> *Yes, I learned how to work with large amounts of people and about teamwork.* (ID 1, M)
>
> *I learned how to tolerate people who annoy me. I think I've changed because I have a feeling the kids in middle school will like me more this fall.* (ID 37, M)

> *I am proud that I managed to make a friend who genuinely was there for me even when I acted as though I were not quite sane.* (ID 51, F)
>
> *I'm really proud about how, for the first time, people relied on me for comfort. I like being there for people and being the "hug pillow" made me feel needed.* (ID 34, F)
>
> *The fact that I made so many friends and I felt like I was important.* (ID 39, F)

The second most common type of change participants reported was increased confidence. They mentioned noticing more confidence in their social skills, life skills, and in themselves in general. Many said they felt more mature and others said they felt more independent. Some explained:

> *I feel more confident and more self-assured* (ID 33, F)
>
> *I feel a lot different after being at camp. I think I'm starting to feel like a young man and more confident about talking to people.* (ID 53, M)
>
> *I've definitely changed positively. I now have more confidence performing activities that prior to camp I'd been reluctant to do (laundry, cooking, and other life skills I had opportunity to practice at camp). I now feel that I'm more ready to be an adult, because I've had a no-pressure opportunity to realize that I was capable of skills expected of neurotypical adults.* (ID 31, F)

Several participants also saw physical and athletic changes. Multiple campers said they felt happier while at camp. One boy responded:

> *I feel a little happier after being at camp, because I saw my friends.* (ID 14, M)

A couple noted ways in which they had changed how they thought about themselves and life:

> *I think it has taught me both how to be a better person and how life could become enjoyable.* (ID 7, M)
>
> *I feel as though I should not obsess over what others are doing, and therefore make more attempts to be myself.* (ID 51, F)

In addition to being asked what they were proud of and what they would like to improve upon, campers were asked at both T2 and T3 if they felt any differently about their strengths or weakness since the last survey. Participants again talked about being more social after being at camp. Multiple campers noted they had many new friends at home and thought this was at least in part due to their experiences at camp.

> *I feel that I have made more friends at my new school that I would have had I not gone to camp... I think this was an advantage because having friends is always good* (ID 14, M).

One even noted being less social after camp.

> *I feel a little lonely since I left camp...* (ID 41, F)

Again, campers mentioned being more confident in both their strengths and weakness, and in themselves in general:

> *Since going to camp, I definitely have more self-confidence, and I feel like I am developing what I need to get better at, and enhancing my performance at things I was already good at.* (ID 59, M)
>
> *I feel like I'm bolder, and able to be more outgoing and social since camp. Also I'm able to try new things. The fun new things I did at camp also made me more proud of who I am as a person.* (ID 1, M)
>
> *I feel stronger in my weakness subject and stronger in following directions.* (ID 30, M)
>
> *Yes, it made me feel better about the things that I do have, and made it easier to deal with the things that I might not. Also it could be good to work hard to try to overcome difficulties. (ID 1, M)*
>
> *I think I am a stronger person because of camp.* (ID 27, F)

Several youth talked about becoming more accepting of themselves. They particularly mentioned changes in their perceptions of their diagnosis after camp.

> *...I also realized that I'm quite lucky to have accepted my diagnosis, strengths, and difficulties for what they are. I realize now how far I've come. The peer experiences and learning opportunities I had at camp have made me realize I'm much more successful, happy, and beautiful than I've recently given myself credit for. Before camp, I said: "I'm cool, but I have a disability". Since camp, the "but' HAS COMPLETELY disappeared. I now realize that I've had a lot of the skills I thought I'd lacked (mostly social) all along. (ID 31, F)*
>
> *Yes, it made me proud of my NLD (ID 34, F).*
>
> *I see that I do not despise myself anymore, though I do have a tendency to be extremely hard on myself. I still despise having my diagnosis, though. (ID 51, F)*

Some campers talked about being more self-reliant and independent. For example, one girl who was in the young adult program said:

> *I'm beginning to feel really ready to start college in 4 months. I feel like I don't use some of the things I learned at camp a lot anymore, like cooking, but I'm glad I still remember the stuff I learned at camp because I know I'll need it when I'm at college and my mom can't cook for me anymore"* (ID 31, F).

Several participants had difficulty, however, reflecting and remembering how they felt at the last test time:

> *I think so, I don't remember when I last took the survey. I do think I feel more confident about myself since the last survey, but I don't know.* (ID 34, F)
>
> *I don't remember how I felt then.* (ID 39, F)

To explore how being at the camp affected their self-perception, participants' were asked what it felt like to be at camp. In accordance with past research on summer camps (Goodwin et al., 2011), they were asked if they felt like they were a part of a community, and to describe the experience. Many said it felt good to be around other kids that "got them" and they felt like they were a "family" where everyone was included.

> *I felt like I was in a community because I had a voice in whatever was going on.* (ID 3, M)
>
> *It felt good to be with other people that got the things that most people think of as weird.* (ID 27, F)
>
> *Yes. I felt like I was with people I'm supposed to be with.* (ID 17, M)
>
> *Yes. I felt like I belonged at camp. I knew no one was going to judge or criticize me if I had a meltdown or didn't feel comfortable doing something.* (ID 39, F)
>
> *Yes I did and it was. In our bunk we became a sort of family and all had a lot of trust and respect for each other. I also had friendships outside our bunk and they helped me feel like part of something bigger.* (ID 37, M)

Though they felt like they were part of a community, one camper said:

> *It was a good feeling but I can't really explain why.* (ID 2, M)

Participants were also asked if it felt any different to be among the kids at camp than those at home. An overwhelming majority said it did. Campers explained that they felt more comfortable with kids at camp, and were more socially out-going among them.

> *I think definitely yes, most of the kids have the same difficulties I have, and it did feel different being around the kids at camp, because most of the kids had social difficulties similar to mine.* (ID 1, M)
>
> *It made me feel like I belonged. I enjoyed the feeling.* (ID 14, M)
>
> *Yes, I think the kids at camp were similar to me. I can be more social with the kids at camp. I have friends there and not so many at home.* (ID 11, M)
>
> *Yeah because people didn't get frustrated if you said something wrong when you didn't mean to* (ID 27, F)
>
> *Meeting other kids with social disorders gave me mixed feelings. A good thing is that the kids have interests like mine. A bad thing is that the other campers didn't want to be out and about as much as I did. It felt different than being around normal kids because the children at [camp] allow me to be myself.* (ID 37, M)
>
> *It was different from being around other, neurotypical kids. Most campers were more creative and engaging. Also, every camper/camper experience had an underlying sentiment of "we've been there". This is both unusual and pleasing. Recently, I've struggled with accepting my diagnosis. At camp, I was able to help one of my fellow campers find a similar self-acceptance regarding her disabilities as I have. It made me proud to assist someone in a situation I'd been in before and could understand: the struggle to accept that you have a disability.* (ID 31, F)
>
> *Yes, being at camp is a ton different than being at school because people understand you and no one really sticks out.* (ID 34, F)
>
> *I like that they all have special brains* (ID 49, F)

It was apparent from these responses that campers enjoyed being around other kids like them, and felt comfortable among them.

Discussion

The objectives of this exploratory study were to investigate (1) investigate tendencies in self-perception of competence in youth and adolescents with HFA/AS, and (2) examine whether there were any changes in self-perception after attending a camp exclusively for youth with social difficulties.

In response to the first research question, the findings of this study add to the existing literature suggesting that youth with HFA/AS are able to engage in self-reflection. Campers showed awareness of deficits in their ratings of self-perceived competence, as well as the ability to identify aspects that make them feel proud. In response to the second research question, this study found mixed results. Quantitative measures showed no change in campers' self-perception over the course of camp, but qualitative measures showed profound changes in participants' perceptions of social competence, self-confidence, self-reliance, and sense of belonging. Findings from this study also suggest that open-ended questions might be better at detecting changes in self-perception than standardized measures.

Research Question 1: Tendencies in Self-Perception

Mean scores on the SPPC

Findings from this study showed that youth with HFA/AS were able to reflect on their competencies. On the standardized measure of self-perception, participants rated themselves significantly lower in social and athletic competence than significantly lower than in perceived scholastic competence, physical appearance, behavioral conduct, and even global self-worth. Their scores in these two domains were also significantly lower than those in Harter's (1985) typically developing sample. This echoes the findings of previous studies in this special population (Capps et al., 1995; Williamson et al., 2008). It provides further evidence that these individuals are aware of their weaknesses, and contrasts assumptions that those on the autism spectrum are unable to engage in self-reflection (Farley et al., 2010). Surprisingly, participants' global self-worth was not particularly low, nor did it differ from the typical sample in this domain. Though this contrasts the findings of Capps et al. (1995), it mirrors the findings of Williamson et al. (2008). These inconsistencies across studies may suggest that there is variation in this population, or it may be that the SPPC is not an accurate assessment of global self-worth for this group. It may also be that inconsistencies across studies are a product of sample bias in studies. It was unclear where those from the Capps et al. (1995) sample were recruited from, and those from the Williamson et al. (2008) study only included students who were mainstreamed. It could be that those attending the summer camp had particularly high self-worth. Michalski et al.'s (2003) study of campers with learning disabilities similarly found that participants' scores on the Self-Esteem Index were not significantly lower than the typical population. This contrasts the well-established findings that youth with learning differences tend to have low self-esteem, similar to the finding that youth with HFA/AS also have low self-esteem (e.g., Heyman, 1990). It could be that youth from special populations attending summer camps for some reason have higher self-esteem than others who share their diagnosis.

Age and mean scores on the SPPC

In contrast to Vickerstaff et al.'s (2006) findings, age was not negatively correlated with self-perceived social competence. However, the lack of correlation between age and self-perceived competence mirror's Harter's (1985) findings in the typical population. Harter only found that age was a significant predictor of competence when comparing scores among middle school students, such that perceived scholastic competence and global self-worth decreased between 6th and 8th grade. This could suggest the sample in this study is similar to the typical population in that self-perception of competence did not differ by age.

Gender and mean scores on the SPPC

Like Harter's (1985) study of typically developing youth, substantial differences were found between the genders. These are particularly exciting as no other study that has used the SPPC with an HFA/AS sample has examined gender effects. Results from the present study indicated that males in the sample tended to have higher perception of competence than females. Like Harter (1985) found in neurotypical youth, males had significantly higher perceived athletic ability than females. In addition, males in this sample had significantly higher perceived social competence, physical appearance, and global self-worth. These findings suggest that males with HFA/AS see themselves on the whole more positively than females with HFA/AS do, mirroring findings in the typical population (e.g., Vannata et al., 2009).

Females in the sample had higher perceived scholastic competence than males, as did the girls in Harter's (1985) sample. They even tended to have higher perceived scholastic competence than Harter's typical sample. In contrast to Harter's findings in the typical population however, females' perceptions of their behavioral conduct was not significantly higher than that of males. In addition, females in the HFA/AS sample saw themselves as significantly moor poorly behaved than the typically developing girls did. This suggests that while girls with HFA/AS are similar to the typical population in their perception of their scholastic competence, they differ in their perception of their behavioral conduct.

Interestingly, there was a large range in females' scores on physical appearance and global self-worth. To some extent the variability may be a product of the small number of girls in the sample. However it might also be possible that girls with HFA/AS tend to vary greatly in how they perceive their physical appearance and global self-worth. It is interesting that these two domains were also significantly correlated, suggesting that this result was not merely a product of small sample size.

IQ and mean scores on the SPPC

In contrast to past research on the HFA/AS population (Capps, et al., 1995; Vickerstaff et al., 2007), high IQ in this sample was generally not predictive of low perceived social competence. However, there was one exception: at T3, participants with high performance IQ tended to have low perceived social competence. It is interesting that performance IQ and not verbal IQ was a significant predictor, given the uneven intellectual profile characteristic of those with HFA/AS. In trying to distinguish between HFA and AS, some have found that those with AS have low performance IQ and comparatively high verbal IQ, while the opposite is true for those with HFA. However, results across studies have failed to show consistent difference between the two disorders (Ghazziudin & Mountain-Kimchi, 2004). The sample in the present study displayed a significantly higher mean verbal IQ than performance IQ, more consistent with theories on the intellectual profile of AS. This finding that high performance IQ predicted low perceived social acceptance is surprising, as one would expect high performance IQ to only improve social functioning. Interestingly, the findings might suggest instead that those with high performance IQ are more aware of social deficits. It is also interesting that performance IQ was only predictive of perceived social acceptance at the follow-up test. This could suggest that those with high PIQ became more aware of their social deficits only after spending some time back at school. It is possible that this singular instance in which IQ negatively associated with social acceptance at T3 was merely a function of the small remaining sample size at this time. Since previous studies in this population only examined the relationship between full-scale IQ and perceived competence, it is impossible to determine whether performance IQ in these samples also predicted perceived social acceptance.

It is unclear why there was not a consistent relationship between IQ and perceived social acceptance in this particular sample. Since parents were asked to report IQ scores, it is possible that parents who chose to answer were a self-selecting group, such that their children happened to be youth whose IQ did not correlate with their perceived social acceptance. Differences in this sample compared to those in previous studies could also account for the lack of association between IQ and perception of social competence. It may be that for some reason the self-perception of social acceptance in those who enrolled in the summer camp or who agreed to participate in the study was unrelated to their intellectual functioning. It is unlikely that differences in autism spectrum diagnoses caused the lack of association, as analyses run within each diagnostic group separately similarly did not reveal any significant relationship between IQ and perceived social competence. It is also unlikely that this was caused by differences in participants' ages between studies, as they spanned similar ages. It is possible, however, that differences in IQ accounted for this difference. The sample in the present study had a significantly higher mean IQ than both of the previous studies that found a relationship between IQ and perceived social acceptance. It may be that once IQ passes a certain point, it no longer is related to low perceived social acceptance. There is a chance that the high IQ's in this sample were incorrectly reported by parents, such that they provided higher scores than reality.

It is also possible that differences in the percentage of participants with comorbid depression are related to the lack of significant association between IQ and self-perceived social competence. Though Capps et al. (1995) did not report depressive symptoms, Vickerstaff et al. (2007) found a full 53% of their sample to be either mildly depressed or depressed. In contrast, only 8.3% of participants' in the present study were reported to be depressed. The findings by these two previous studies that high IQ predicted low perceived social acceptance could therefore be in part a product of depression in the sample. It could be that those with high IQ tended to be depressed, as other studies have found, and consequently saw themselves as less socially competent. While it is possible that the low rate of depression in this sample was caused by underreporting on the part of parents, the thoroughness with which these parents described extensive comorbid diagnoses suggests otherwise. It may be that the different rates of depression were due to differences in how this data was collected between the studies. Vickerstaff et al. (2007) directly measured depressive symptoms, where as the present study asked parents to report their child's diagnoses. Despite this, it is possible that the reason high IQ did not consistently predict low perceived social competence in the present sample was because there was a lower rate of depression in this particular sample of HFA/AS youth.

Alternatively, it could be that this particular sample was more similar to the typical population than those in previous studies. Interestingly, in the typically developing sample from a previous study, there was no relationship between high IQ and low perceived social competence (Capps et al., 1995). This could suggest that this sample of HFA/AS youth was similar to the typical population in that high IQ did not seem to predict low perceived social competence.

Correlations between domains in the SPPC

This study revealed several significant correlations between self-perception in different domains. These findings are particularly exciting as no other study has examined correlations between domains on the SPPC in the HFA/AS population. Results mirrored several findings from the typical population, and ads to the literature on youth with HFA/AS as no other study in this population examined correlations between domains on the SPPC. Like Harter (1985) found, youth's perceptions of physical appearance in this sample were strongly correlated with their global self-worth. It is interesting that despite the social deficits associated with HFA/AS, perception of physical appearance still prominently factored into participants' global self-worth. This might suggest that those with HFA/AS are not so different from the typical population in what contributes to their self-esteem.

Perception of social acceptance was also strongly and positively correlated with global self-worth. The two domains were also correlated in Harter's (1985) typical sample, however not as strongly. This suggests that social competence is integral to HFA/AS participants' self-esteem, and is indicative of the toll that awareness of social deficits takes on these individuals' self-worth. It is interesting, however, that perceived social acceptance was not correlated with self-worth at T2 immediately after camp. This could suggest that while at camp, participants' general self-worth was not as contingent upon their social competence, but at home it was.

Perceptions of social acceptance and physical appearance were generally strongly correlated. This has also been documented in the typical population (Harter, 1985). It suggests that physical attractiveness contributes strongly to social acceptance in youth with HFA/AS, just as it does in neurotypical typical youth (Vannatta et al., 2009), and that participants are showing awareness of this. Alternatively, it could be that participants who just *perceive* themselves as being more physically attractive are more confident, and thus receive more social acceptance. The direction of the relationship could also go the opposite way: it could be that those who feel socially accepted perceive themselves as being more physically attractive because they take their social acceptance as a sign that other kids find them attractive.

These three variables - social acceptance, physical appearance, and global self worth – seem to be deeply interrelated. The strong correlations between them across test times and genders suggests that the relationship between these three domains is central to the self-perception of youth with HFA/AS. The finding that physical appearance is strongly tied to perceived social acceptance and global self-worth is a particularly exciting finding as it has previously been undocumented in this population.

Pride

Responses to open-ended questions showed that youth with HFA/AS were able to identify areas they felt proud of and areas they would like to improve upon. Most participants correctly identified pride in areas they had some control over, supporting previous findings that youth with HFA/ASD are capable of engaging in complex emotions (e.g. Capps et al., 1992; Tracy et al., 2011). That being said, a couple participants were unable to identify areas of control as sources of pride, showing that though many are capable of self-reflection, it is still difficult for some in this population.

Domains from the SPPC seemed to factor prominently into what participants spontaneously mentioned as sources of pride in their responses to open-ended questions. Since the measure was developed by Harter in response to what typically developing youth mentioned as important to them when making judgments about their competences (Harter, 1982), the fact that youth with HFA mentioned these same areas in descriptions of what made them feel good about themselves suggests that the two populations are similar in regards to what areas factor into their self-perception. Participants frequently mentioned pride in scholastic competence, and some mentioned pride in athletic and behavioral competence and global self-worth. Interestingly, participants mentioned pride in social competence more than almost any other area. This seems to in some ways contradict past research suggesting that in comparison to neurotypical individuals, those with AS see their social relationships as less central to their understanding of themselves (Jackson, Skirrow, & Hare, 2011; Lee & Hobson, 1998). The findings of the present study suggest that social relationships factor prominently into the self-perception of those with HFA/AS.

However, some of what youth talked about did not fit into any of the categories from the SPPC. Many campers talked about abilities in a specific area of interest as sources of pride, like video games or music. This is consistent with the HFA/AS diagnosis, which often includes having special interests. Pride in specific abilities is not exclusive to this population, however, and seems relevant to the general population as well. It is interesting that the SPPC includes perception of competence in athletic and scholastic domains as relevant to self-perception, but not competence in other areas of skill, like art or music. These areas might factor prominently into the self-perception of many individuals both with and without

HFA/AS, and including more areas of competence in the SPPC might give a more accurate picture of the quality of self-perception in youth. Many participants also mentioned feeling proud in response to success or achievement without referring to a specific area.

Research Question 2: Changes in Self-Perception

Statistical analysis of campers' scores on the quantitative measure of self-perceived competence revealed no significant changes over time. However, campers' responses to open-ended questions suggest that participants experienced substantial changes after being at camp, particularly in their perception of social competence, self-confidence, self-reliance, and sense of belonging. This discrepancy between the findings of the quantitative and qualitative measures mirrors the findings of Michalski et al.'s (2003) longitudinal study of youth with learning differences at summer camp. These researchers found that the standardized measure assessing the social skills of participants did not detect significant changes over the course of camp, which contrasted the results they found in parent interviews. It may be that, similar to those in the Michalski et al. (2003) study, participants in the present study experienced significant changes even though the standardized measure did not detect them. It is possible that the findings from these two studies are examples of a trend in measures of competence and self-perception, and could indicate a need for the revision or creation of measures sensitive enough to detect change. Practically speaking, what good does a measure of self-perception do for a child if it cannot tell when they have improved? If we cannot trust standardized measures to detect improvement or deterioration, how will we be able to tell what interventions are effective? The findings from these studies show the benefits of using qualitative measures in conjunction with quantitative measures in assessments of change in youth. Qualitative measures may be more sensitive than quantitative measures to changes in self-perception, and using a combination of the two can be helpful in getting a more nuanced picture of a children's self-perception. If the hope is to improve areas of functioning in youth and their perceptions of themselves, it seems necessary that measures be created that can not only measure their performance in an area, but also be able to tell when they have changed.

Social competence

Responses to open-ended questions showed that participants' perceptions of their social competence changed after being at camp. More campers made reference to their social competence as an area they were proud of after being at camp than before camp. Participants said they were proud of the friendships they made at camp more than any other aspect. It was clear this was a particularly exciting source of pride for them because it was a relatively uncommon experience. Though it may seem like making friends would clearly be a highlight of summer camp for many kids, this experience is especially meaningful to those with HFA/AS. Human beings tend to gravitate towards those who are like them (Farmer & Farmer, 1996), and this pattern may be particularly true of those with HFA/AS, who have been found to prefer HFA/AS peers over neurotypical peers (Locke et al., 2010). Because of their social difficulties, it may be harder for those with HFA/AS to form relationships with those who are very different from them. Putting kids with HFA/AS together, who share common interests, strengths, and difficulties, gives them the opportunity to make friends.

It could be that campers' social skills even improved as a result of being at camp. Some campers said they had improved their cooperation skills, and others said they were more patient with others. They noted they felt more confident in approaching people and that others would like them better after attending the summer camp. Bauminger and Kasari (2000) suggest that since those with HFA/AS are often significantly much more comfortable with people they know than with strangers, friendships can be a particularly effective setting through which to practice and improve social skills. Therefore, forming friendships at camp might have given participants the opportunity to develop social skills they otherwise wouldn't practice. That being said, participants were still aware that there was room for improvement in their social skills. When asked what areas they felt weak in, most campers noted social aspects. This further suggests that participants were cognizant of their difficulties and had realistic perceptions of themselves.

The pride and increased confidence in social skills that results from making friends seems extremely important for this population that struggles to form social relationships. Even if the SPPC was unable to detect changes, responses to open-ended questions suggest that participants experienced profound changes in their perception of social competence after making friends at summer camp. This supports previous research showing that friendships and exposure to peers with similar disabilities can improve perceptions of the self (e.g., Humphrey & Lewis, 2008; Punshon et al., 2009; Weidle et al., 2006). In addition, maintenance of friendships made at camp might continue to positively impact self-perception in participants. Research in the typical population suggests that friendship fulfills a unique need not fulfilled by peer acceptance alone, and that long-term friendships have a positive impact on individuals' development of interpersonal competence and self-worth (Bagwell et al., 1998). It is also widely accepted that the social support provided by close relationships protects against depression, anxiety and other psychological dysfunction (e.g. Burgess, 2006; Panzarella, 2006).

Self-confidence

Campers were not only more confident in their social skills, but in their life skills, and in general. They said they felt more confident about their strengths and more accepting of their weaknesses. Several particularly said they felt more accepting of their diagnosis.

Research on the effects of an exclusive summer camp for children with learning differences similarly found that increased self-confidence was common across campers (Michalski et al, 2003). It was clear from the responses of the present studies' sample of youth with HFA/AS that this was an enjoyable feeling for campers, and one that they were very proud of. This finding is particularly significant for this population that struggles in many areas, and it was evident that the opportunities at camp that enabled them to feel more confident had deeply impacted their sense of self. Campers often noted that they were proud of the courage they displayed when trying new things at camp. Many participants talked about conquering their fears and even just going outside their comfort zone a bit as a major source of pride. This seems particularly important for this population that tends to stick to rigid routines and behaviors (*DSM-IV*). Creating opportunities for expanding these boundaries seems helpful as an intervention for the disorder, and also seems to have positive effects on individuals' self-perception. Trying new things can additionally increase learning in general. These findings suggest

Self-reliance

Feeling independent or self-reliant also seemed to be a source of pride for participants. This makes sense given the nature of autism spectrum disorders, which often includes limited self-care skills (Hume, Loftin, & Lantz, 2009). Findings from other studies of summer camps for disabled populations has similarly shown increases in independence and self-reliance (e.g. Michalski et al., 2003). More campers said they felt proud of feeling independent after camp than before camp. Campers talked about helping others and being leaders at camp as making them feel good about themselves. These experiences arose from being around peers who were struggling with issues similar to them, as well as by peers who were lower functioning or younger than them. These seem like experiences they would be less likely to have in their daily life, and that were enabled by being at camp. Rarely to these youth have opportunities to feel like leaders or helpers. Giving them more opportunities like those they experienced at this camp could contribute to positive self-worth.

Sense of belonging

In order to understand why these changes in self-perception occurred in campers, it is helpful to consider how participants perceived the experience of being at camp. When asked what it felt like to be at camp, participants seemed to feel that being among peers was a very positive experience. Many said they felt like they were part of a “family” where they were included, cared about, and valued. This echoes findings from other studies of summer camps for special populations (e.g. Goodwin et al., 2011). They felt like the other kids “got them,” and they weren’t the only “weird” kid. They felt like they were with the people they were “supposed to be with.” These responses suggest that being among peers with similar strengths and difficulties helped them feel more positively about their differences, gave them the confidence to be more social, and enabled them to develop friendships based on mutual trust and respect.

Limitations

This study has several limitations, the most prominent being the lack of a comparison group. Without this it is difficult to tease apart the effects of camp from the effects of maturation and repeated assessment. To improve the scientific rigor of the study, it would have been useful to compare the self-perception of those attending the summer camp to several those not attending a summer camp, as well as to HFA/AS youth attending an inclusion model summer camp rather than one exclusively for this special population. It also might have been helpful to compare these findings to the effects of summer camp on a sample of typically developing youth to better understand how this population is similar and different from the typical population. The low number of females and the small sample size that resulted after sample attrition were also weaknesses of the study. Another limitation was the reliance on parent report of ASD symptoms and intellectual functioning in place of conducting assessments. More accurate and independent ratings for these areas would have enabled better comparisons to previous studies. Sample characteristics may also limit generalizability. The sample included a small number of girls, and a limited age range. The study also only included participants enrolled at a single camp, so the sample might have been a unique population unrepresentative of youth with HFA/AS.

Future research

The findings from this study suggest that future research could be helpful in furthering our understanding of youth with HFA/AS. In particular, studies on the comparative effects of different types of summer camps would be helpful in determining what types of programs are best for who. It may be that inclusion model summer camps are beneficial for some youth with HFA/AS, and future research could help to explain what factors distinguish kids within this population. Since the SPPC measure failed to detect changes in participants, it might have useful to compare performance on the SPPC to other measures of self-esteem or self-perception, to see if perhaps another measure would reveal changes. Finally, it would have been informative to assess the accuracy of participants’ self-perception by comparing child reports to parent, counselor, and teacher reports. The researcher of the present study gathered assessments from parents and counselors, however the time frame of this thesis did not allow for analysis of this data to be conducted.

Implications

The findings from this study have implications on the interventions for youth with HFA/AS. These findings suggest that these individuals benefit greatly from being around peers with similar diagnoses. In this space, youth feel less stigmatized and consequently more confident. It enables them to make friendships more easily, and gives them a platform on which to practice social skills. If individuals with HFA/AS are not provided with opportunities to meet peers they share significant commonalities with, we may be denying them opportunities to make friends. It also is just enjoyable experience for them, a factor that should not be taken as trivial. The stress of everyday life for these individuals merits opportunities for reprieve and fun, experiences provided by summer camps such as this. This study echoes findings on the effects of exclusive summer camps for other special populations. It serves as evidence that summer camps can provide youth with disabilities with a supportive community of peers that can enable them to reflect on their identities and construct positive perceptions of themselves as individuals and as members of a supportive community. These findings should not be taken to suggest that youth with HFA/AS should be exclusively surrounded by peers with similar diagnoses. Rather, for opportunities should be made for them to interact with both those who are similar to them and those who are not. Both experiences are helpful and necessary in different ways, and combined can help develop social skills and positive self-image.

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Figures

Figure 1

Distribution of reported Full-score IQ, Verbal IQ, and Performance IQ scores

	Number reported	Minimum	Maximum	Mean	Std. Deviation
Full-score IQ	35	76.00	185.00	112.94	20.48
Verbal IQ	26	45.00	138.00	112.69	19.16
Performance IQ	15	78.00	124.00	102.69	13.04

Figure 2

Differences in mean scores on the SPPC
between the typically developing sample from Harter's (1985) study
and the HFA/AS sample at each test time

	Harter's sample	HFA/AS sample Pre-Camp (T_1) (*n* = 57)	HFA/AS sample Post-Camp (T_2) (*n* = 38)	HFA/AS sample Follow-Up (T_3) (*n* = 21)
Scholastic	2.79	2.86 (.56)	2.84 (.71)	3.13* (.62)
Social	2.92	2.17** (.59)	2.13** (.57)	2.20** (.76)
Athletic	2.85	2.25** (.56)	2.32** (.52)	2.10** (.64)
Physical	2.82	2.88 (.68)	2.86 (.75)	2.90 (.60)
Behavioral	2.96	2.89 (.58)	2.98 (.65)	3.25* (.60)
Global	3.01	2.94 (.59)	2.86 (.63)	3.02 (.45)

Note: Maximum score = 4

* Difference between samples is significant at the $p < .05$ level (2-tailed).

** Difference between samples is significant at the $p < .001$ level (2-tailed).

Figure 3

Gender differences in mean scores on the SPPC

	Pre-Camp (T_1)		Post-Camp (T_2)		Follow-Up (T_3)	
	Males (*n* = 41)	Females (*n* = 16)	Males (*n* = 27)	Females (*n* = 11)	Males (*n* = 13)	Females (*n* = 8)
Scholastic	2.84 (.55)	2.93 (.60)	2.69* (.55)	3.21(.61)	3.04 (.65)	3.27 (.58)
Social	2.28 (.64)	1.91* (.36)	2.24 (.64)	1.86* (.36)	2.24 (.77)	2.13 (.79)
Athletic	2.35 (.56)	2.01* (.49)	2.36 (.57)	2.21 (.45)	2.05 (.69)	2.17 (.57)
Physical	2.89 (.70)	2.85 (.65)	2.94 (.60)	2.67 (1.06)	2.99 (.49)	2.77 (.76)
Behavioral	3.00 (.57)	2.71 (.57)	2.89 (.71)	3.21 (.55)	3.13 (.62)	3.44 (.56)
Global	2.97 (.60)	2.84* (.57)	2.93 (.62)	2.70 (.90)	3.09 (.42)	2.90 (.50)

Note: Maximum score = 4

* Difference between genders is significant at the $p < .05$ level (2-tailed).

Figure 4

Significant correlations between Full-scale IQ, Verbal IQ, and Performance IQ scores and SPPC scores at each test time

Test Time	Domain	Full-scale IQ	Verbal IQ	Performance IQ
Pre-Camp (T_1)				
	Physical		.42*	
	Global			.55*
Follow-Up (T_3)				
	Scholastic	.58*		
	Social			.73*

* Correlation is significant at the $p < .05$ level (2-tailed).

Figure 5

Significant correlations between SPPC domains by gender at Pre-Camp (T_1)

	Overall T1 (*n* = 57)	Males T1 (*n* = 41)	Females T1 (*n* = 16)
Global x Social	.39**	.40**	n. s.
Global x Athletic	.28*	n. s.	n. s.
Global x Physical	.57**	.50**	.73**
Global x Behavioral	.29*	n. s.	n. s.
Social x Athletic	.33*	n. s.	n. s.
Social x Physical	.37**	.38*	n. s.
Behavioral x Athletic	.29*	n. s.	n. s.
Scholastic x Athletic	n. s.	.42**	n. s.

Note: The notation n.s. indicates that no statistically significant correlation ($p < .05$) was found.
** Correlation is significant at the $p < .01$ level (2-tailed).
* Correlation is significant at the $p < .05$ level (2-tailed).

Figure 6

Significant correlations between SPPC domains by gender at Post-Camp (T_2)

	Overall T2 (*n* = 38)	Males T2 (*n* = 27)	Females T2 (*n* = 11)
Global x Physical	.71**	.53**	n. s.
Global x Behavioral	.34*	n. s.	n. s.
Behavioral x Scholastic	.39*	.54**	n. s.
Physical x Athletic	.46**	.43*	n. s.
Physical x Scholastic	n. s.	.42*	n. s.

Note: The notation n.s. indicates that no statistically significant correlation ($p < .05$) was found.
** Correlation is significant at the $p < .01$ level (2-tailed).
* Correlation is significant at the $p < .05$ level (2-tailed).

Figure 7

Significant correlations between SPPC domains by gender at Follow-Up (T_3)

	Overall T3 ($n = 21$)	Males T3 ($n = 13$)	Females ($n = 8$)
Global x Social	.45*	n. s.	n. s.
Global x Physical	.44*	n. s.	n. s.
Behavioral x Scholastic	.64*	.85**	n. s.

Note: The notation n.s. indicates that no statistically significant correlation ($p < .05$) was found.
** Correlation is significant at the $p < .01$ level (2-tailed).
* Correlation is significant at the $p < .05$ level (2-tailed).

Figure 8A

Frequency of responses at T1 to an open-ended question assessing pride

		Overall T1 ($n = 50$)	Males T1 ($n = 36$)	Females T1 ($n = 15$)
		Percentage (Count)	Percentage of Males (Count)	Percentage of Females (Count)
SPPC domain				
	Scholastic	36.0 (18)	37.1 (13)	33.3 (5)
	Social	12.0 (6)	14.3 (5)	6.7 (1)
	Athletic	14.0 (7)	17.1 (6)	6.7 (1)
	Physical	4.0 (2)	5.7 (2)	--
	Behavioral	3.9 (2)	5.6 (2)	--
	Global	--	--	--
Non-SPPC category				
	Success in unspecific area	40.0 (20)	31.4 (11)	60.0 (9)
	Ability in non-SPPC area	26.0 (13)	25.7 (9)	26.7 (4)
	Approval	18.0 (9)	14.3 (5)	26.7 (4)
	Independence	4.0 (2)	2.9 (1)	6.7 (1)
	Uniqueness	4.0 (2)	2.9 (1)	6.7 (1)
	Negative self-perception	8.0 (4)	8.6 (3)	6.7 (1)

Figure 8B

Distribution of responses at T1 to an open-ended question assessing pride

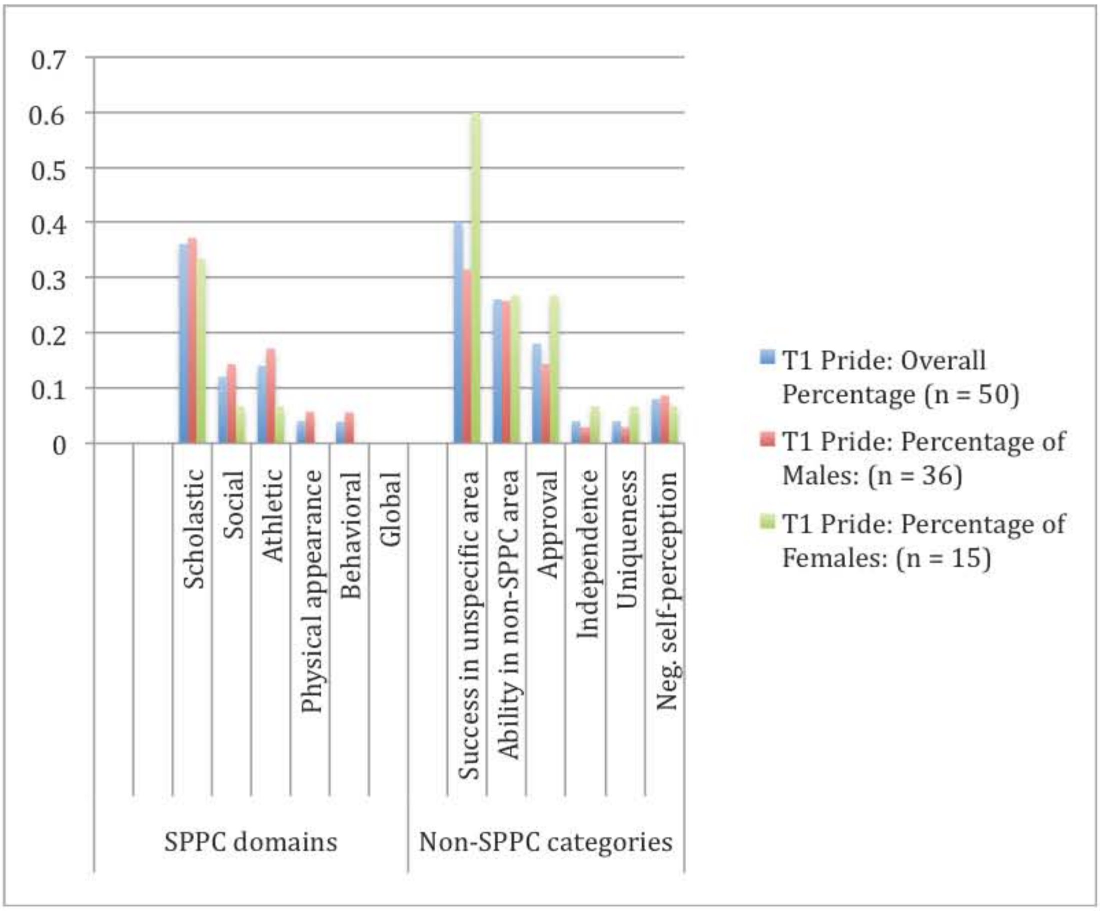


Figure 9A

Frequency of responses at T2 to an open-ended question assessing pride at camp

		Overall T2 (*n* = 37)	Males T2 (*n* = 26)	Females T2 (*n* = 11)
		Percentage (Count)	Percentage of Males (Count)	Percentage of Females (Count)
SPPC domain				
	Scholastic	--	--	--
	Social	51.4 (19)	46.2 (12)	63.3 (7)
	Athletic	27.0 (10)	34.6 (9)	9.1 (1)
	Physical	--	--	--
	Behavioral	2.7 (1)	3.8 (1)	--
	Global	--	--	--
Non-SPPC category				
	Success in non-SPPC area	27.0 (10)	30.8 (8)	18.2 (2)
	Courage	24.3 (9)	3.8 (1)	9.1 (1)
	Independence	8.1 (3)	--	18.2 (2)
	Leadership	5.4 (2)	--	18.2 (2)
	Approval	5.4 (2)	--	18.2 (2)
	Difficulty assessing	10.8 (4)	7.7 (2)	18.2 (2)

Figure 9B

Distribution of responses at T2
to an open-ended question assessing pride at camp

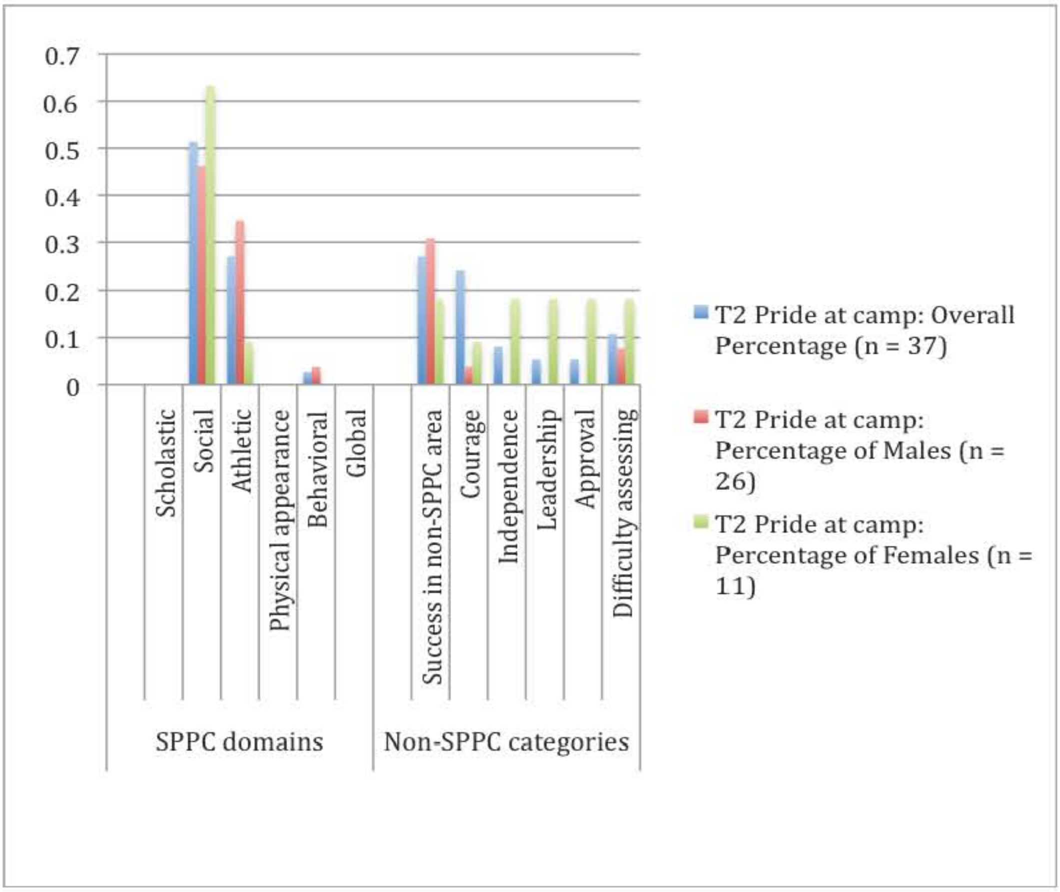


Figure 10A
Frequency of responses at T3 to an open-ended question assessing perception of strengths

		Overall T3 (*n* = 28)	Males T3 (*n* = 19)	Females T3 (*n* = 9)
		Percentage (Count)	Percentage of Males (Count)	Percentage of Females (Count)
SPPC domain				
	Scholastic	35.7 (10)	26.3 (5)	55.6 (5)
	Social	57.1 (16)	47.4 (9)	77.8 (7)
	Athletic	10.7 (3)	15.8 (3)	--
	Physical	3.6 (1)	5.3 (1)	--
	Behavioral	3.6 (1)	5.3 (1)	--
	Global	3.6 (1)	5.3 (1)	--
Non-SPPC category				
	Ability in non-SPPC area	25.0 (7)	15.8 (3)	44.4 (4)
	Personality	28.6 (8)	21.1 (4)	44.4 (4)
	Normalcy	7.1 (2)	5.3 (1)	11.1 (1)
	Approval	3.6 (1)	--	11.1 (1)
	Independence	3.6 (1)	--	11.1 (1)

Figure 10B

Distribution of responses at T3
to an open-ended question assessing perception of strengths

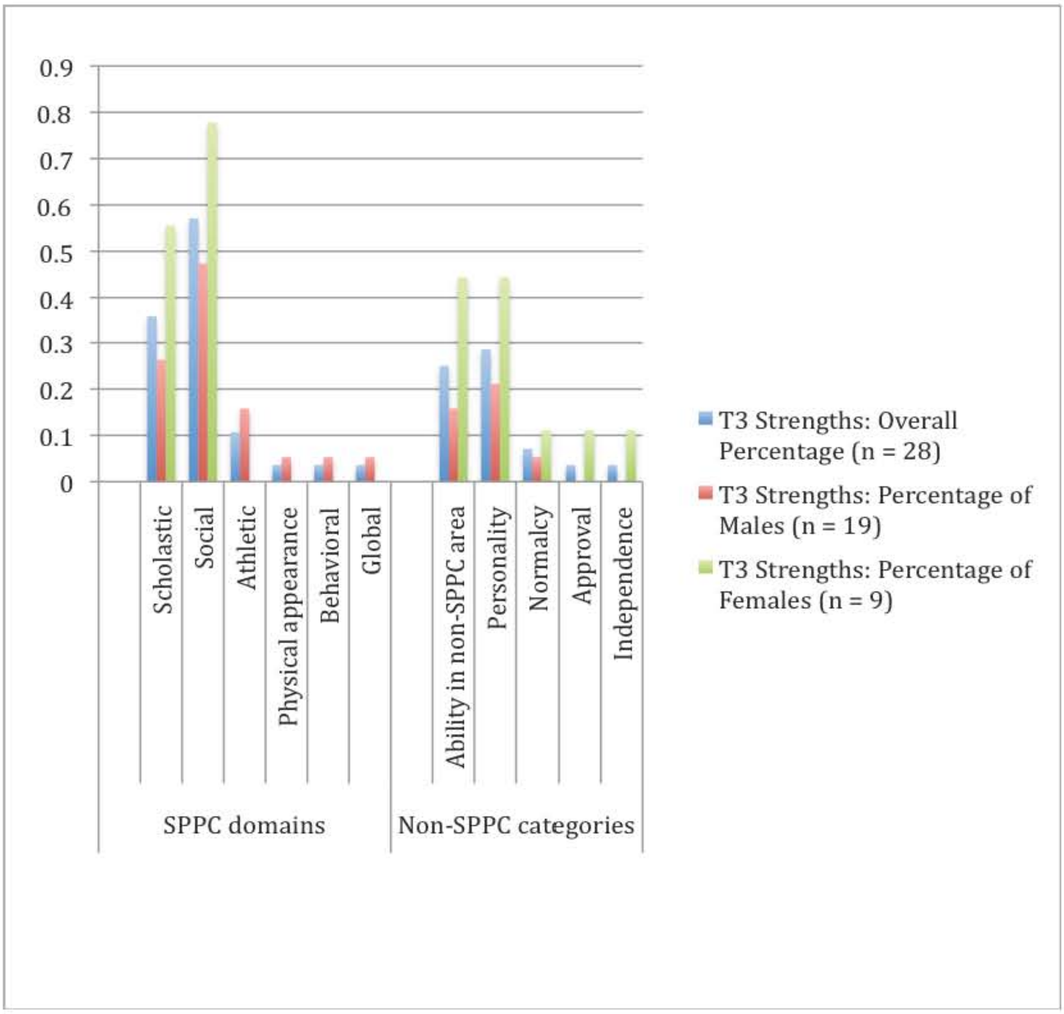


Figure 11A
Frequency of responses at T3 to an open-ended question assessing perception of weaknesses

		Overall T3 (*n* = 28)	Males T3 (*n* = 19)	Females T3 (*n* = 9)
		Percentage (Count)	Percentage of Males (Count)	Percentage of Females (Count)
SPPC domain				
	Scholastic	17.9 (5)	21.1 (4)	11.1 (1)
	Social	39.3 (11)	31.6 (6)	55.6 (5)
	Athletic	3.6 (1)	5.3 (1)	--
	Physical	--	--	--
	Behavioral	3.6 (1)	5.3 (1)	--
	Global	7.1 (2)	10.5 (2)	--
Non-SPPC category				
	Ability in non-SPPC area	7.1 (2)	5.3 (1)	11.1 (1)
	Independence	7.1 (2)	5.3 (1)	11.1 (1)
	Difficulty assessing	10.7 (3)	10.5 (2)	11.1 (1)

Figure 11B

Distribution of responses at T3
to an open-ended question assessing perception of weaknesses

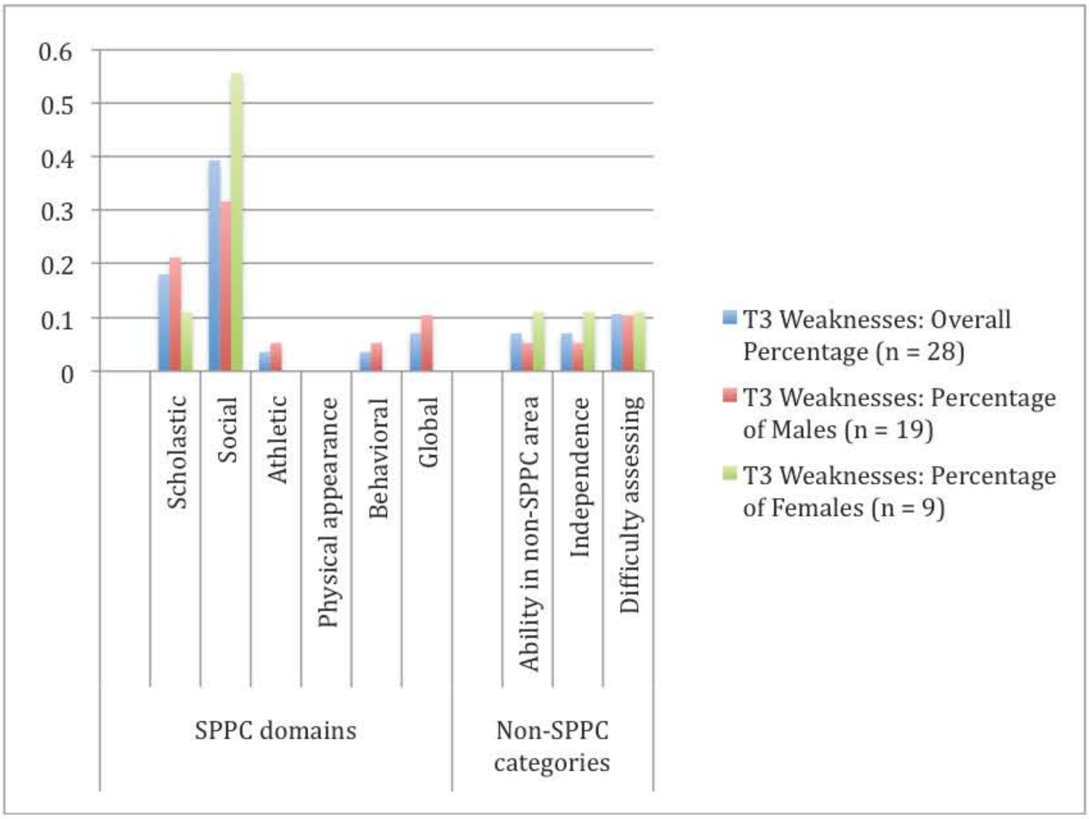


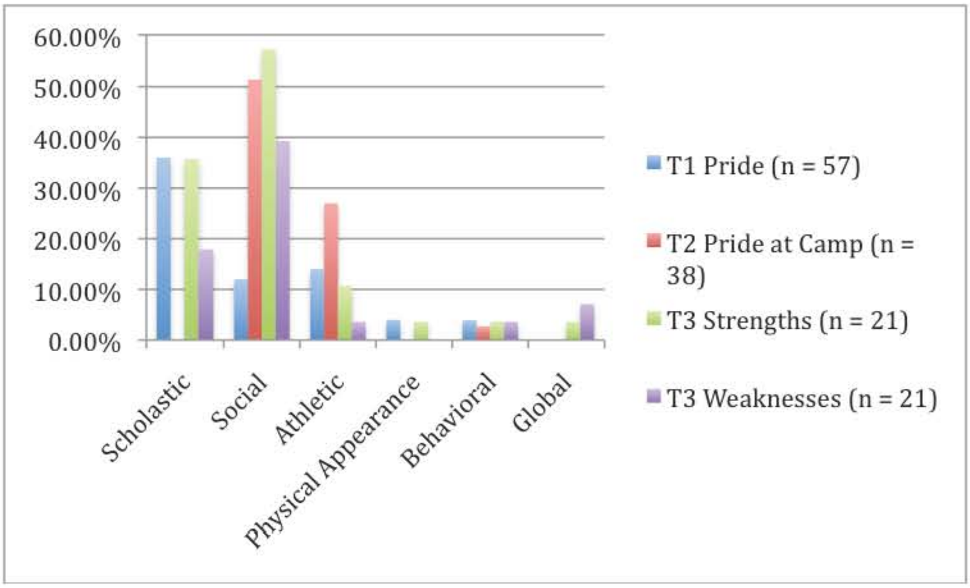
Figure 12A

Frequency of responses across time to open-ended questions at T1, T2 and T3

		Pre-Camp (T_1) Pride	Post-Camp (T_2) Pride at Camp	Follow-Up (T_3) Strengths	Follow-Up (T_3) Weaknesses
		n = 57	*n* = 38	*n* = 21	*n* = 21
SPPC domain					
	Scholastic	36.0 (18)	--	35.7 (10)	17.9 (5)
	Social	12.0 (6)	51.4 (19)	57.1 (16)	39.3 (11)
	Athletic	14.0 (7)	27.0 (10)	10.7 (3)	3.6 (1)
	Physical	4.0 (2)	--	3.6 (1)	--
	Behavioral	3.9 (2)	2.7 (1)	3.6 (1)	3.6 (1)
	Global	--	--	3.6 (1)	7.1 (2)
Non-SPPC category					
	Success in unspecific area	40.0 (20)	--	--	--
	Ability/success in non-SPPC domain	26.0 (13)	27.0 (10)	25.0 (7)	7.1 (2)
	Approval	18.0 (9)	5.4 (2)	3.6 (1)	--
	Independence	4.0 (2)	8.1 (3)	3.6 (1)	7.1 (2)
	Uniqueness	4.0 (2)	--	--	--
	Normalcy	--	--	7.1 (2)	--
	Personality	--	--	28.6 (8)	--
	Courage	--	24.3 (9)	--	--
	Leadership	--	5.4 (2)	--	--
	Negative self-perception	8.0 (4)	--	--	--
	Difficulty assessing	--	10.8 (4)	--	10.7 (3)

Figure 12B

Distribution of responses across time to open-ended questions at T1, T2, and T3 related to the SPPC domains



Appendices