

The Author of the thesis owns copyright. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

Lost in the Autism Spectrum: Assessment and intervention for improving social competence in high functioning girls displaying 'autistic-like' behaviours

A thesis presented in partial fulfillment of the requirements for the degree of

MEdPsych
In
Educational Psychology

at Massey University, Manawatū,
New Zealand.

Denise F. Eddowes
2014

Abstract

This study is about a focused social skill intervention for pre-pubescent girls with high functioning 'autistic-like' behaviours to improve their social competence. Participants were four girls between the ages of 8-12 years who participated in the 16-session programme over an 8 week period. Using a case study design and a mixed methods approach, the intervention used video modelling to address the visual learning preference known inherent to those with ASD along with the incorporation of the SOLO taxonomy to meet their systemising strengths. The results showed that when provided with a targeted intervention their social skills behaviours improved and problem behaviours decreased. This study identified that girls with 'autistic-like' behaviours, when identified and provided with targeted intervention, have the ability to develop skills to engage in positive reciprocal interactions with peers, adults and family. The study concludes with identifying limitations and future research needs.

Dedication

For Lynette

Acknowledgements

My sincere thanks goes out to the best support team anyone could be lucky enough to have. Firstly, to my primary supervisor Vijaya Dharan whose unwavering generosity of wisdom, time and encouragement knew no bounds; you are the consummate professional. I would also like to thank my secondary supervisor, Hal Jackson, the participating schools, my local ASD support group, and in particular the enthusiastic girls and their families who participated in this study - it could not have happened without you. To Pam Hook who not only designed but also made available the excellent digital SOLO designed templates online. Finally to my fabulous husband Mark and supportive sons Jesse and Nick - thank you for the patience and love you have shown me not only this year but throughout the many years I have studied – I promise to make more dinners in 2015! Approval for this research was obtained from Massey University Human Ethics Committee, Southern A.

Table of Contents

Abstract	i
Dedication.....	ii
Acknowledgements	iii
List of Figures	vii
List of Appendices	viii
List of Tables.....	ix
Chapter 1 - Introduction	1
Positioning of the Researcher.....	1
Explanation of the Title.....	1
Rational and Potential Benefits of the Study	1
Chapter 2 - Literature Review – Part 1.....	3
Autism Spectrum Disorder (ASD).....	3
Prevalence of ASD.....	4
High Functioning Autism (HFASD).....	5
Characteristics of HFASD.....	5
‘Autistic-like’ social behaviour	6
Misdiagnosis or under-diagnosis of girls.....	6
HFASD symptomology of girls.....	7
Risks relating to HFASD.	8
Social competence deficits	10
Social skills needs.	11
Competing problem behaviours against the acquisition of social skills.....	12
Literature Review - Part 2	14
Social Cognitive Theory (SCT).	14
Social-cognitive theories.....	15
Non-social cognitive theories.	16
Empathizing-Systemizing theory (E-S).	16
Social Motivation Theory.....	17
Behavioural Theory	17
Social Skills Assessment	18
Social skills assessment studies.....	19

Social skills screening assessments.	20
Social Skills Improvement System - Rating Scale (SSIS-RS).....	20
Frameworks of Social Skills	22
FIAC model.....	22
CCAREES model	23
Use of a Multi-dimensional Intervention for Individuals with HFASD	23
Chapter 3 – Research Method	26
Research Development	26
Observational Learning Using Video-modelling (VM).	26
Using the Structure of Observed Learning Outcomes (SOLO) Taxonomy...27	
Research Questions	30
Research Framework	30
Research Participants	32
Research Ethics.....	32
Research Process	34
Selection of schools and participants.....	34
Data Gathering Tools	38
Preparation for delivery of intervention	41
The intervention.....	43
Post intervention.....	46
Limitations	47
SSIS-RS Validity Index Scale Cautions	48
Chapter 4 – Research Results	50
Case Study One - Bridget.....	51
Pre-intervention semi-structured interviews.....	51
SSIS-RS first administration – Bridget (B).	52
SSIS-RS second administration.....	54
SSIS-RS third administration.	54
SOLO rubrics assessment.	57
Case Study Two - Sharnie	57
Pre-intervention semi-structured interviews.....	57
SSIS-RS first administration - Sharnie (S).	58
SSIS-RS second administration.....	59
SSIS-RS third administration.	60
SOLO rubrics assessment.	62

Case Study Three - Erena	63
Pre-intervention semi-structured interviews.....	63
SSIS-RS first administration - Erena (E).....	63
SSIS-RS CCAREES Social Skills subscales.....	64
SSIS-RS second administration.....	65
SSIS-RS third administration.....	66
SOLO rubrics assessment.....	68
Case Study Four - Petra	69
Pre-intervention semi-structured interviews.....	69
SSIS-RS first administration - Petra (P).....	70
SSIS-RS second administration.....	71
SSIS-RS third administration.....	72
SOLO rubrics assessment.....	74
Post-intervention Follow-up Interviews	75
Teacher interviews.....	75
Parent/Caregiver interviews.....	76
Students' group interview.....	77
Chapter 5 - Discussion	79
Response to the Research Questions	79
What are the social skills characteristics of girls with high functioning 'autistic-like' behaviours?.....	79
What is the impact of a social skills intervention on girls with high functioning 'autistic-like' behaviours?.....	81
Outcomes of Using SOLO	85
Implications	86
Chapter 6 - Conclusion	88
References	91
Appendices	101

List of Figures

Figure 1. Pajares conceptual model of reciprocal determinism	14
--	----

List of Appendices

Appendix A. Information sheet for school principal and the Board of Trustees.....	102
Appendix B. Information sheet for families of potential participants	104
Appendix C. Information sheet for families considering participation in intervention .	106
Appendix D. Massey University Human Ethics Committee approval.....	107
Appendix E. Procedural flow chart	108
Appendix F. Invitation to participate letter to school.....	110
Appendix G. Participant consent form – school.....	111
Appendix H. Information sheet for girls in years 5-8	112
Appendix I. Participant consent form for nomination – parent/caregiver	113
Appendix J. Participant consent form for nomination – student.....	114
Appendix K. Information sheet for family identified by ASD branch	115
Appendix L. Information sheet for teachers of nominated students	117
Appendix M. Teacher semi-structured interview schedule	118
Appendix N. Parent semi-structured interview schedule.....	119
Appendix O. Student semi-structured interview schedule.....	120
Appendix P. Authority for release of transcripts – teacher	121
Appendix Q. Authority for release of transcripts – parent/caregiver.....	122
Appendix R. Authority for release of transcripts – student	123
Appendix S. Participant consent form for intervention – parent/caregiver	124
Appendix T. Participant consent form for intervention – student.....	125
Appendix U. Team code SOLO rubric	126
Appendix V. BEPS code	127
Appendix W. Intervention lesson format	128
Appendix X. Post intervention interview – student	130
Appendix Y. Post intervention interview – parent.....	131
Appendix Z. Post intervention interview – teacher	132

List of Tables

Table 1.	Participant profile	32
Table 2.	Summary of selected video clips.....	42
Table 3.	Lesson plan example	44
Table 4.	SSIS-RS multi-rater results pre-intervention – Bridget.....	52
Table 5.	SSIS-RS multi-rater summary pre-intervention – Bridget	53
Table 6.	SSIS-RS multi-rater summary post-intervention – Bridget	55
Table 7.	SSIS-RS multi-rater CCAREES scores post-intervention – Bridget	55
Table 8.	SSIS-RS multi-rater results pre-intervention – Sharnie	58
Table 9.	SSIS-RS multi-rater summary pre-intervention – Sharnie	59
Table 10.	SSIS-RS multi-rater summary post-intervention – Sharnie	60
Table 11.	SSIS-RS multi-rater CCAREES scores post-intervention – Sharnie	61
Table 12.	SSIS-RS multi-rater results pre-intervention – Erena	64
Table 13.	SSIS-RS multi-rater summary pre-intervention – Erena	65
Table 14.	SSIS-RS multi-rater summary post-intervention – Erena	66
Table 15.	SSIS-RS multi-rater CCAREES scores post-intervention – Erena	67
Table 16.	SSIS-RS multi-rater results pre-intervention – Petra	70
Table 17.	SSIS-RS multi-rater summary pre-intervention – Petra.....	71
Table 18.	SSIS-RS multi-rater summary post-intervention – Petra	72
Table 19.	SSIS-RS multi-rater CCAREES scores post-intervention – Petra	73

Chapter 1 - Introduction

Positioning of the Researcher

Personal experience as a primary school teacher, predominantly teaching students in the age range of 8-11 years, led to the researcher's observations that while boys with externalising problem behaviours would quickly be identified, girls who were considered odd by their teachers and peer group, and demonstrated limited positive interactions with either, appeared to be ignored. Extra support was often sought to address the problem behaviours of the boys, however it was not common to see this support being actively sought for the girls. These girls would rarely be invited to their classmates birthday parties, be chosen by their peers in co-operative learning situations, or have a regular group of friends to join during break times. It was not unusual to notice these girls playing with other girls from the junior school. On occasions they were witnessed being bullied and also being the bully. Other children, generally girls, would tease and taunt them to which they would react negatively by externalising their feelings or sulking. This apparent discounting of the girls with social interaction difficulties was the motivation for this study.

Explanation of the Title

The first part of the title was chosen to highlight the possibility that some people's autism symptomology may go unrecognised, with the second part restricted to girls with 'autistic-like' behaviours and performing at or above expected academic level. It was also used to reflect that the study comprised both assessment and intervention of social competency.

As will be discussed in the literature review, most autism research conducted has concentrated on boys. On this occasion however the focus was on girls with high functioning 'autistic-like' behaviours due to the risk factors associated with them being missed or misdiagnosed. This is not suggesting that boys with high functioning autistic-like behaviours are also not at risk of being missed or misdiagnosed, it is because girls are likely at greater risk.

Rational and Potential Benefits of the Study

The purpose of this study was to provide a small group social competency intervention to pre-adolescent aged girls with high functioning 'autistic-like' behaviours, using strategies known to be conducive to the strengths and needs of

those on the autism spectrum. The following questions were formulated to help guide the research:

- What are the social skills characteristics of girls with high functioning 'autistic-like' behaviours?
- What is the impact of a social skills intervention on girls with high functioning 'autistic-like' behaviours?

The literature review has been divided into two parts relating to the needs of those on the autism spectrum and the relevant theories useful to address these. This is followed by the methodology used to answer the research questions and includes the ethical requirements met in order to carry out the study. The results of each of the four case study participants follows and are then discussed in Chapter 5. The conclusion chapter discusses limitations of the study and suggests recommendations relating to future research.

Chapter 2 - Literature Review – Part 1

The first part of this chapter focuses on the strengths and needs of those with high functioning 'autistic-like' behaviours and their challenges with social competency. In particular the review sets out to highlight the paucity of research in relation to females with high functioning autism; the potential reasons for this, comparisons of girls to their male counterparts, and the risks this apparent lack of focus on girls brings. As the evidence suggests girls are being either missed for diagnosis or misdiagnosed; the use of the term 'autistic-like' has been used in this study in an effort to get a more accurate perspective of the situation.

The second part examines theories specific to the social interaction difficulties known in those on the autism spectrum, along with the examination of two social skill models. The review concludes by discussing the need for an intervention that is multi-dimensional drawing on both the visual learning needs and systemising strengths of those with HFASD.

With the recent changes to the Diagnostic and Statistical Manual (DSM-5), the term high functioning autistic spectrum disorder (HFASD) will include disorders that in the earlier version of the DSM (DSM IV) were referred to as 'autism-related' disorders, unless otherwise stated.

Autism Spectrum Disorder (ASD)

Significant changes in relation to what constitutes ASD were made in the most recent version of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual. The DSM-5 came into effect in May 2013, grouping all autism-related disorders that were previously separated under a single umbrella (Kaufmann, 2012). The related disorders are: autistic disorder (AD), Asperger's syndrome (AS), pervasive developmental disorder not otherwise specified (PDD-NOS), and childhood disintegrative disorder (APA, 2013b). The changes were made based on research identifying these related disorders as being more alike than different and that a diagnosis under any of them within the DSM-IV should meet the DSM-5 criteria for ASD (APA, 2013a). The APA (2014) breaks the criteria into three characteristics: difficulty with communication; difficulty relating to people, things and events; and, repetitive body movements or behaviours. To enable clinical identification on the level

of impairment three levels of severity are provided; Level 1 symptoms are considered to be mild and at the higher end of the continuum of impairment known as HFASD.

A new disorder, 'Social (Pragmatic) Communication Disorder', included in the DSM-5 has the social-communication domain of ASD but not the domain relating to fixated/repetitive interests (APA, 2013b; Bauminger-Zviely, 2013). Research undertaken by Kim, Fombonne, Koh, Kim, Cheon, Bennett and Leventhal ("in press") found that children previously diagnosed with AD, AS and PDD-NOS would mostly meet the criteria for ASD in the DSM-5, with 1%, 8% and 32% respectively likely to meet the criteria for SCD rather than ASD. These findings are supported by Bauminger-Zviely (2013) who suggests those previously diagnosed with PDD-NOS are the most likely of the previous autism related disorders to fit the criteria for SCD. Regardless of diagnosis it is vital that children receive assistance for the difficulties they face; with both ASD and SCD these include social skills challenges (Autism Speaks Inc., 2014; Kim et al., "in press").

Prevalence of ASD.

Matson and Kozlowski (2011) reviewed research published between 1997 and 2010 on the prevalence rates of ASD. Overall their findings were that ASD had steadily increased across all countries surveyed. They and other researchers caution that this does not mean the occurrence of ASD has increased over the years, it is more likely due to a greater awareness in general that has led to an increase in assessments and changes in diagnostic procedures (Honda, Shimizu, Imai, & Nitto, 2005; Matson & Kozlowski, 2011; Sun & Allison, 2010). Three of the largest surveys investigated; the US National Survey of Children's Health, the Center for Disease Control and Prevention; both released in 2009, and a study undertaken by Baird et al. (2006, cited in Matson & Kozlowski, 2011), estimated rates of ASD at: 1:100, 0.9:100 and 1:100 respectively (Matson & Kozlowski, 2011). The APA (2011) estimated similar prevalence figures of ASD at 1:110. In New Zealand (NZ) no formal data is currently available on the prevalence rates of ASD, however, the NZ Ministry of Education (Ministry of Education, 2014) estimates over 40,000 people have an autistic disorder varying in degree. Autism NZ support this reporting that 1 person in 100 has an autism spectrum disorder, this includes those with AS (Autism New Zealand, n.d.).

High Functioning Autism (HFASD)

Using the DSM-IV, autism was diagnosed as high functioning (HFASD) if the child showed no intellectual disability. These children were considered to be at the higher end of the spectrum with: intelligence levels that were average or above average, difficulties socially interacting, unusual tone or rhythm of speech, lack of empathetic understanding and self-absorbing narrow interests; while those at the opposite end exhibited severity of the above symptoms and were also low in their cognitive, social and adaptive functioning (Hendrickx, 2010). Originally known as 'Classic' or 'Kanner's' autism, low functioning individuals would also have a learning disability.

Wilkinson (2012) proposed that as there were far greater similarities than differences between AS and HFASD, the use of a general category to cover all subtypes of autism would provide better treatment, identification and research. He asserted that if this occurred, those with high functioning 'autistic-like' behaviours would benefit as "currently children with mild to moderate autistic characteristics remain an under identified and underserved population in our schools" (Wilkinson, 2011, p.4). With the release of the DSM-5, this has been realised through the reclassification of ASD criteria.

Characteristics of HFASD.

Although their intellectual ability is on par with their neurotypical peers, the HFASD child has poorer quality of social relationships due to difficulties with their social and emotional understanding in recognising, expressing and responding to emotions, processing information and problem solving in relation to social behaviour (Bauminger-Zviely, 2013). However, in comparison to their less cognitively able ASD peers the HFASD individual has a higher level of social interaction and are more likely to form friendships and understand social situations (Bauminger-Zviely, 2013). The term 'compensation hypothesis' explains this; the HFASD child uses their normal to above-normal cognitive ability to compensate for the difficulties they have with generally low social-emotional functioning (Hermelin & O'Connor, 1985, Kasari, Chamberlain & Bauminger, 2001, cited in Bauminger-Zviely, 2013).

‘Autistic-like’ social behaviour.

Social characteristics, described as ‘autistic-like’, have been the subject of several studies of children without a formal diagnosis of an ASD, but who have presented with difficulties and symptoms similar to them. These characteristics include: misunderstanding or misinterpretation of social cues (Hudson, Nijboer, & Jellema, 2012; Stevens, Nash, Koren, & Rovet, 2013), lack of understanding on the beliefs and emotions of others (Baron-Cohen, 2008a), and difficulty relating to others and initiating social interactions (Hsia, Tseng, Huang, & Shur-Fen Gau, 2013; Sansosti & Powell-Smith, 2008; Stevens et al., 2013). A study carried out by Russell et al. (2012) compared children with ‘autistic-like’ traits against children with a formal diagnosis of ASD who were participants in the Avon Longitudinal Study of Parents and Children (ALSPAC); using the same autistic symptoms measure used in ALSPAC, they defined ‘autistic-like’ as “behaviors such as social skills, repetitive behaviours, empathy, eye contact, communication difficulties” (p.736).

While those with ‘autistic-like’ social behaviour may be observed passively or actively participating in social interactions, their behaviour will appear odd (Stevens et al., 2013). Interestingly it is thought that everyone may have ‘autistic-like’ social deficits to varying degrees; of concern are those with pervasive difficulties (Hudson et al., 2012). Research has shown that individuals with social impairments, similar to those expected at the higher end of the spectrum, have the ability to learn implicit social cues and appropriate responses when provided with predictable systematic rule-based possibilities (Hudson et al., 2012). Hsia et al. (2013) advocate further investigation in the general population of ‘autistic-like’ social deficits, to enable understanding of the effects a mild degree of severity in social functioning can have on children and adolescents.

Misdiagnosis or under-diagnosis of girls

It is not so much that Asperger Syndrome (AS) *presents* differently in girls and women, but that it is *perceived* differently, and therefore is often not recognized. (Simone, 2010, p.13)

ASD is widely reported as around four times more likely in boys than girls (American Psychiatric Association, 2011; Attwood, 2013; Kopp, Berg Kelly, & Gillberg, 2010; Lai et al., 2011; Schneider et al., 2013; Taylor Rivet & Matson, 2011).

Fombonne's (2009) review of over 43 studies across 17 countries, published since 1966 with an overall participant median age of 8.0, found the overall prevalence rate estimate of autism-related disorders was a male to female ratio of 4.2:1. For clinical diagnoses of HFASD however, the gap is wider with referral rates of children reported at around 10:1 male to female (Attwood, 2013; Kopp et al., 2010). Based on clinical experience however, Attwood (2007) and Ehlers and Gillberg (1993) suggest a HFASD male to female ratio of 4:1 as being more accurate. More recently, a one-year follow-up study on gender differences in HFASD, undertaken by May, Cornish, and Rinehart (2014), found no differences in ASD symptoms across the 32 male and 32 female participants aged 7-8 years. They concluded the reason for the under-identification of females was likely due to their lower hyperactivity levels leading to them being overlooked for assessment and intervention.

Statistics suggesting a higher proportion of males than females with ASD must be treated with caution, due to the reasons stated above and as the majority of studies are based on samples made up predominantly of males (Hsia et al., 2013; Kirkovski, Enticott, & Fitzgerald, 2013; Kopp et al., 2010; Schneider et al., 2013). Based on this gender bias there may in fact be no gender gap (May et al., 2014; Taylor Rivet & Matson, 2011).

HFASD symptomology of girls.

Children with HFASD often go unrecognised as their autistic traits are masked by an ability to function in an acceptable way using characteristics considered non-autistic like, including: demonstrable levels of empathy, theory of mind and sense of humour (Baker, 2004). Baker (2004) suggests girls are invisible at the higher end of the spectrum, with their HFASD behaviours often only apparent when observing them interact with a female peer. While she is able to interact well with adults and boys, she struggles to relate socially with typically developing females her own age; left untreated, this is likely to be a life-long pattern. The ability of HFASD girls to camouflage or compensate for their difficulties is attributed to several reasons; one is the natural motherly instinct possessed by females. Attwood (2013) explains this masks the AS girl's social inadequacies as other girls mother her, providing help in social situations and comfort when she is upset. He also suggests many AS girls copy other socially skilled girls by observing and imitating their behaviour.

Another potential reason for girls going undetected is their more subtle characteristics compared to boys with HFASD (Taylor Rivet & Matson, 2011). This is described by Lai et al. (2011) as “non-male typical presentation” of the female with HFASD (p. 1). The non-male ASD characteristics include: lower hyperactivity (May et al., 2014), less unusual stereotyped and repetitive behaviours (Attwood, 2013; Kreiser & White, 2013), and the prevalence of more internalized behaviours compared to boys (Kreiser & White, 2013; May et al., 2014). Wagner (2006, as cited in Wilkinson, 2008a) reports there are several clues a girl referred for internalizing behaviours may in fact have ASD; “when a girl presents with a combination of social immaturity, perseverative or circumscribed interests, limited eye gaze, repetitive, social isolation, high levels of anxiety and attention problems, and is viewed as “passive” or “odd” by parents, teachers or peers” (p.7).

The combination of the coping behaviours of these girls, along with the expected externalising behaviours not being observed, makes the core symptom of ASD, impairment in social skills, difficult to detect (Wilkinson, 2008b).

Risks relating to HFASD.

Several psychological conditions commonly associated with ASD include: depression, anxiety, obsessive-compulsive disorder (OCD), anorexia, attention deficit and hyperactivity disorder (ADHD) and learning difficulties (Baron-Cohen, 2008a).

According to Bauminger (2002), evidence shows children with HFASD have particular difficulties in social cognition and reciprocal relationships with their peers, and are particularly at risk of: peer rejection, bullying, isolation, poor school grades, unemployment and low self-esteem. Hendrickx (2008) suggests difficulties with education and later in employment is likely due to their difficulties in understanding the social and environmental demands that others have a natural understanding of. Forness and Kavale (1996, cited in Canney & Byrne, 2006) report that after finishing school, “situations requiring social competence tend to far outnumber those requiring academic skills” (p.19). A study undertaken by Greenspan and Shoultz (1981, cited in Canney & Byrne, 2006), backs this up, finding a lack of interpersonal skills being the main reason for termination of employment for those with special education needs.

In a study conducted over five countries with 494 parents of children diagnosed with an autism-related disorder, Goin-Kochel, Mackintosh, and Myers (2006) found

that girls given an AS or PDD-NOS diagnosis received this at later age compared to the boys. A concern regarding this apparent gender bias is that HFASD girls are more likely than the boys to develop affective disorders and are particularly vulnerable around adolescence (Bauminger-Zviely, 2013). With affective disorders reported in adolescents with HFASD at a range of 65% to as high as 84% (Attwood, 2004, White & Roberson-Nay, 2009, as cited in Bauminger-Zviely, 2013) this identifies a very real risk for the girls. Wagner's (2006, as cited in Wilkinson, 2008a) research on women with AS highlights this with the majority receiving an anxiety or mood disorder diagnosis before being recognised for an autism-related disorder.

Peer relationships.

The development of a child's social skills can be limited due to a lack in quality social relationships (Kupersmidt & Cole, 1990, as cited in Laird, Jordan, Dodge, Pettit & Bates, 2001). A core feature of children with ASD is social impairment; a lack of social or emotional reciprocity and the ability to form satisfying developmental level friendships with peers and family members (Attwood, 2007; Rao, Beidel, & Murray, 2008). These social difficulties are often accompanied with challenging behaviours which further ostracise and exclude the child from opportunities to participate in positive social interactions (Dunlap, Strain, & Fox, 2012). The type of relationships one has with their peers during childhood is thought to maintain or promote antisocial behaviour during and beyond adolescence (Laird et al., 2001).

While social skill deficits make initiating and maintaining friendships with same-aged peers difficult during early school years (Rao et al., 2008), this becomes particularly problematic just prior to puberty where the deficit can entice rejection and ridicule (Church, Alisanski & Amanullah, 2000, as cited in Rao et al., 2008). With the increase of social demands on the child, difficulties with social reciprocity increases which further exacerbates social isolation from peers (Bauminger-Zviely, 2013). A longitudinal study on 400 adolescents undertaken by Laird et al., (2001) found repeated peer rejection prior to adolescence predicted externalising problem behaviours in adolescence. These problem behaviours can negatively impact the child's self-esteem, resulting in the early dropping out of school and the development of anxiety and depression (Hoglund, Lalonde, & Leadbeater, 2008; Laird et al., 2001). Additionally, with their normal to high level of intellectual functioning, as they mature

the HFASD child becomes conscious of their social skills inadequacies, increasing the internalising behaviour risks (Bauminger, Solomon, & Rogers, 2010; Rao et al., 2008).

While those with 'autistic-like' HFASD social skills deficits are known to suffer from peer rejection, one consolation found in Laird et al.'s (2001) study was that children who were repeatedly rejected by their peers were less likely to become involved with other anti-social peers as that group also rejected them. Parker and Asher's peer rejection model, (1987, as cited in Laird et al, 2001), suggests peer rejection is because of an underlying characteristic of the rejected child rather than the anti-social behaviour they display. However, while they are unlikely to become part of an anti-social youth group, the rejected HFASD adolescent child is likely to have more externalising problems than their peers due to the consistent peer rejection experienced earlier in life (Laird et al., 2001). It seems therefore that as the HFASD child ages their problem behaviours increase.

Social competence deficits

Social competence, considered a broader concept to social skills, is defined by Topping (2012) as "possessing and using the ability to integrate thinking, feeling and behavior to achieve social tasks and outcomes valued in the host context and culture" (p.232). This is essential to the success of positive everyday interactions throughout life; without the skills to get on with their peers, as the child ages they will be seen as annoying and/or disruptive, their grades will suffer and their experiences outside of class may be unfavourable. Topping (2012) simplistically states this as "you get in trouble, you don't learn, and you get picked on" (p.232).

Compared to typically developing children the child with HFASD tends to struggle making and retaining friendships. Prior to adolescence, Rudolph and Clarke (2001, as cited in Hogg et al., 2008) suggest poor social-cognitive competence may protect the HFASD child from peer rejection and neglect due to an 'optimistic bias' they possess on the reasons for this. At around 9-12 years of age the need for close friendship increases for girls who, up to this age, are likely to play in small same-age groups, unlike boys who tend to play in larger mixed-age groups (Slater & Bremner, 2011).

Research by Bauminger and Kasari (2000) found that HFASD children have a strong desire to be involved socially with their peers, however, where they are able to

form within-peer group friendships, these tend to be of a low quality which generates feelings of disappointment that leads to feelings of exclusion, worthlessness, being odd and boredom. To reduce the risk of experiencing social loneliness, the HFASD child needs to develop secure and satisfying friendships (Bauminger & Kasari, 2000). Selman (2003) credits two core competencies as being essential to acceptance within one's culture: i) to have an awareness of self point of view and whether to express or hide it, and, ii) the ability to take and consider another person, groups or community's point of view. According to Selman (2003), a child's ability to resolve conflicts with their peers is based on their ability to balance the perspective of others and self.

In summary, to meet the social competence needs of HFASD children, interventions need to integrate emotional understanding, social cognitive abilities and social interaction skills (Bauminger, 2002).

Social skills needs.

The nature of these children is revealed most clearly in their behaviour towards other people. Indeed their behaviour in the social group is the clearest sign of their disorder. (Hans Asperger, 1941, 1991, as cited in Attwood, 2007)

While children with HFASD want to make friends they lack the know-how required to facilitate quality interactions. Soppitt (2006) suggests girls with HFASD are equally socially disadvantaged to boys. Based on the literature reviewed, it could be argued that the girls are more socially disadvantaged.

Warning signs that a child may be suffering from 'autistic-like' social competence deficits include: an inability to make friends, difficulty in understanding social norms, and a lack of skill within social reciprocity (Wilkinson, 2011). When there are concerns by parents and teachers of this type of social impairment, along with concerns relating to behaviour, screening for ASD is strongly recommended (Wilkinson, 2011). Where a child screens negative using a tool that includes ASD symptomatology, Wilkinson (2011) recommends they are monitored and considered for intervention based on the reported 'autistic-like' behaviour as without identification of their specific social competence difficulties the child will not receive treatment and will continue to face peer rejection and its associated risks (Wilkinson, 2011).

Instead of the term 'social skills', Attwood (2007) uses 'friendship skills' to highlight the need for the learning to be focused on the development of reciprocity between peers; these include "concepts of empathy, trust, repairing emotions and sharing responsibilities" (p.63). As the HFASD child does not develop these intuitively, Attwood (2007) stresses that providing tuition and guided practice relating to the development and sustaining of positive peer relationships is critical.

In addition to social competency difficulties, poor social skills in any child can adversely affect academic performance and behaviour in general (January, Casey, & Paulson, 2011).

Competing problem behaviours against the acquisition of social skills.

Gresham (2007) reports that one of the major reasons for social skills deficits are due to internalising, externalising, bullying, hyperactivity/inattention, and autism spectrum competing problem behaviours. The National Association of School Psychologists (2002) support this suggesting that a consequence of poor social skills is internalising and externalising behaviours that may include anxiety, depression and aggression. They report that without appropriate intervention these behaviours can compromise school safety in relation to issues around the management of anger and conflict and the acceptance and tolerance of others and differing points of view.

Volker et al. (2010) report that many children with HFASD exhibit externalising and internalising behaviours such as interrupting, aggression, non compliance, mood disorders, depression and anxiety. Baron-Cohen (2008a) and Hendrickx (2010) also suggest children at the higher end of the spectrum experience greater levels of anxiety and depression compared to their typically developing peers and those lower on the spectrum (Baron-Cohen, 2008a; Hendrickx, 2010). Contrary to this, a study by Kim et al. (2000, as cited in Konstantareas, 2005) found HFASD children do not have higher levels of depression compared to low verbal IQ ASD children. They believe the latter, due to their lower levels of communication competence, are unable to express feelings of unhappiness and stress unlike their higher functioning peers. It appears therefore that those with ASD, regardless of where they sit on the spectrum, are at risk of anxiety and depression and require appropriate support to address these. Further to this, it is also evident that in order to effectively address social skill deficits in children

with high functioning 'autistic-like' behaviours, assessment and intervention that addresses potential competing problem behaviours is also essential.

Literature Review - Part 2

This section reviews the major theories that underpin the nature of 'autistic-like' behaviours. Following this, two social skills frameworks are reviewed with the chapter concluding by reviewing the benefits of a multi-dimensional intervention approach .

Everyone else seemed to be so relaxed and to know what to say to each other, like they'd been given a script and I was the only one who had to adlib. It was very confusing for me. (Simone, 2010, p.70)

Social Cognitive Theory (SCT).

SCT consists of observational learning, vicarious reinforcement and cognitive processing (Twente., 2014). It provides an understanding of why people behave as they do and what maintains the behaviour (Bandura, 1997, as cited in Twente., 2014). Unlike theories that emphasise the environment as the main influence in learning, SCT emphasises the importance of interactions that are continuous and reciprocal between people, their behaviour and the environment (Slater & Bremner, 2011; Twente., 2014). Referred to as 'reciprocal determinism', it is proposed that the child is able to promote their own growth and development by their influence on the environment, with each continuously influencing the other (Bandura, 1986, Bell, 1979, as cited in Shaffer, 2002); 'environment' encompasses social and physical factors and 'behaviour' includes cognitive representations including perceptions (Twente., 2014). Pajares (2002) representation of the SCT conceptual model in Figure 1 depicts the reciprocity between the three factors.

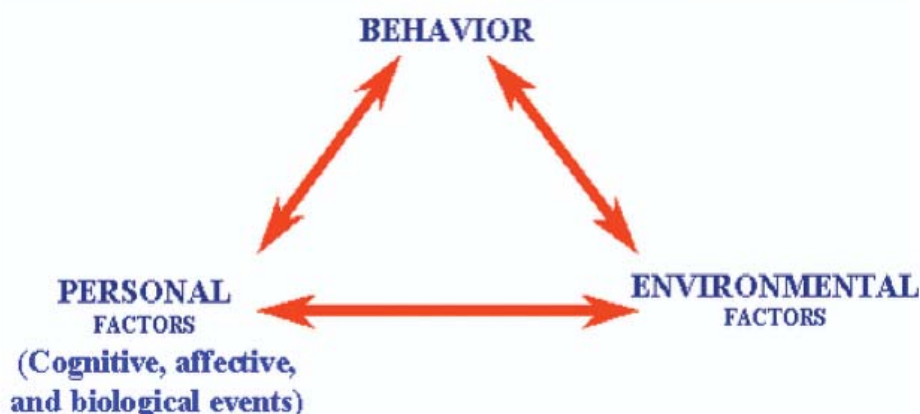


Figure 1. Pajares (2002) conceptual model of reciprocal determinism.

Reciprocity is described by Rodkin and Hanish (2007) as social connection between peers based on the similarity of actions. The creation and maintenance of friendships are heavily reliant on reciprocity (Bauminger et al., 2010). Chevallier et al. (2014) report children with ASD lack reciprocity both socially and emotionally.

There are several theories that relate specifically to the social-cognitive and non-social-cognitive impairments those with ASD are known to struggle with. These theories explain how people read and interpret cues to make sense of the social context with which they are involved (Andron, 2000; Bauminger-Zviely, 2013). To gain a thorough understanding of how best to meet the learning needs of children with 'autistic-like' behaviour, these are examined next.

Social-cognitive theories.

Social-cognitive theories help to understand the difficulties those with ASD have in the forming of "interpersonal engagement with others based on emotions and shared attention" (Bauminger-Zviely, 2013, p.8). The theory widely used to explain these difficulties is called 'Theory of Mind' (ToM).

ToM.

Also referred to as 'mind blindness theory', ToM enables understanding of the difficulties those with ASD experience in being able to understand someone else's perspective by putting themselves in that person's place; deficiency of ToM makes social life unpredictable, scary and confusing (Baron-Cohen, 2008a, 2008b). ToM skills include: 'faus pas' (Baron-Cohen, O'Riordan, Stone, Jones, & Plaisted, 1999), deception, pretend play, use of gestures, sarcasm and black humour (Baron-Cohen, 2008b). An inability to take another's perspective develops a 'false-belief' where the child with ASD considers their belief to be the true one and the other person's to be false (Bauminger et al., 2010). Hoglund et al. (2008) describe false-belief as the lacking of two facets necessary for sophisticated "cognitive interpretive understanding" (p.529). The first is an understanding of the ability to constrain one's own beliefs; the second is to understand that other people may have different and opposing views of the same thing and that this is acceptable (Hoglund et al., 2008). They suggest that by ages 6-8, most children are able to demonstrate ToM with their ability of getting on with others, effective use of social norms and the capability to deal positively with

social ambiguity, all of which limits the risks of internalising and externalising problem behaviours (Hoglund et al., 2008).

While ToM assists in the understanding of social communication or ‘cognitive empathy’ difficulties; it doesn’t explain the cognitive non-social response difficulties, known as ‘affective empathy’, those with HFASD experience (Baron-Cohen, 2008a).

Non-social cognitive theories.

‘Affective empathy’ is the response component that is necessary for positive reciprocal interaction, that is known to be lacking in children with HFASD (Bauminger, 2007). This deficit can be attributed to the restrictive, repetitive behaviours typical of HFASD which are thought to play a major part in the limitation of the child’s social and academic adjustment (Bauminger-Zviely, 2013). In order to meet the HFASD individual’s needs, this response aspect must be addressed within a social skills intervention. A study undertaken by Bauminger (2007) as part of a 2-year cognitive-behavioural-ecological intervention involving 26 preadolescent HFASD children, two of who were female, showed consistent overall treatment effects within social perception and problem solving. However, these co-operative capabilities did not generalise when the participants were with non-study group peers or family (Bauminger, 2007).

Two non-social cognitive theories – Executive Function (EF) and Weak Central Coherence (WCC) – have previously been used to address the social communication ‘cognitive-empathy’ difficulties, however neither addressed the response component. Due to the limitations of EF and WCC, Baron-Cohen (2008b) developed the Empathizing-Systemizing theory.

Empathizing-Systemizing theory (E-S).

The E-S theory considers both the weakness those with ASD have with ‘cognitive empathy’ and the response component - ‘affective empathy’ (Baron-Cohen, 2008a). The average to above average systemising strengths typical of those with ASD helps to understand their difficulties with social response; they have a need to follow rules and routines as this ensures predictability (Andron, 2000; Baron-Cohen, 2008a; Bauminger et al., 2010). The E-S theory predicts that the individual with ASD, over time and when given control of the various pieces of that particular system, has the capability to effectively understand how the whole system works (Baron-Cohen,

2008a). Their excellent attention to detail means they have the ability to develop social competency if they are provided with a system that predicts how a situation may play out.

Social Motivation Theory.

Social motivation drives humans to seek, enjoy and maintain positive social interactions in the environment. Referred to as 'diminished motivation', those with ASD are likely to struggle to motivate themselves due to the ongoing social difficulties they experience (Chevallier et al., 2014). A lack of motivation to build social relationships by females with HFASD is suggested by Schneider et al. (2013) as being due to their ASD symptomatology which includes a lower level of social interests and/or emotional understanding than is expected by society. In their study with 28 HFASD participants aged between 18-55, of which 11 were female, Schneider et al. (2013) found the women had stronger social reciprocity impairments compared to the men.

The ability to self-regulate is considered a key factor in assisting with the motivation to do well as it enables the interpretation of tasks, setting, monitoring and evaluation of goals and communication of them to others (McInerney & McInerney, 2006). As those with HFASD are likely to have experienced disappointment with social interactions, providing them with a system to monitor their progress could minimise the risk of diminished motivation and intrinsically motivate them to work towards the achievement of set goals. The use of positive reinforcement strategies is worth considering to further assist in the promotion of self-regulation in those with HFASD.

Behavioural Theory

Behaviour theories also provide understanding on how to support learning of children by way of encouraging desired behaviour through the result of consequences. When behaviour occurs following the delivery of a pleasant consequence, the behaviour will likely be repeated, this is referred to as positive reinforcement and involves the use of desired rewards, tangible or intangible, such as food, stickers and praise, contingent on the desired behaviour occurring (Alberto & Troutman, 2013). Attwood (2007) recommends the use of positive reinforcement for children with AS to promote self-control. While praise can be delivered immediately, the provision of tangible rewards may not be practicable or realistic following each occurrence of the

desired behaviour. A token economy, whereby the student receives a token that can be used in exchange for a valued reward at a given time, has been used in learning settings teaching academic and social skills as well as for behaviour management (Alberto & Troutman, 2013). In addition to this promoting clear expectations regarding behaviour to students with ASD, the token economy also creates a positive environment without singling out any child regardless of their difficulties (Fernandez, 2010).

The use of behavioural techniques to teach social skills to children with HFASD, in tandem with cognitive techniques to improve social-cognition, is considered highly efficacious (Bauminger-Zviely, 2013). This includes – modelling of a particular social behaviour, rehearsal through practice such as role plays in small groups and which may include alternatives to the display of positive behaviour, prompting and feedback and homework, to enable generalisation across different settings. The results of a peer-mediated social skills training program, with four boys aged 6-7 years with high-functioning autism, that used instruction, rehearsal, video feedback and a token economy showed this was effective in improving their social-communication skills (Chung et al., 2007). However, which of the components contributed to the change and by how much was not determined.

In summary, several theories help understand the social impairments of those with ASD which is essential in order to give adequate consideration on how to address these. With this in mind, a multi-dimensional approach that takes these into account is likely to be the most efficacious. The next step is to identify appropriate assessment tools, interventions, and the social skills characteristics that are required to promote the likelihood of positive, consistent, social reciprocal interactions.

Social Skills Assessment

As discussed earlier in the chapter, girls who fit the high functioning 'autistic-like' profile are at risk of non-identification or misdiagnosis. Throughout the ages of 8-18 years they have been found to have higher internalising symptoms compared to both their male counterpart and other girls without HFASD, with the risk of this increasing during adolescence (Bauminger-Zviely, 2013; May et al., 2014). Appropriate screening for 'autistic-like' characteristics is therefore extremely important as, regardless of gender, children with milder ASD behaviours who go unidentified have

little chance of access to, and participation in, appropriate intervention (Brock, Simerson & Hansen, 2006, Wilkinson, 2010, as cited in Wilkinson, 2011).

Assessment methods of social skill characteristics include sociometrics, direct observations, rating scales, role plays and behavioural interviews (Elliott, Sheridan, & Gresham, 1989). Methods used to assess social skills that meet reliability, validity and practicality criteria are scarce, the danger of using only one is the limit this places on identification and the informing of intervention; for example screening tools provide little in way of intervention design and naturalistic observations require a high level of effort (Elliott et al., 1989). Accordingly, Elliott et al. (1989) recommend that social skills assessment methods involve the identification of the initial level of performance, that includes interfering behaviours, planning for suitable intervention and the capturing of data on which behaviour throughout the process can be monitored - this may involve the individual, caregiver, teacher, peers and/or trained observers, undertaken via observations, gathering of historical data and interviews. Additionally, research supports the use of a mix of tools to assess behaviours related to high functioning autism. According to Lai et al. (2011) assessments should include direct interviews, self-reports, observations and childhood behaviour history rather than relying solely on parental or guardian reports in order to protect against potential prejudice based on the camouflaging nature of the high functioning 'autistic-like' behaviour symptomatology of females. Wilkinson (2011) recommends both qualitative and quantitative assessment be conducted in order to identify the needs as well as the severity of symptoms in individuals with ASD.

Social skills assessment studies.

A study undertaken by January et al. (2011) on the effects of treatment of social skills using the Program for the Education and Enrichment of Relational Skills (PEERS) compared to an alternative social skills school-based program, delivered for 30 minutes each day over 14 weeks, used a battery of measures to identify the effectiveness of the two programs. Participants were 73 adolescents with HFASD between 12 and 14 years of age with data collected at pre and post intervention. The measures used were: the Social Responsiveness Scale and Social Skills Rating System by parents and teachers, the Quality of Play Questionnaire and Social Anxiety Scale by adolescents and their parents and the Friendship Qualities Scale, Piers-Harris Self-

Concept Scale and Test of Adolescent Social Skills Knowledge measure by adolescents. Parent behavioural rating scales were chosen due to observations not being financially viable, however a poor response rate of <25% was received resulting in the primary measure of data being the rating scales completed by the study participants raising the possibility of potential bias.

A variety of assessment tools were used in a study undertaken by Stichter, O'Connor, Herzog, Lierheimer, and McGhee (2012) on the provision of a social competence intervention delivered to 20 participants, aged 6-10 years, with a formal diagnosis of HFASD. These included referral of participant by family members, parent interview pre intervention, a battery of tests pre and post intervention with parent, teacher and student and parent and teacher questionnaires pre and post intervention on perception of the participant's skills and challenges. Analysis of results showed improvement reported by parents and teachers with the latter being less pronounced; divergence across raters is reported as common in ratings of children's social behaviour (Stichter et al., 2012).

Social skills screening assessments.

Several screening tools are available that quantitatively measure autistic social skill characteristics in children with milder ASD symptoms – the Autism Spectrum Rating Scale (ASRS), Social Communication Questionnaire (SCQ) and the Social Responsiveness Scale (SRS); each of these have high validity and reliability scores (Wilkinson, 2011). Wilkinson (2011) however reports specific ASD screening tools, such as these, are not recommended for the screening of typical school-aged children as “a screening tool's efficiency will also be influenced by the practice setting in which it is used” (p.4). A further limitation of the ASRS and SRS is that the means used for boys compared to girls are higher resulting in a lower threshold in raw score cut-offs for girls.

Social Skills Improvement System - Rating Scale (SSIS-RS).

Social skills rating scales are deemed to be one important measure of the social behaviours of children and adolescents (Demaray et al., 1995). A tool primarily used for the assessment of social skills, developed by Gresham and Elliott (1990, as cited in Gresham et al., 2011), the Social Skills Rating System (SSRS) is reported as “one of the most widely used measures of children's social behaviors in schools across the United

States and a number of foreign countries” (p.30). A comparative study, undertaken by Demaray et al. (1995), of six commonly used social skills rating scales resulted in the SSRS being identified as the most comprehensive due to the linkage with intervention and use of multiple sources.

The SSRS was updated in 2008 and renamed the Social Skills Improvement System Rating Scale, or SSIS-RS (Gresham, Elliott, Vance, & Cook, 2011). The development of the SSIS-RS was influenced by research stressing the need for social behaviour assessment in relation to ASD and bullying as well as academic success factors. It comprises two global scales - social skills and problem behaviour, the latter assesses externalising and internalising problems and ‘autistic-like’ behaviours and also enables the teacher to report on the academic level of the child (Stevens et al., 2013). A comparative study of the two systems drawn from a database of over 500 respondents identified the SSIS-RS as superior to the SSRS through its ability to provide a broader picture of key social skill behaviours and being stronger psychometrically; an area for further research is concurrent reliability and validity of the scale against other social behaviour assessment methods such as direct observations (Gresham et al., 2011). Developing out of the SSRS and SSIS-RS was the CCAREES social skills model. Unlike other social skills ratings scales, the SSIS-RS provides rating forms for teachers, parents and students aged 3-18 years; the student forms are available in two age groups – 8-12 and 13-18 years. Changes between the SSRS and SSIS-RS include updated national norms, four additional subscales - communication, engagement, bullying and autism spectrum – higher internal consistency across all subscales and software to enable the recording of data and report generation (Gresham et al., 2011). The autism subscale within the SSIS-RS was developed using the diagnostic criteria within the DSM-IV-TR (Stevens et al., 2013). Each rating scale is completed by pen and paper and although based at reading levels considered appropriate, may be read out by the test administrator or by using the audio CD (Pearson Education, 2007).

The SSIS-RS was identified as an appropriate and useful standardised test to assess the social skills of children with ‘autistic-like’ behaviours as well as to identify any problem behaviours that could be attributing to social skill impairments. Developed using multicultural norms which included Pacific Islanders (Gresham &

Elliott, 2007), it was felt this test was suitable to meet the cultural needs of the potential participants.

Frameworks of Social Skills

Social skills are described by Gresham et al. (2011) as being socially acceptable learned behaviours that enable positive interactions between people and are central to the development of social competence. Rustin and Kuhr (1999) refer to the term 'social skills' as broadly used in relation to "the performance of behaviour in social interactions" (p.5) and stress the importance perception plays. They suggest interaction involves not only the perception two people use to judge each other but also perception on how they are being judged as this strongly impacts reaction (Rustin & Kuhr, 1999).

Some children do not acquire social skills naturally due to their low self-concept and peer rejection, which reduces opportunities for them to practice and refine social skills in everyday situations - these need to be explicitly taught to them (Forness & Kavale, 1991, Gresham, 1992, as cited in Canney & Byrne, 2006). Two social skills frameworks examined for this study in relation to characteristics required to form and maintain positive social interactions were the FIAC model (Rustin & Kuhr, 1999) and the CCAREES model (Gresham et al., 2011).

FIAC model.

Developed as a framework for therapists to support their speech and language impaired clients, FIAC consists of: i) foundation, ii) interaction, iii) affective, and iv) cognitive skill sets (Rustin & Kuhr, 1999). Foundation skills include: eye contact, facial gestures and use of personal space. Interaction skills include: taking turns, starting and ending conversations and communicating appropriately with people of authority. Affective skills involve: understanding own and others feelings through the use of empathy, determining trust and reading body language; and cognitive skills include: effective problem solving, social perception and self-evaluation (Canney & Byrne, 2006; LD Online, 2010). Although this model was specifically designed for the speech and language impaired, it has been used by in classroom situations with children with mild intellectual disabilities (Canney & Byrne, 2006). The framework has also been used within the design of the Structure of Learning Outcome (SOLO) social skills taxonomy rubrics developed by Pam Hook, an educational specialist working in both

private and public sectors in New Zealand (Hook, 2011). The use of the FIAC model to assist in the selection of video clips for this study can be seen in Table 2.

CCAREES model.

The CCAREES model was designed as part of a class-wide intervention programme in conjunction with the Social Skills Improvement System Rating Scale (SSIS-RS) assessment tool and comprises seven social skills characteristics (Gresham, 2007; Gresham et al., 2011). The model was developed at the time the test developers revised the Social Skills Rating Scale (SSRS) renaming it the SSIS-RS (Gresham et al., 2011). The scale was updated following the review of meta-analyses of 338 studies and over 25,000 children and adolescents participating in social skills training (Gresham, 2007). The seven characteristics of the CCAREES model, are: i) communication, ii) cooperation, iii) assertion, iv) responsibility, v) engagement, vi) empathy, and vii) self-control. Although it appears the CCAREES model comprises a larger skill set than the FIAC model, it simply provides specific attributes of each skill set under narrower defined titles. The use of the CCAREES model to assist in the selection of video clips for this study can be seen in Table 2.

The National Association of School Psychologists (NASP, 2002) report that research shows children with mild disabilities are more likely than others to possess social skills deficits as well as higher levels of problem behaviours, and require intervention based on their assessed needs to prevent the problem behaviours from escalating.

Use of a Multi-dimensional Intervention for Individuals with HFASD

NASP (2002) recommends all age groups of children should be the focus of potential participation in social skills programmes and warns against the exclusion of children less than 9 years old, often left out due to the unfounded belief they will outgrow their difficulties.

Ensuring that those with HFASD have access to appropriate support is potentially more important than ever before, as more children are increasingly diagnosed in this category (Rao, Beidel & Murray, 2008; Sansosti & Powell-Smith, 2006, as cited in Ke & Im, 2013). Although their numbers are rapidly increasing, Schreiber (2011) reports that there is a lack of research-based programmes to address the pervasive and debilitating social deficits of this group.

To enhance the social competence in those with HFASD, a multi-dimensional approach to intervention which incorporates social-cognitive, social-behavioural and social-emotional skills and takes into account strengths, weaknesses and preferred learning style is recommended (Bauminger, 2007; Bauminger-Zviely, 2013). The National Research Council (2001, as cited in Sansosti & Powell-Smith, 2008) stresses that teaching strategies should capitalise on the visual learning strengths of those with HFASD. Additionally, Andron (2000) strongly advocates providing help in seeing “the whole that is the result of the parts” (p.73) as this capitalises on the HFASD child’s strong systemising strengths and helps with perceptual difficulties and is what Baron-Cohen’s (2008b) E-S theory is based on. It seemed logical therefore to include within intervention a system to assist with the prediction of how the social skills system was likely to behave.

The use of a multi-dimensional intervention is supported by Hendrickx (2010) and Bauminger-Zviely’s (2013) recommendations that as well as including visual support based on the visual learning strength and preference of HFASD children, interventions should also include structural strategies that provide a system on what to do or how to react. Two evidence-based strategies that meet these needs are Video Modelling (VM) and the Structure of Observed Learning Outcome (SOLO) taxonomy; both are discussed in the following chapter.

Another important consideration regarding social competency intervention is when is the best time to provide it? A meta-analysis undertaken by January et al. (2011) of 28 peer-reviewed journal articles on classroom-wide social skills interventions found that there are two key periods – during pre-school and pre-adolescence, with the latter requiring the gaining of more complex skills to carry them through to adulthood. Their findings showed that provision of social skills intervention prior to adolescence had larger positive effects compared to after this age, however statistical reliability of effect sizes was limited by the small number of studies within the study whose sample size included participants of early adolescence age.

The information gleaned through the literature review highlights the need for investigation into what appears to be the missing of girls with high functioning ‘autistic-like’ behaviours, along with identification of evidence-based methods to support them, their families and schools and prior to them reaching adolescence. To

this effect this study aimed to provide a small group intervention for girls aged 8-12 years with the intent to improve their social competence.

Chapter 3 – Research Method

Research Development

While research suggests video modelling (VM) as an effective strategy to meet the visual learning needs of those on the ASD spectrum, only one study, by Hudson et al. (2012) on under-graduate students with ‘autistic-like’ traits, was found that mentioned the incorporation of rule-based contingencies within intervention. With the researcher having used the SOLO taxonomy within the primary school sector, it seemed possible that the utilisation of SOLO within intervention design could enable the systemising of social skills. The purpose of this research was to identify a small group of 8-12 year old pre-adolescent girls, with high functioning ‘autistic-like’ behaviours and provide them with a social skills intervention using both VM and SOLO. As evident in the literature reviewed, there have been no studies undertaken in NZ or internationally that have taken this particular multi-dimensional approach.

Observational Learning Using Video-modelling (VM).

Structured teaching that provides scaffolding and cueing in the form of modelling, prompts, verbal, visual and/or textual cues, and sequencing, are techniques considered to meet the learning needs of the individual with HFASD (Bauminger-Zviely, 2013; Delano, 2007).

VM has been found to be an effective observational-learning evidence-based strategy that uses video recording and display equipment to teach social, communication and task based skills to individuals with ASD (Delano, 2007; Ganz, Earles-Vollrath, & Cook, 2011; National Professional Development Center on Autism Spectrum Disorders (NPDC), 2010). The process involves the child observing a model engaging in a target behaviour; the model can be the individual themselves, video self-modelling, or a peer or adult model, to assist in the shaping, modifying or changing of behaviour (Delano, 2007; Sansosti & Powell-Smith, 2008). The use of same-aged peers modelling in a naturalistic setting is recommended as this is considered to increase the likelihood of generalisation of the skills learnt (Sansosti, Powell-Smith, & Cowan, 2010). Bauminger-Zviely (2013) suggests that by using video vignettes that depict social situations, discussions of the observed skills based on what, how and why type questions can be explored (Bauminger-Zviely, 2013).

Bellini and Akullian (2007) conducted a meta-analysis of 23 single-subject design studies on VM interventions on children and adolescents with ASD with the results indicating that VM was effective in social skills, functional skills and behavioural functioning acquisition and maintained over time and across different people and settings. Generalisation across many of the studies however was weak with regards to unscripted social skill behaviour; the use of multiple video examples and training to mastery level were recommendations given to help address this (Bellini & Akullian, 2007). Similarly, a study undertaken by Sansosti and Powell-Smith (2008) that used VM, along with computerised social stories, on three boys with HFASD aged between 6 years 6 months and 10 years 6 months, showed evidence that this was beneficial in increasing social communication skills and was maintained in all three participants after a two week period; generalisation of skills however was identified in only one of the three participants. Recommendations made by Delano (2007) following her review of 19 peer-review studies involving 55 participants aged between 3-20 years with an autism spectrum disorder who participated in VM interventions, included the need for research into the efficacy of using VM to address problem behaviour and improve academic skills rather than solely focusing on the social-communicative deficits of the disorder as has been the case in most studies.

The National Professional Development Center on Autism Spectrum Disorders (NPDC) (2010) recommend several steps for the making of a video that is to be used to model a skill, these include - considerations regarding the time that is available to carry out the recordings, the operator's expertise in recording and editing, and the digital resources that are available . Based on the requirements necessary for making videos, it was apparent for this study the sourcing of videos already made would be the most practicable given the time and resource availability; this was possible through the sourcing of clips available on the Internet, via You-Tube. Using this method, careful planning and intensive searching was imperative to ensure clips sourced were age appropriate, targeted the particular social skills identified and were not too lengthy.

Using the Structure of Observed Learning Outcomes (SOLO) Taxonomy.

Criterion-referenced evaluation is described as judgment on the quality of performance against a pre-determined criterion that, unlike normed-based assessment, makes comparisons against a comparable population (Biggs & Collis,

1982). Criterion-referenced evaluation enables the identification of specific learning outcomes prior to the learning taking place along with teacher feedback throughout the process that identifies where the individual currently is at and what they need to do to improve (Biggs & Tang, 2007). Criterion-referenced evaluation aligns with Social Cognitive Theory, in that the development of self-efficacy on how the individual feels, thinks and is motivated to act, is highly likely when they are aware of their success (Bellini & Akullian, 2007). As their potential to further progress is visible, this should motivate the learner to continue their engagement in the learning process.

The Structure of the Observed Learning Outcome (SOLO) taxonomy, designed by Biggs and Collis (1982), is a criterion-referenced evaluation system consisting of five cumulative levels upon which to assess the quality of learning outcomes against pre-determined criteria with each level building on the previous - pre-structural, uni-structural, multi-structural, relational and extended abstract. SOLO has been used across education settings to promote a deeper level of understanding by students and to plan for and assess the quality of learning across a wide subject area (Brabrand & Dahl, 2009; Killen & Hattingh, 2004; Magntorn & Helldén, 2007; Sinclair & Davis, 2011). As an example of its applicability not only across subject areas but also across a wide age range, a study undertaken with dental students in Sweden found that the 32 students in the test group who used SOLO as a model for learning developed a deeper level of understanding, and therefore a higher quality of learning, compared to the control group consisting of 35 students (Lucander, Bondemark, Brown, & Knutsson, 2010).

Hook (2006) describes SOLO as providing “a measure of cognitive learning outcomes or understanding of thinking” (p.100), where varying levels of understanding are carefully planned for and performance assessed against the complexity of these. According to Hook (2006), SOLO focuses learning on the “understanding of thinking rather than the knowing of thinking” (p.81) which supports the development of the individual into a self-regulated proactive learner (Hook & Mills, 2004). This is supported by Magntorn and Helldén (2007) who suggest SOLO enables the sophistication level of the child’s developing ideas to be identified.

In order to reach the extended abstract level, the learner must have met the previous levels and generalise learning to unknown situations as well as to consider

alternatives; their response needs to clearly show a level of sophistication and innovation (Hook, 2006; Hook & Mills, 2004, 2011; McNaught, 2011). The first three stages, referred to by Pegg (1997) as simple and aligned with the individual's real-world experience, are quantitative-based in that they build knowledge. With the increasing complexity required in the latter two stages, understanding deepens changing learning from quantitative to qualitative-based (Biggs & Tang, 2007). Irrespective of the motivational and academic level of the student, Biggs and Collis (1982) report that if they have "little or no background knowledge of a subject, he cannot use the concepts, skills and discriminations necessary for relational and extended abstract responses" (p.175). Therefore, a HFASD child with social skills deficits would be required to begin at a level earlier than relational in order to "provide a foundation on which learning is built" (Biggs & Tang, 2007, p.79). Pre-analysis of learning outcomes is necessary in order to break the broader task into smaller specific components which enables the appropriate response required within each level to be identified; this can be done by development of a rubric based on the specific learning outcome that is to be the focus of the learning. Chan, Tsui, and Chan (2002) found however when comparing three different educational taxonomies, one of which was SOLO, to assess 17 mental health post-graduate students that while SOLO was suitable in measuring different kinds of learning outcomes there was some ambiguity regarding interpretation of levels, which jeopardised inter-rater reliability. This emphasises the importance of careful planning and breaking down of the learning outcome into each of the levels and consideration towards moderation of assessment.

The use of concept mapping is recommended with children with HFASD as its graphical visual nature helps to organise thinking and show linkages to concepts; this assists in successful retention and recall and meets their preference to visual learning (Bauminger-Zviely, 2013). Used well, these maps can motivate levels of thinking that go beyond simple recall by the use of inference using why and how questions.

Hook and Mills (2011) designed Higher Order Thinking (HOT) maps and rubric templates specifically developed for using SOLO in schools. While HOT maps help the thinking about thinking, linking of concepts and the making of generalisations, the rubrics enable evaluation of achieved learning against pre-determined criteria and to identify next learning steps. Based on this, it seemed by incorporating the SOLO

taxonomy into intervention a predictable system-based learning strategy to meet the systemised needs and strengths of high functioning 'autistic-like' individuals could be provided.

Research Questions

Research in humanities is not to find an absolute answer but to explore the details and issues around the questions that are asked (Stanford University, n.d.). The research questions were:

- What are the social skills characteristics of girls with high functioning 'autistic-like' behaviours?
- What is the impact of a social skills intervention on girls with high functioning 'autistic-like' behaviours?

The hypotheses in relation to these questions are:

H₁: Girls identified with high functioning autistic-like traits will possess social skill impairments compared to typically developing girls of the same age.

H₂: Social skill characteristics of girls with high-functioning autistic-like behaviours will improve when provided with a social skills intervention, based on their learning strengths and needs.

Research Framework

This research used a mixed methods approach within a case study design. A mixed method approach is considered valuable when investigating real-life contextual understandings as the qualitative approach provides the opportunity for further participant voice, while the quantitative assessment allows the testing of the frequency and depth of the hypothesized constructs (Creswell, Klassen, Plan Clark, & Clegg Smith, 2011). The disadvantage of using solely a qualitative approach is that it will not be possible to identify how the treatment caused any change within specific outcomes, and, when using solely a quantitative approach, the perceptions of those participating in the research is unobtainable (SERVE Center, 2008).

A case study is described by Stake (2008) as concentration on the choice of that which is the focus of the study and uses qualitative or both qualitative and quantitative methods. Yin (2014) recommends the use of case study when 'how' and 'why' type questions are sought in relation to complex real-life social contexts as this provides the opportunity to explore individual or multiple cases through communities,

relationships, programmes or interventions. To strengthen the building of theory, triangulation of data by the use of multiple data collection methods such as observation, interviews, archival information and questionnaires is considered a key process within the case study framework (Eisenhardt, 1989). In this study triangulation of data was undertaken by comparing pre and post semi-structured interviews of the parents, teachers and the participants as well as considering the responses given against the rater results of the pre and post SSIS-RS. A strength of the approach is that it is suited to areas which are lacking in research, a weakness is the threat to parsimony due to the volume of rich data generated which may make the identification of key findings difficult to access (Eisenhardt, 1989). To safeguard against the generation of too much data it was decided to limit collection to semi-structured interviews and a ratings scale that was suitable to the intended participant group. Onwuegbuzie and Collins (2007) recommend when considering sample size, regardless of employing mixed or single methods, the size should be determined based on careful consideration around selection of participants and research questions and design; the minimum recommended sample size for case study is 3-5 participants. The benefit of using small groups for social skills intervention for children with HFASD is that it offers opportunity for practise in a semi structured environment and enables an adult facilitator to scaffold and support the learning of new skills (Bauminger-Zviely, 2013). A disadvantage is that without the use of typically developing peers within the group, generalisation of the new skills learnt may not transfer within naturalistic settings.

In addition to the use of the SSIS-RS, semi-structured interviews were used at pre and post-intervention. Sattler and Hoge (2006) recommend the use of this type of interview when wishing to gain in-depth information on “specific psychological concerns or physical problems” (p.109), and to enable a degree of flexibility which permits the interviewer to rephrase their questions based on the responses given.

The sampling process used was convenience and selective sampling. Convenience sampling is described by Saumure and Given (2008) as used in situations where the research participants are ready, willing and able. Selective sampling is described by Sandelowski, Holditch-Davis and Harris (1992, as cited in Coyne, 1997), as identification of the sample subjects according to a pre-conceived set of criteria.

In this research the case study used participants identified as having ‘autistic-like’ behaviours, using both qualitative and quantitative methods.

Research Participants

The participants were four females identified by their school and the local ASD support branch. A profile of each of the participants is provided in Table 1; pseudonyms have been used to protect their privacy.

Table 1 Participant Profile						
Name	Age at Initial Assessment	Ethnicity	School	Year	Formal Diagnoses	Nature of Difficulties – School Report
Bridget	8.6	NZ European	Riverview Primary	4	-	Social Behavioural
Sharnie	8.8	Māori	Riverview Primary	4	-	Social Behavioural Academic
Erena	9.8	Māori	Riverview Primary	5	-	Social Behavioural Academic
Petra	12.8	NZ European	Casco Intermediate	8	PDD-NOS ADHD	Social

Research Ethics

As this research involved human participants, approval was required through Massey University’s Human Ethics Committee (MUHEC) prior to the research commencing. This involved careful consideration, under supervisor guidance, on how to meet MUHEC’s ethical principles of research procedures (Massey University, 2014). Some of the ethical issues were addressed as follows.

Potential future conflict of interest may have arisen if the researcher returned to teaching and had any of the participants as pupils in her class; as the researcher planned to continue full-time study in 2015 towards a Post Graduate Diploma in Educational Psychology this would mean a return to teaching was not in the foreseeable future. Should this not eventuate she would return to teaching in the junior school area, which would exclude the study participants.

The possibility of parental concern with regards to their child being identified possessing ‘autistic-like’ traits was addressed by providing explicit criteria with regards to identification of potential participants provided in the information sheet for schools (see Appendix A). They included:

- Girls currently in a Year 5-8 class and aged 9-12 years between 1 May 2014 and 17 October 2014.
- Academic performance is at an age appropriate level.
- MUST present with the following behaviours which have been persistent for longer than 6 months: restricted, repetitive patterns of behaviour such as a need for routine/dislike of change, rigid thinking, finger tapping, hair twisting, talking loudly, echoing what others have said, an interest in something marked by its intensity, AND/OR difficulties with peer relationships and social skills such as making friends, keeping friends, getting on with others in small group activities, loud, making inappropriate comments, peculiar and (or) inappropriate facial expression.

In order to identify participants who met the criteria, consensus among the principal, classroom teacher and the school’s SENCO was required, prior to any parental contact by the school.

For potential participants identified by the school who were Māori, the school’s protocol regarding the cultural needs of the student would be employed, including consultation with the school Māori liaison person prior to contacting the family to seek their interest in participating in the study. The school with the two Māori female participants did not have a cultural liaison person, however both of the girls’ teachers were Māori, spoke fluent te reo, and were part of the nomination committee.

In the event of a nominated girl undertaking the SSIS-RS and then not being selected for intervention, the school SENCO would meet with the family to discuss the needs of the child. This was included in the information sheet for families of potential participants (see Appendix B). Additionally, the families would be provided with the contact details for the local ASD support branch that supports families living with autism and ‘autistic-like’ behaviours. As all four nominated students were invited to participate in the intervention, this situation did not eventuate.

All the You-Tube clips were selected through an exhaustive search process based on the clip's social skill content, duration, quality, and engagement level for the age range of the participants. Each were named and forwarded for ethics approval.

To safeguard against participant safety being compromised, consent for any adult to be present was needed from all participants prior to the programme beginning. This was clearly outlined in the information sheet for families considering participation in intervention (see Appendix C). As one of the girls did not give consent, no one other than the participants and the researcher were present during any of the sessions.

To ensure participants and their families felt safe and comfortable, they were given the choice of either home or school for the carrying out of assessment and interviews. Both these were carried out at home for all three parents, and one of the participants; the three other participant assessments and interviews were conducted at school. Safety measures for the researcher during home visits was ensured by a system whereby the school principal, or their nominated representative, agreed to be the contact person should the researcher feel her safety was compromised. This was not required. Safety measures planned in the event that a student became distressed during an intervention session was to identify a duty teacher who would be available via mobile phone. At no time during the 16 sessions was this required.

The research was fully approved by MUHEC Southern A (application 14/18) in May 2014 (see Appendix D). No part of the research process commenced until after this was received.

Research Process

The research process will be discussed in the following order: selection of schools and participants for intervention, during intervention and post-intervention. The process was set out in flow chart format and submitted as part of the ethics application (see Appendix E). Slight amendments made during the intervention phase are discussed below.

Selection of schools and participants.

Eight primary schools in a central North Island area were invited to participate in the study and provided with a detailed information sheet (see Appendix A & F); two schools immediately declined. The invitation was followed up by a phone call a week

later. Two schools requested the researcher visit them and the remaining four schools declined the invitation. Following the meeting with the two schools, one provided consent (see Appendix G) to participate and requested three family nomination packs. Each pack contained an information sheet for the family (see Appendix B), an information sheet for the girl (see Appendix H) and consent forms for the parent/caregiver and student (see Appendix I and J) permitting the school to nominate the student as a potential participant.

At this stage, as the feedback was from the majority of invited schools that they had no girls who met the criteria, it became apparent that, as highlighted in the literature review, girls were potentially being missed for signs of social skill deficits in line with high functioning 'autistic-like' symptoms. This led to the researcher contacting the local ASD support branch that was very supportive. They requested a nomination information pack for a family they thought fitted the criteria and would be interested. This process in selecting participants was quite serendipitous and was not pre-planned. The information sheet for the family identified by the ASD support branch was amended to highlight that identification was by the branch and not the school (see Appendix K). The consenting school and the ASD support branch contacted the families who all agreed to receive the family nomination pack. Consent for nomination was received for all four students and were subsequently collected by the researcher from the school and the ASD support branch. The school of the student nominated by the ASD support branch had previously declined the invitation to participate. As consent had been given by the parent and student to participate, the school was approached again and informed of the wishes of the family upon which their consent to participate was given.

Of the four nominations, two girls had the same teacher, two girls were sisters at the same school, and three attended the same school. Two of the girls were only 8 years old, which did not fit the original criteria range of 9-12 years. However, after discussing this with the primary supervisor it was agreed the criteria could be changed based on two reasons – there had only been four nominations and the SSIS-RS student form covered the age range of 8-12 years. The initial reason behind the 9-12 year age range was based on forming an intervention group of a similar age. Another issue regarding the nominees and their fit to the criteria was that the two sisters were

considered by the school to be well below their age academically. In discussion, the school was of the firm belief this was not due to lack of ability, but rather due to circumstance. The girls had only started at the school at the beginning of 2014 having previously attended a full immersion Māori primary school in another region. In between the period of the school gaining consent of the parent and the assessment being conducted, Child Youth and Family (CYF) had become the girls' legal guardian. With this in mind it seemed unfair to deny the girls, who had the support of their school and family, the opportunity to participate in an intervention, which, based on research, could positively impact on their academic and social progress. My supervisor supported this reasoning and advised for consent from CYF as they were now the legal guardians. The researcher contacted the CYF case manager who requested that Relationship Aotearoa, who had been supporting the family, grant permission for participation. The counsellor from Relationship Aotearoa gave her full support and confirmed this in writing to the CYF case manager.

The teachers of the participating students were each provided with an information sheet, which detailed what was required of them (see Appendix L). Meeting times were set up for the researcher to meet with the teacher, parent and student to introduce herself, conduct the SSIS-RS and, as there were only the four nominations, carry out the semi-structured interviews at the same time rather than waiting until after analysis of the rating scales as was initially planned (see Appendix M, N & O). Immediately after the interview each participant was asked to review the information recorded and sign the consent for release of transcript form (see Appendix P, Q & R). The semi-structured interviews did not particularly highlight any further information than that garnered through the SSIS-RS, however they were valuable in so far as it enabled rapport between the researcher, parents, teachers and students to be built.

The teacher interviews and SSIS-RS assessments took place at the teachers' schools in the researcher's presence. The interviews and assessment for the three students from the same school were each undertaken separately in the researcher's presence at the school. For these students each of the questions were read out loud due to their apparent difficulty reading them. The family of one of the students requested that both the student and parent assessment and interview take place in

their home. This occurred with each being undertaken at different times on the same day. Of the three parent interviews and assessment, two took place in the family home. The parent of the two sisters agreed to carry out the assessment by telephone instead of face to face.

The criteria decided to select participants for intervention was based on the results gained from the SSIS-RS multi-rater report. Those who scored *below average* in the social skill subscale for any of the three raters and *average* or *above average* in academic competence were to be selected. A priority system was set in case there were more than six potential participants who rated at this level; those with top priority would be identified with a social skill acquisition deficit. This would be detectable using the SSIS-RS 'model of social behavioral strengths and weaknesses' (Gresham & Elliott, 2007). Second priority would be given to those whose score identified they had a social skill acquisition deficit and scored *above average* in the problem behaviours subscale. Third priority would be given to those whose score identified they had a social skill performance deficit. The results of the SSIS-RS multi-rater report identified that each of the four girls met the criteria for intervention with the exception of the two sisters who had scored *well below* in academic competence. Although this meant they had not met the criteria, based on the advice received from the school it was felt to disregard their academic ratings in this situation was justifiable and the ethically responsible thing to do to provide the girls with the opportunity to participate. The priority system was not enforced as there were only four participants.

The parents and schools were informed by telephone the student had met criteria for participation in the intervention. Following this the parent of the two girls agreed for the researcher to visit her at home at which time a hard copy of the multi-rater SSIS-RS report was provided to her, the results explained, a semi-structured interview conducted, information for participating in the intervention discussed, after which she gave consent for both her daughters. At this time the children had recently been removed from the home and placed under CYF guardianship. Since the girls had been taken into CYF's care, consent was also obtained from the CYF case leader. With the exception of this parent, who did not have email, the parents and teachers were sent the SSIS-RS multi-rater report in pdf format by email. Home visits were made to each of the other two homes the following week where the researcher went through

the SSIS-RS report with the parent and provided them with an information sheet for considering participation in intervention and consent forms for parent and child (Appendix S, T & U). As the informed consent process required the parent discussing the intervention proposal with their daughter, for the two sisters the principal and students' teachers managed this. As the girls had only been with their foster parent for less than a fortnight it was felt the school was the most appropriate to do this.

Consent was received for each of the four girls to participate in the intervention. At the same time, the school with three of the participants offered to provide a room that complied with intervention needs; a comfortable space for five people, a whiteboard, a projector screen and power. The school was unable to provide a data projector, which was sourced privately. The researcher used her personal laptop, portable speaker system and cellphone hotspot facility for internet access, the latter being to minimise potential connection issues trying to connect through the school's router.

Data Gathering Tools

The SSIS-RS paper and pen hand scoring forms for parent and teacher were administered on three separate occasions; pre-intervention, half way through intervention and at post-intervention. The student form was used twice at pre-intervention and post-intervention. The parent and student forms both consist of 'Social Skills' and 'Problem Behavior' questions. There are four possible rankings; 'Never', 'Seldom', 'Often' and 'Almost Always', of which the rater scores their best estimate. Unlike the student form, the parent form requires two ratings per question within the social skills section, one on how often the social skill described has been displayed over the last two months and the other on how important the rater considers the skill to be. There are 46 questions within the social skills area of both rater forms. The student form has 39 questions in the problem behaviours section and the parent form has 43. The teacher form also has 46 questions in the social skills section and, like the parent form, has the two ratings based on display over the previous two months and the rating of that skill based on perception of its importance. The problem behaviours section in the teacher's form consists of 30 questions. Unlike the other two raters' forms, the teacher's form has a third scale for rating of 'Academic Competence'. Consisting of seven questions that require the teacher to rank the

student in comparison with their classmates, this uses a 1-5 scale. A rating of 1 indicates the student rates in the lowest 10% of the class, 2 is the next lowest 20%, 3 is in the middle 40%, 4 is the next highest 20% and 5 is in the highest 10%. Included in the rating scales is a validity scale index used to categorise the rater's scores over three validity scales: an 'F Scale' to identify an unrealistic rating of behaviour as being more severe than it really is; a 'Response Pattern' to identify an unusual pattern of response; and a 'Response Consistency' index which identifies when the rater has rated similar items inconsistently (Gresham & Elliott, 2007). Consideration as to why a caution has been given within the scales includes the possibility that the individual being rated behaves differently in different contexts; alternatively Gresham and Elliott (2007) suggest several investigative options: i) ask the respondent to explain their results, ii) obtain a second set of ratings from someone who knows the child well, iii) compare the ratings to those obtained from the other participants – if their scores received an *acceptable* rating the scores that have received a caution are less likely to be a true indicator of the behaviour.

The data gained from each of these forms was inputted and reports generated at all three data gathering points, pre-intervention, half way through and post-intervention, by entering the raw data from each administration into a data-file created for each of the four participants in the SSIS-RS ASSIST version 1.0 scoring and reporting system computer software. ASSIST enabled production of multi-rater reports in pdf format and included summary tables. A multi-rater narrative report was also generated using the software following the first administration. The reports provided data on the raw score, standard score, confidence interval and percentile rank. Two statistical significance scores were also generated for comparison against the preceding administration and to identify change significance from baseline. Statistical difference of $p < .05$ between the two scores, are indicated with an asterisk.

When analysing the first administration of the SSIS-RS, conducted pre-intervention, each of the four multi-rater hard-copy reports was reviewed firstly by analysis of the two major scales – social skills and problem behaviour – then by the academic scale using the ASSIST computer generated multi-rater narrative report. Scores from any of the three raters within the social skills scale that produced a 'below average' or 'well-below average' rating were highlighted; within the problem

behaviours scale results of 'above average' and 'well-above average' were highlighted, and within the academic competence scale a score other than 'average' was highlighted. Secondly, analysis was undertaken of the subscales within both of the two major scales. The multi-rater narrative report was used to analyse 'below average', 'well below average' scores from each of the three raters for the seven social skills subscales, and 'above average' scores for each of the five problem behaviour subscales. The multirater score summary digital report highlighted each subscale score that was of concern as well as rater score cautions within the validity index summary.

Analysis of the subsequent two SSIS-RS administrations were made by reviewing the multi-rater score summary reports for each of the four participants. Rater scores were compared against previous administrations and negative and positive differences recorded by hand on the most recent report hard copy. Three progress reports were also generated following preceding administrations - teacher, student and parent. These were used to compare performance half way through and immediately following cessation of intervention and also to identify change significance from baseline and preceding administrations. Of particular importance was the identification of a significant score difference identified by an asterisk. Instances of these were analysed by comparing the significant score difference of the relevant major scale between and across administrations to identify at what stage the significant change occurred and if it was maintained, increased or decreased over the intervention duration. In order to gain a more specific understanding, comparison of the pre and post-intervention multi-rater score summaries subscale results was then analysed of the rater by whom the significant score difference result was reported. The multi-rater report also enabled identification of raw score, standard score, confidence interval, and percentile rank at each administration by rater.

Semi-structured interviews were conducted separately with each of the teachers, parents, and students pre-intervention. At post intervention the teacher and parent/caregiver also completed a short follow-up interview sheet. A follow-up group interview was carried out with the four participants at the end of the final session. Of all interviews conducted the one that was the most insightful was this one. The other interviews supported what was already apparent based on the school identifying the

student as a potential participant and on the results of the first SSIS-RS that identified each of the girls struggled socially and had problem behaviours.

Preparation for delivery of intervention

Prior to the intervention, You-Tube social skills clips were researched and assessed by the researcher based on fit in terms of: how the modelled social skill fitted within the CCAREES and FIAC models; quality of content, including audio and visual; a duration of no longer than 5 minutes; age appropriateness in terms of models and language used; as well as potential to engage. Using these criteria, 21 clips were chosen and saved to a playlist within the researcher's You-tube login area. At the end of the intervention only one of these were not used, as it seemed to address similar skills. In this case, the one selected was thought to best model the particular skill. Two additional clips were added during intervention – reasons for this are described below.

Fourteen SOLO rubrics were created prior to the commencement of the intervention. These were generated using the Hook Education Ltd (2011) on-line SOLO-based functioning knowledge rubric generator, with each rubric based on a specific social skill. A table was created to organise each of the selected video clips with their appropriate SOLO rubric, and the social skill this pertained to using both the FIAC and CCAREES models, and can be seen in Table 2.

Table 2

Summary of Selected Video Clips

YOU-TUBE SOCIAL SKILLS VIDEO CLIPS – BY SS MODEL & SOLO RUBRIC			
VIDEO CLIP TITLE	SOLO RUBRIC	Rustin & Kuhr (1989) Model	Elliott & Gresham (2007) Model
Reading facial cues: SST for kids with HFA	1. Demonstrate identifying feelings	Foundation	Communication
Hidden rules revealed: #3 making eye contact	2. Demonstrate appropriate eye contact	Foundation	Communication
How to have better eye contact if you are shy		Foundation	Communication
Personal space: A psychology experiment	3. Demonstrate safe personal space	Foundation	Communication
Hilarious social norms project: Violating personal space		Foundation	Communication
SST – Taking Turns (TD Social Skills)	4. Demonstrate taking turns	Interaction	Communication
SST – Making friends (TD Social Skills)	5. Demonstrate making friends	Interaction	Engagement
Looking and listening for respect	6. Demonstrate good listening	Cognitive	Cooperation
Listen: We have skills (IRIS center)		Cognitive	Cooperation
Using self control (The Carman SA)	7. Demonstrate making good choices	Interaction	Self control
Superheroes social skills – Perspective taking	8. Demonstrate showing care to others	Affective	Empathy
High School life – unspoken expectations (showing empathy) (TD Social Skills)		Affective	Empathy
Be a bucket filler part 2 (The Carman SA)		Affective	Empathy
Social Skills accepting No	9. Demonstrate accepting 'No'	Affective	Self control
The dangers of anger	10. Demonstrate dealing with anger	Affective	Self control
Anger (The Carman SA)		Affective	Self control
Teaching students how to calm down		Affective	Self control
Dealing with jealousy	11. Demonstrate dealing with jealousy	Affective	Self control
Resolving disagreements (TD Social Skills)	12. Demonstrate resolving disagreements	Cognitive	Self control
Making an apology 2013	13. Demonstrate being apologetic	Cognitive	Responsibility
Ways to stop bullying (Watchwell cast)	14. Demonstrate handling bullying	Cognitive	Assertion
Lets be trustworthy	13. Demonstrate being apologetic	Cognitive	Responsibility
Always tell the truth	13. Demonstrate being apologetic	Cognitive	Responsibility

In addition, and in keeping with SOLO, another rubric was generated to set the scene for the group in session one. This first rubric covered the learning outcome 'Demonstrate following our team's code' (see Appendix V). The researcher devised a code using the initials of the participants - BEPS. Session 1 consisted of going over the

code and what BEPS stood for and why it was important. To continue being part of the intervention group at the end of this first session the girls were invited to agree to the code. They each agreed and signed the code (see Appendix W). Following this the code was laminated and displayed during each of the sessions and referred to when required; within the first few sessions this was quite often and infrequently during the latter.

The intervention.

In consultation with each of the families the intervention sessions were held on Monday and Thursday afternoons for an hour, beginning at 3.30 pm. The group was named by the researcher the *friendship group* in line with Attwood's (2007) emphasis on the need for the learning curriculum to be based on gaining skills to engage in positive reciprocity between peers. This resonated well with the girls with two of the teachers mentioning to the researcher that the girls had expressed feeling really lucky at being in the *friendship group*.

Intervention commenced on the first Monday of term 3 and continued until the Thursday of week 8. Each session, with the exception of session 1, followed the same lesson delivery format (see Appendix X) which was in line with five of the six instructional steps 'Tell, Show, Do, Practice, Evaluate' model recommended by Gresham (2007) when using the SSIS-RS intervention programme. An example of the lesson plan used can be seen in Table 3; this shows how the instructional steps of the 'Tell, Show, Do, Practice, Evaluate' model were implemented.

Session 1 was slightly different to the other 15 sessions in that it was used to: introduce the programme, answer participant questions, play ice-breaker games, explain the SOLO rubrics and have a first go at using one. The researcher considered it imperative that this session be used to set the ground rules to promote a safe and positive environment for each participant, including herself. It was the only session where no video clip was played. On reflection this session set the scene, enabled the engagement of the students as part of the *friendship group* and provided them with security regarding how to treat each other with respect. The participants fully embraced the group's code being based on each of their initials, BEPS; this really stuck in their minds and made the recall of each rule simple and effective.

Table 3

Lesson Plan Example

LESSON 14: WALT deal with being jealous			
DATE:	THURS, 1/9/14 - 3.30-4.30 pm	SOLO RUBRIC #:	11
ATTENDEES:		VIDEO TITLE:	*Dealing with jealousy
PREP: Pin laminated 'CODE' up on board. Set up dataprojector, speakers and YouTube clip. Write up WALT on board & tasks.			
TIME	TEACHER LED	ACTIVITY	RESOURCES
3.30	Welcome back - REVIEW of last session 'Dealing with anger'	Share examples of 'dealing with own/others anger'	Laminated CODE Rubrics
3.40	Intro of LO (TELL). Ask 'think of a time you felt jealous - what did you do and why? Where did it get you? What about other people getting jealous of you/someone else?'	Discuss WHAT/HOW & WHY. <i>Where is each girl on the rubric currently? Have to explain at least 3 strategies to be higher than unistructural.</i>	LO written up. Dataprojector, laptop (Youtube clips), speakers
3.50	Play the video clip. (SHOW).	Put up 'What - looks like? How? Why?' on w/bd. What are the 3 strategies to cope with feeling jealous? (A.C.B.)	RUBRICS
3.55	'Describe +&' (DO) map	Create map by: identifying the 'WHAT/HOW' (& discuss WHY it's important. (jealousy is about YOU, not others, 3 copying strategies = acknowledge/admit, communicate, resolve)	Large paper. Sharpies.
4.10	Role play (DO/PRACTISE) -	ANY SITUATIONS SHARED DURING INTRO OF LO, plus First scenario - you are jealous because 2?? has for the 3 rd time won the most tally points. Second scenario - you feel jealous because two of your group have been invited to a birthday party and you haven't. Third - you're jealous because a girl in your class has been given another pony by her parents and all you have ever wished for is a pony but your family can't afford one. Where am I on this rubric?	
4.25	REVIEW - Rubrics (MONITOR) -assist girls identify where they are at now.		RUBRICS

Although the process had included a second administration of the SSIS-RS teacher, parent and student assessment half way through the intervention, the researcher chose not to conduct this with the girls as it was felt the information from

parent and teacher would be sufficient. If the intervention were of longer duration the original plan would likely have been adhered to. In the situation of the two sisters, the foster parent completed the SSIS-RS Parent form, for the first time, and in the researcher's presence, at her home. At this time the girls had been in her care for just over two months. This meant two different parents completed the rating scales; the first parent rating scale was undertaken by the biological mother and the second the foster mother. The other two parents, and all three teachers, completed the second rating scale in their own time, politely declining the researcher's offer to be present during completion. All rating scales had been completed, collected, analysed and progress reports generated and emailed in pdf format to the parent/caregiver and teacher by week 6. The report for each of the two sisters was also sent in pdf format to CYF.

A SOLO rubric was created for each of the 14 social skills learning outcomes listed in Table 2. The 16 sessions consisted of each of these with the skill 'show empathy' allocated over two sessions. As Baron-Cohen (2008a) states, empathy comprises both 'cognitive empathy', the social communication and perspective taking component, and 'affective empathy', the response component. Both are necessary for positive reciprocal interacting and neither are reported to come naturally to those with HFASD Bauminger-Zviely (2013). The first of the two sessions enabled adequate time for discussion of what empathy was and looked like with regards to showing care to others, while the second enabled the learning of a particular empathetic response strategy on showing empathy to others and also caring and protecting self from negative thoughts and actions.

The order of the lessons changed from that which was originally planned. When creating the SOLO rubrics the researcher numbered them sequentially based on the teaching order felt best fit. A situation occurred during the programme where some miniature toys from the venue went missing and the only people who had used the room were the *friendship group*. This was brought to the researcher's attention by the school SENCO after session 7. The researcher decided to bring forward SOLO rubric 13 'demonstrate being apologetic' to session 8 and include taking responsibility as part of the skill set. While a video clip had been pre-selected on making an apology, none had been on taking responsibility. This required further researching of You-Tube

and the adding of two clips to the playlist on telling the truth and being trustworthy. The following week one of the girls owned up and returned the toys along with a written apology to the owner and one addressed to the *friendship group*. While this type of behaviour does not fit the 'autistic-like' criteria, it could be construed as one of the dangers of being social incompetent. As discussed in the literature review, Topping (2012) describes social competence as a concept broader than social skills, where the individual has the ability to think, feel and behave socially in a way that is accepted and valued within the community they are a part of. When they don't behave in this way, their peers see them as annoying or trouble; this is what happened in this circumstance by the other three members of the group. It became a valuable learning experience and enabled quality discussion during the remaining sessions regarding the importance of being honest and managing impulses that are harmful to others as well as self.

Positive reinforcement strategies were used throughout the intervention. The use of the SOLO rubrics with stickers appeared to motivate the girls to achieve to at least multi-structural level and made them eager to improve on that. A token economy was also used where tally points for the demonstration of effective social skills during each session were assigned to individuals. There was choice of reward being either a small treat or a Countdown 'Dreamworks Heroes Action Card', with the person who gained the most tally points getting the most treats. The girls embraced this and although at times were a little competitive, reminding them of the BEPS code and social skills learned curtailed any conflict. The sweet treat was the outright favoured reward choice in every session.

The final *friendship group* session was celebrated with an Onesie pizza afternoon tea party prior to the last session commencing. At the end of this lesson a presentation was made where the researcher presented each girl with a laminated certificate of completion. A group follow-up interview was then conducted with the girls to gain feedback on their thoughts on the programme (see Appendix X).

Post intervention.

Following the programme, parent/caregiver, teacher and student again completed the SSIS-RS; this was the third one for the parent/caregiver and teacher and the second for the students. The four students completed their form in the

researcher's presence at the host school. As with the pre-intervention rating scale assessment the questions were read aloud to the three younger girls while the fourth completed it in the researcher's presence without her assistance. The parent/caregivers and teachers completed their form in their own time, declining the researcher's offer to be present. A follow-up interview questionnaire (see Appendix Y and Z) was included with each rating scale form to garner feedback from parents and teachers on changes they had noticed in the girls over the programme duration. This was also completed in their own time, in writing, and without the researcher present. By this stage it appeared through the results of the second SSIS-RS administration that while there seemed to be positive improvement at school, the transfer of skills was not as noticeable at home.

Analysis of the post intervention interviews was conducted by the creation of a table within which responses were entered and similar responses grouped together to identify any common themes. Three separate tables were created – one for participant responses, one for the parent/caregiver and one for teacher responses. The ratings from each of the post intervention SSIS-RS forms were inputted into the data file of each of the participants in the ASSIST programme by rater; a multi-rater report was subsequently generated for each of them.

Within two weeks after the intervention, post-intervention multi-rater reports in pdf format were sent to both schools and two of the three parents. The reports for the two sisters were sent to the CYF case worker informing her they had not been sent to the girls' parent or foster mother due to confidentiality concerns, with both their full names on the reports, and also because it seemed that the girls would soon be moved to another care arrangement. Along with the SSIS-RS report, a summary of the pre and post-intervention results was provided which commented on the comparisons between the test administration results.

Limitations

There were several limitations of the research design and methods used in this study. Firstly, obtaining the intended number of participants was difficult given a majority of the invited schools did not identify girls that fitted the given criteria. This supports the fundamental premise of this study that girls with high-functioning autistic-like behaviours are at risk of going unnoticed. Secondly, the subjective nature

of the rating scales may have negatively influenced the ratings of the foster parent whose scores compared to the same participant's other two raters were quite different. On several occasions a caution was given on a rater's results indicating their response needed to be checked for validity. In this study the reason for each caution was carefully considered using the test developer's recommendations, this is discussed below. Intervention effects appeared to be stronger within the school environment compared to home, suggesting generalisation across settings cannot be assumed. The study did not target academic skills, however the results of two of the participants' suggested improvement in social skills could have been due to the improvement in their academic competency levels as reported by their teacher; this is worthy of future investigation. Finally, maintenance of skills could not be identified due to the timeframe of the study. In future research a longer time frame needs to be factored in, which would help to determine the adequacy of the intervention timeframe to have a positive outcome for participants.

SSIS-RS Validity Index Scale Cautions

On six occasions a caution arose within the validity scale index of a rater's scores. This occurred in the first and second administrations of Bridget's parent rating with the 'Response Pattern' scale in both given *extreme caution* levels. Bridget's post-intervention rating produced a *caution* in both the 'Response Pattern' and 'Response Consistency'. The *extreme caution* level also occurred within the 'Response Pattern' parent rating scale for Erena in both the second and third administrations.

As is suggested by Gresham and Elliott (2007), consideration was given as to the reason for these cautions; this included the possibility that different levels of the behaviour occurred in school and home. With regards to Bridget's parent's ratings, and based on the information from the pre-intervention parent interview, the likely explanation was that the behaviour difficulties were a higher level within the home environment. The two rating scales undertaken by Erena's foster mother, who at the time of the second administration had been her caregiver for two months, produced *extreme caution* levels whereas the scores of the other two raters were both *acceptable* level. In addition to the possibility of behaviour level differences in different environments, Gresham and Elliott (2007) suggest a rater may exaggerate the level of behaviours displayed and this should be considered when the validity index

scores of the other raters are at the level of *acceptable*. A possible explanation is that the foster parent was aware of the girls' behavioural difficulties based on the referral from CYF, and having known the girls for only two months at the time of her first administration, and three months at the third, may have inadvertently compared Erena's behaviour to her sister's. Based on the results of all three administrations, including the first by the girls' biological mother, Erena's behaviour difficulties were more severe than Sharnie's. Bridget's post-intervention 'Response Pattern' and 'Response Consistency' *extreme caution* levels were compared to her other two raters, whose scores were both of *acceptable* level, suggesting she also may have exaggerated her post-intervention ratings.

Chapter 4 – Research Results

Results of each of the four case studies will be discussed individually in the chronological age order of the participants, starting from the youngest. This will include data generated from the parent, teacher and student SSIS-RS from pre-intervention, midway point and post-intervention. The results are reported on behaviour levels within the two main scales - social skills and problem behaviours, as well as the academic competence scale that is included in the teacher rating form. Female norms of a similar age and a confidence level of 68% were employed. The standard scores were rated against the norm group selected, with a mean of 100 and standard deviation of 15. Where differences between a rater's scores are described as 'statistically significant', i.e. $p < .05$, it indicates the change between two scores, which may be from baseline and/or from the preceding administration.

The social skills scale result is further broken down into seven subscales using the CCAREES social skill characteristics at *below average*, *average* and *above average* levels. A rating of *below average* indicates difficulties within a particular skill and signals the need for learning of it. The problem behaviours scale is broken down to assess behaviour level within each of five subscales – externalising, bullying, hyperactivity/inattention, internalising and autism spectrum. An *above average* level indicates the student is struggling within this construct and consideration on intervention is recommended. The additional scale within the teacher form provides for comparison of the student's academic performance within mathematics and reading, against their classmates, as well as their overall motivation to succeed.

Prior to selection for intervention, each nominated student, parent and teacher completed the appropriate rating scale form. The SSIS-RS ASSIST program was used to generate results of teacher (R1), parent (R2) and student (R3) ratings. The standard score results from the pre-intervention SSIS-RS administration, for each of the major scales, are provided in tabulated form for each participant. Multi-rater summaries generated from ASSIST are also provided at pre and post-intervention. The first initial of each student's pseudonym will be appended to the raters to distinguish the result where deemed necessary. A participant profile is provided within the methodology section and can be seen in Table 1.

Separate interviews were conducted with each participant, teacher and parent following completion of the pre-intervention SSIS-RS. These were analysed by tabulating the results and looking for information that may assist in the intervention design and that could have been missed when using the two chosen social skills models for initial planning of treatment. The analysis was also used to assist the researcher gain perspective of each girl's strengths and weaknesses. At post-intervention, follow-up interviews took place with each teacher and parent as well as a group interview with the four participants; these are summarised below.

Discrepancies that arose across administrations of the test are discussed within the next chapter.

Case Study One - Bridget

Pre-intervention semi-structured interviews.

Summaries of the three separate interviews conducted are in student, parent and teacher order.

Bridget attended an after school programme each weekday. During winter she played netball for the school team. She has four friends at school, three of whom were in a different class and year level, and one friend at the after school programme. Sometimes she felt sad and lonely when other children did not want to play with her, which she thought was because she was annoying. She got into arguments with her family and teacher because she was cheeky. The thing she liked best about herself is that she was sometimes good. Occasionally she went "psycho" when she was angry. She liked her teacher.

Bridget's mother described Bridget's relationship with her elder stepsister, brother and younger brother as normal with Bridget being closer to her younger brother whom she sometimes mothered. She could think of two friends Bridget had – one who lived next door, and is older, and a younger girl at school. Bridget struggled to keep friends, could be very controlling and cannot take turns. The good relationship with her teacher Bridget's mother attributed to the teacher's use of clear boundaries. This was the first year Bridget had been involved in a team sport, netball, and she loved it although had struggled getting on with the other team members. Her social skills compared to other children her age were found lacking; she did not cope with

change, became anxious, had the occasional melt down and sometimes chose not to talk.

Bridget's teacher had built a culture of support in her classroom around Bridget's needs, stemmed from her reputation of being aggressive towards other children. Her classmates were aware that their teacher would protect them from Bridget's outbursts. She described Bridget as disliking perceived injustice. The teacher had noticed that often Bridget played with children from the junior school. She engages a lot with adults and could step over the boundary with questioning of them. She described Bridget as very talkative and to monopolise conversations. She thought of her as a nice girl, affectionate, a good communicator and intelligent.

SSIS-RS first administration – Bridget (B).

The raters' major scale scores of the first administration can be seen in Table 4. While all other validity index summary scores were *acceptable*, the 'Response Pattern' index of the parent rating indicated *extreme caution*. This will be discussed in the next chapter.

Table 4									
SSIS-RS multi-rater results at pre-intervention – Bridget									
Rater	Social Skills Scale			Problem Behaviours Scale			Academic Competence Scale		
	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level
R1(B)	99	46	Average	126	93	Above Average	94	37	Average
R2(B)	74	4	Below Average	160	>99	Well-above Average			
R3(B)	93	30	Average	107	69	Average			

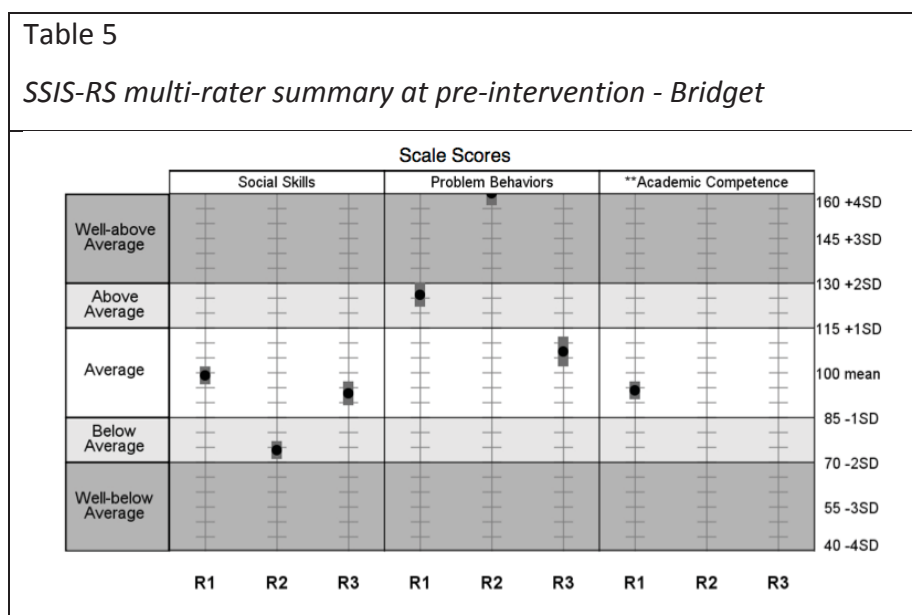
Social skills subscales.

Scores of R1(B) rated six of the characteristics at *average* level with 'Self-control' ranked *below average*; scores of R2(B) rated six at *below average* with 'Assertion' ranked *average*, while R3(B) scores ranked five as *average* with 'Engagement' and 'Self-Control' both rated *below average*.

Problem behaviour subscales.

The subscale scores by R1(B) within ‘Externalizing’, ‘Bullying’, ‘Hyperactivity/Inattention’ and ‘Internalizing’ ranked *above average* level and ‘Autism Spectrum’ ranked *average*; scores of R2(B) resulted in all five problem behaviours ranked *above average*, and scores of R3(B), which doesn’t include the ‘Autism Spectrum’ subscale, ranked *average* for ‘Externalizing’, ‘Bullying’ and ‘Hyperactivity/Inattention’ and *above average* for ‘Internalizing’.

The table generated by the ASSIST program provides a pictorial representation of the summary of the three raters’ major scale scores within the pre-intervention administration and can be seen in Table 5.



Comparison of the ratings identified that at school Bridget’s social skills behaviours were *average* compared to her peers; Bridget’s scores, although slightly lower, also suggested this while the parent rating was lower and in the *below average* level. The level of problem behaviours displayed both at school and at home was high; the percentile ranking of R2(B) identified the problem behaviours as greater than the top 1% and R1(B) as equal to or greater than the top 7% of the norm groups used. Bridget’s *average* level result did not reflect the concern of the other two raters. Academically Bridget’s teacher’s scores placed her at *average* level compared to her classmates. Overall it appeared that Bridget had social skills and problem behaviour difficulties, as rated by her parent, and problem behaviour difficulties but not social

skills difficulties as rated by her teacher. Bridget's results did not suggest difficulties at either social skill or problem behaviour levels.

SSIS-RS second administration.

Bridget's teacher and mother undertook a second administration of the SSIS-RS after the intervention halfway point following the 8th session.

Bridget's teacher's progress results within the social skills scale showed improvement that was statistically significant with a standard score difference of 17; the pre-intervention standard score of 99 increased to 116. The percentile ranking improved from 46 to 86 and the level of social skills moved from *average* into *above average* level. There was also improvement within the problem behaviours scale with the standard score dropping from 126 to 118 moving from the higher end of *above average* level to the lower end.

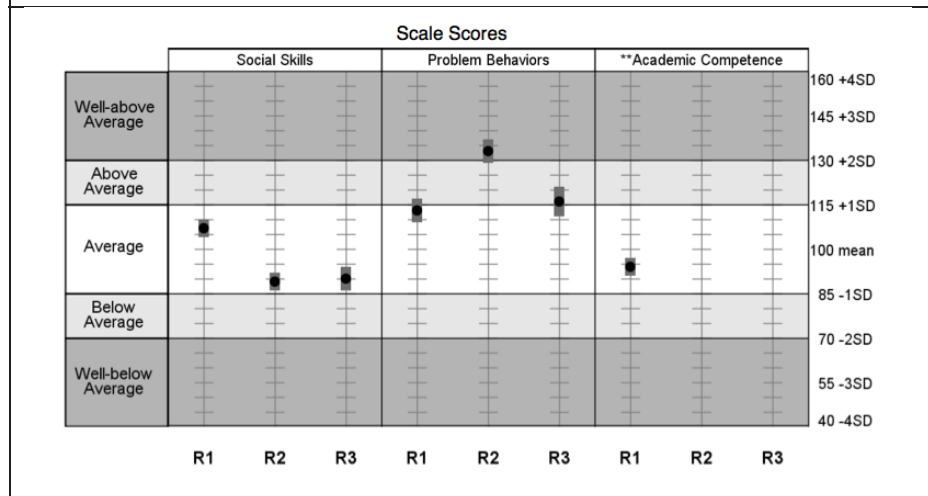
As with the first administration, the parent rating produced an *extreme caution* warning of the 'Response Pattern' index. Within the social skills scale, the parent rating showed a small improvement; the standard score of 74 increased 5 points to 79 and the percentile ranking of 4 increased to 8. The level of social skills remained at *below average* level. A small decrease in problem behaviours also resulted with a standard score decrease of 4 points from 160 to 156, the percentile ranking remained at >99. The level of problem behaviours remained at *well-above average* level.

SSIS-RS third administration.

The summary of the major scale results of the third and final SSIS-RS assessment can be seen in Table 6.

Table 6

SSIS-RS multi-rater summary at post-intervention - Bridget



The summary of the CCAREES subscale scores from the final SSIS-RS administration can be seen in Table 7.

Table 7

SSIS-RS multi-rater CCAREES subscale scores at post-intervention - Bridget

Subscale Scores						
Subscales	Raw Scores			Behavior Levels		
	Rater 1	Rater 2	Rater 3	Rater 1	Rater 2	Rater 3
Social Skills						
Communication	18	15	14	Average	Average	Average
Cooperation	15	12	15	Average	Average	Average
Assertion	17	14	14	Above Average	Average	Average
Responsibility	13	12	13	Average	Average	Average
Empathy	16	12	15	Average	Average	Average
Engagement	15	14	9	Average	Average	Below Average
Self-Control	14	8	10	Average	Below Average	Average
Problem Behaviors						
Externalizing	9	18	7	Average	Above Average	Average
Bullying	2	5	0	Average	Above Average	Average
Hyperactivity/Inattention	6	11	13	Average	Above Average	Above Average
Internalizing	5	9	20	Average	Average	Above Average
Autism Spectrum	9	18		Average	Above Average	

Comparing R1(B) social skills scale results there was a slight decrease in improvement level from the second administration standard scale score of -9; however, from the first administration to the final one the standard score difference of

8 showed an overall score improvement from 99-107. The percentile rank improved from 46% to 65% with social skills remaining within *average* level. Problem behaviours decreased over each assessment resulting in a final test score of 113, a decrease of 13 from the first test. This statistically significant score difference resulted in the level of problem behaviours declining from *above average* to *average* and the percentile ranking from 93 to 83. Within the academic competence scale there was no change from the first SSIS-RS results with Bridget's score remaining at 94 and *average* level. Changes in the social skills subscales included: 'Self-Control' improving from *below average* to *average* and 'Assertion', which was *average* in the first test, improving to *above average* in the third. The four problem behaviour subscales that scored *above average* in the first test all scored *average* in the third, with 'Autism Spectrum' remaining at *average* level.

Over the three SSIS-RS assessments carried out by R2(B), the social skills scores between both the first and third and second and third showed statistically significant score differences; the overall standard score improved by 15 from 74 to 89 in the third administration and the percentile rank from 4 to 8 to 22. This changed the rating of R2(B), within the social skills scale, from *below average* level in the first two assessments to *average* in the third. In the problem behaviours scale, a statistically significant difference in scores resulted with a decrease of 27 in the standard score from 160 to 133 and the percentile ranking from >99 to 96, placing the problem behaviour level at the lower end of *well-above average* from the higher end ranking of both previous tests. Changes in the social skills subscales included: 'Communication', 'Cooperation', 'Responsibility', 'Empathy' and 'Engagement' each improving from *below average* to *average* level; 'Self-Control' remained *below average* in the final test. Four of the problem behaviour subscales remained at the *above average* level, with the 'Internalizing' subscale improving from *above average* to *average* level. Unlike the previous two parent rating scale tests, the 'Response Pattern' index rating of this third test was *acceptable*.

The results between R3(B) two rating scales assessments within the social skills scale pre and post-intervention, showed a slight decrease in skill with the standard score dropping from 93 to 90, and the percentile ranking from 30 to 24. In both tests this placed the level of social skills at *average*. There was one change in the social skills

subscales with 'Self-Control' improving from *below average* in the first test to *average* in the second. In the problem behaviour scale the overall level increased from *average* to *above average*. Within the four subscales there was one change from the pre-intervention test with Bridget's level of 'Hyperactivity/Inattention' increasing from *average* to *above average*. In both the 'Response Pattern' and 'Response Consistency' validity index scales, the rater's score produced a *caution* score level indicating potentially invalid results; this is discussed in the next chapter.

SOLO rubrics assessment.

Bridget's levels of attainment on each of the 15 rubrics was: 1 at extended abstract, 8 at relational and 6 at multi-structural level.

Case Study Two - Sharnie

Pre-intervention semi-structured interviews.

Summaries of the three separate interviews conducted are in student, parent and teacher order. At the time of the interviews Sharnie and her sister Erena were under the guardianship of CYF and in the care of the same foster family. Prior to this both had been living with their mother for eight months after being removed from their father's care whom they had lived with for several years in another part of the country.

Since living with the foster family, Sharnie was attending an after school programme. She didn't belong to any clubs but was very keen to play in a Rippa rugby team. She had six friends at school, all were in the same class and two of them were boys. She didn't have any friends outside of school. She loved everything about school and thought her teacher was cool. Her teacher thought she was a good person and so did she. Sharnie missed her mother and wanted to live with her again.

Sharnie's mother was unsure if she had any friends other than cousins who lived nearby. She was unsure how she got on with her teacher and what her likes and dislikes were about school. She stressed it had been difficult for both girls with the huge changes they had experienced recently. She described Sharnie as a bully, particularly towards Erena, and getting angry and into fights when not getting her own way. Sport was her strength in which she demonstrated no fear.

Sharnie's teacher described her as being liked by her classmates with her problem behaviours tending to occur in the playground where she gets into fights,

particularly with Erena. She reported that Bridget, who is in the same class as Sharnie, and Erena both easily lead Sharnie into trouble. She described Sharnie as placid, calm, loving, kind and motivated to learn.

SSIS-RS first administration - Sharnie (S).

The raters' scores of the major scales at the first, pre-intervention, administration can be seen in Table 8.

Table 8									
<i>SSIS-RS multi-rater results at pre-intervention – Sharnie</i>									
Rater	Social Skills Scale			Problem Behaviours Scale			Academic Competence Scale		
	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level
R1(S)	90	27	Average	125	92	Above Average	67	2	Well-below Average
R2(S)	80	10	Below Average	121	90	Above Average			
R3(S)	101	48	Average	84	11	Below Average			

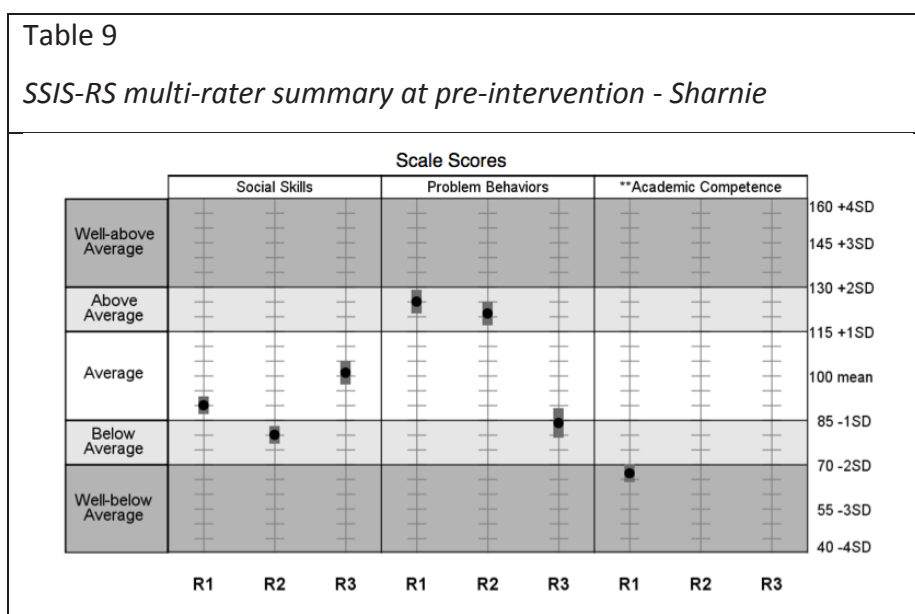
Social skills subscales.

Scores of R1(S) resulted in all seven characteristics ranked *average* level; scores of R2(S) rated 'Cooperation', 'Responsibility' and 'Self-Control' *below average* with the other four *average* level; and R3(S) scores ranked five *average*, with 'Engagement' ranked *above average* and 'Assertion' ranked *below average*.

Problem behaviour subscales.

The problem behaviour subscale scores of R1(S) for 'Externalizing', 'Bullying', 'Internalizing' and 'Autism Spectrum' ranked *above average* with 'Hyperactivity/Inattention' ranking *average*. The scores from R2(S) ranked 'Externalizing' and 'Bullying' *above average* with the other three subscales *average*. Scores from R3(S), which does not include the 'Autism Spectrum' subscale, ranked *average* for 'Externalizing' and 'Bullying' and *below average* in 'Hyperactivity/Inattention' and 'Internalizing'.

The table generated by the ASSIST program provided a pictorial representation of the three raters' major scale scores in the pre-intervention assessment and can be seen in Table 9.



Comparison of the ratings identified Sharnie's social skills behaviours at school, as rated by R1(S), were *average* compared to her peers; Sharnie's scores, R3(S), reflected this although at a higher level. Sharnie's pro-social skills were not as high in the parent rating, R2(S), whose score placed her at *below average* level. Both R1(S) and R2(S) scores identified problem behaviours at *above average* level; something Sharnie's score of 84, being at the higher end of *below average* level, did not reflect. Academically Sharnie's teacher's score was at the top end of *well-below average* level compared to her classmates. Overall it appeared Sharnie had social skills and problem behaviour difficulties as rated by her parent, and problem behaviour and academic difficulties, with an acceptable level of social skills, in the classroom. Sharnie's results suggested she did not have social skill or problem behaviour difficulties.

SSIS-RS second administration.

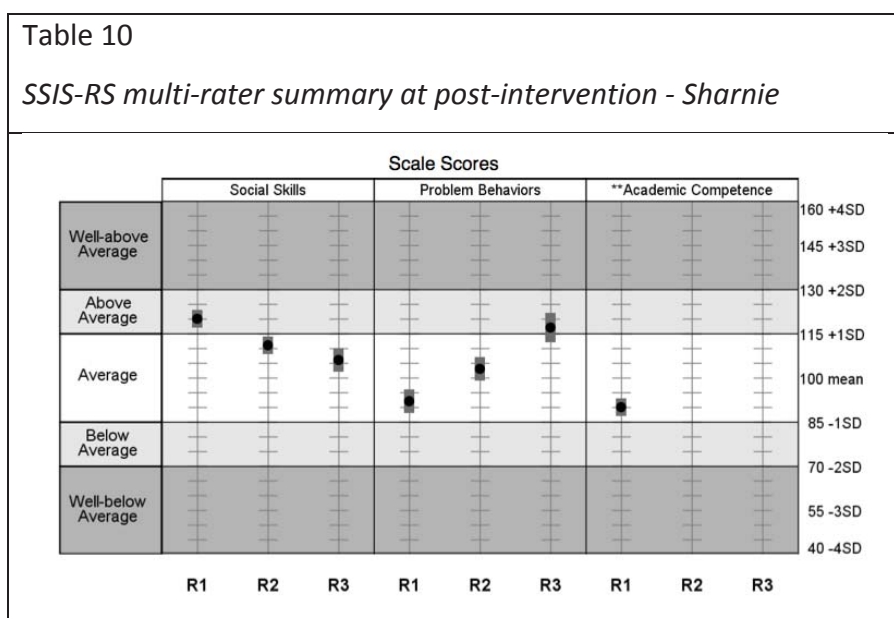
Sharnie's teacher undertook the SSIS-RS a second time following the halfway point of the intervention after the 8th session. At this stage Sharnie had been in the care of the same foster family for just over two months. Accordingly, it was the foster mother who undertook the second parent rating scale.

Progress within the social skills scale, reported by R1(S), showed improvement with a statistically significant score difference of 25; the standard score increased from 90 to 115 in the second administration. The percentile ranking improved from 27 to 83 and the level of social skills moved into the *above average* level. There was also a statistically significant difference between scores in the problem behaviours scale, with a decline in the standard score from 125 to 101; improving from *above average* to *average* level.

Within the social skills scale, R2(S) results showed a statistically significant score difference with the standard score increasing 40 points from 80 to 120 and the percentile ranking of 10 increasing to 91. The level of social skills increased from *below average* to *above average* level. There was also a statistically significant score difference improvement in the problem behaviours scale with the standard score dropping from 121 to 107, a difference of 14 points, and the percentile ranking improving from 90 to 73. The level of problem behaviours in each of the five subscales improved from *above average* to *average* level.

SSIS-RS third administration.

The summary of the major scale results of the third and final assessment can be seen in Table 10.



The summary of the CCAREES subscale scores from the final SSIS-RS administration can be seen in Table 11.

Table 11

SSIS-RS multi-rater CCAREES subscale scores at post-intervention - Sharnie

Subscale Scores						
Subscales	Raw Scores			Behavior Levels		
Social Skills	Rater 1	Rater 2	Rater 3	Rater 1	Rater 2	Rater 3
Communication	20	21	15	Average	Above Average	Average
Cooperation	16	14	15	Average	Average	Average
Assertion	17	16	17	Above Average	Average	Average
Responsibility	15	10	16	Average	Average	Average
Empathy	18	17	18	Above Average	Average	Above Average
Engagement	20	20	17	Above Average	Above Average	Average
Self-Control	19	14	12	Average	Average	Average
Problem Behaviors						
Externalizing	2	8	13	Average	Average	Above Average
Bullying	1	1	2	Average	Average	Average
Hyperactivity/ Inattention	2	4	11	Average	Average	Average
Internalizing	2	8	14	Average	Average	Average
Autism Spectrum	1	1		Below Average	Below Average	

Comparing the teacher social skills scale results, R1(S), across all three administrations showed a slight improvement from the second administration and an overall statistically significant score difference of 30 from the standard score of 90 to 120 at post-intervention. The percentile rank improved from 27% to 91% with the social skills level moving from *average* to *above average* level. Problem behaviours decreased over each administration with a final score of 92; a decrease of 33 from the first test and a statistically significant score difference, resulting in the level of problem behaviours displayed reducing from *above average* to *average* level. The percentile rank improved from 92 to 30. There was also a statistically significant score difference in the first and third administration of the academic competence scale; the standard scale score increased from 67 to 90 and the percentile ranking from 2 to 24 improving the scale level from *well below* to *average*. Changes within the social skills subscales included: 'Assertion', 'Empathy' and 'Engagement' each improving from *average* in the first test to *above average* in the final; the other four subscales remained at *average* level. Three of the four problem behaviour subscales that scored *above average* in the first test improved with a score of *average* in the final test, and the 'Autism Spectrum' subscale improved from *above average* to *below average*.

Over the three R2(S) administrations, the first of which was carried out by Sharnie's biological mother and the remaining two by the foster mother, the social skills score differences between the first and second assessments showed a decrease in skill level of 9 points. Over the three tests however there was a statistically significant score difference; the standard score improved from 80 to 111 and percentile ranking from 10 to 76. The parent rating within the social skills scale improved from *below average* to *average* in the final post-intervention assessment. In the problem behaviours scale, a statistically significant score difference of 18 points resulted in the standard score reducing from 121 to 103 and percentile ranking from 90 to 64. This rated the problem behaviour level, which was *above average* in the first administration, to *average* at post-intervention. Changes in the social skills subscales included: 'Cooperation', 'Responsibility', and 'Self-Control' all improving from *below average* to *average* and 'Communication' and 'Engagement' from *average* to *above average* in the final test; the other two subscale levels remained *average*. Within the problem behaviours subscales, 'Externalizing' and 'Bullying' improved from *above average* to *average* level, 'Autism Spectrum' improved from *average* to *below average* and the remaining two stayed at *average*.

The results between Sharnie's two rating scales assessments within the social skills scale pre and post-intervention, showed an increase in the standard score of 5 from 101 to 106 and percentile ranking from 48 to 61. In both assessments this placed social skills at *average* level. There were several changes in the social skills subscales, with 'Assertion' changing from *below average* in the first test to *average*, 'Empathy' from *average* to *above average*, and 'Engagement' from *above average* to *average*, in the second test. The level in the problem behaviour scale increased from *below-average* to *above average*. Within the subscales there were three increases with Sharnie's level of 'Externalizing' increasing from *average* to *above average* and 'Hyperactivity/Inattention' and 'Internalizing' from *below average* to *average*. Potential reasons for these discrepancies are discussed in the next chapter.

SOLO rubrics assessment.

Sharnie's levels of attainment on each of the 15 rubrics was: 2 at extended abstract, 10 at relational and 3 at multi-structural level.

Case Study Three - Erena

Pre-intervention semi-structured interviews.

Summary of the interviews are again provided in student, parent then teacher order.

Like Sharnie, since being under CYF care Erena attended an after school programme. She too did not belong to any clubs or sports teams. Erena could think of only one school friend, a girl in her class, and said she played with her two sisters and their friends when at school. She did not like not having friends as it meant she had no one to play with and would like to meet other children who wanted to be her friend. Erena did not like mean people at school or being growled at; sometimes she got into fights with other people when they made her mad. She found mathematics really hard and her current teacher was her favourite ever.

Erena's mother was again unaware of any friends Erena may have or what her relationship with her teacher was like. She described Erena as having to have the last word, being very musical, loved to dance, sing and to watch video music clips.

When displaying certain behaviours, Erena's teacher reported her classmates showed dislike towards her. This occurred when she exhibited inappropriate behaviour, including being a bully, confrontational and using stand-over tactics. They tended to distance themselves from her when this happened, during class time they ignored the behaviour. The majority of the problem behaviours occurred in the playground. She could be disrespectful towards, and challenging of, authority. She described Erena as tough, a survivor and to respond well to praise.

SSIS-RS first administration - Erena (E).

The results of the three raters' major scale scores at pre-intervention assessment can be seen in Table 12.

Table 12									
SSIS-RS multi-rater results at pre-intervention – Erena									
Rater	Social Skills Scale			Problem Behaviours Scale			Academic Competence Scale		
	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level
R1(S)	68	2	Well-below Average	147	98	Well-above Average	65	1	Well-below Average
R2(S)	64	1	Well-below Average	129	95	Above Average			
R3(S)	73	6	Below Average	122	91	Above Average			

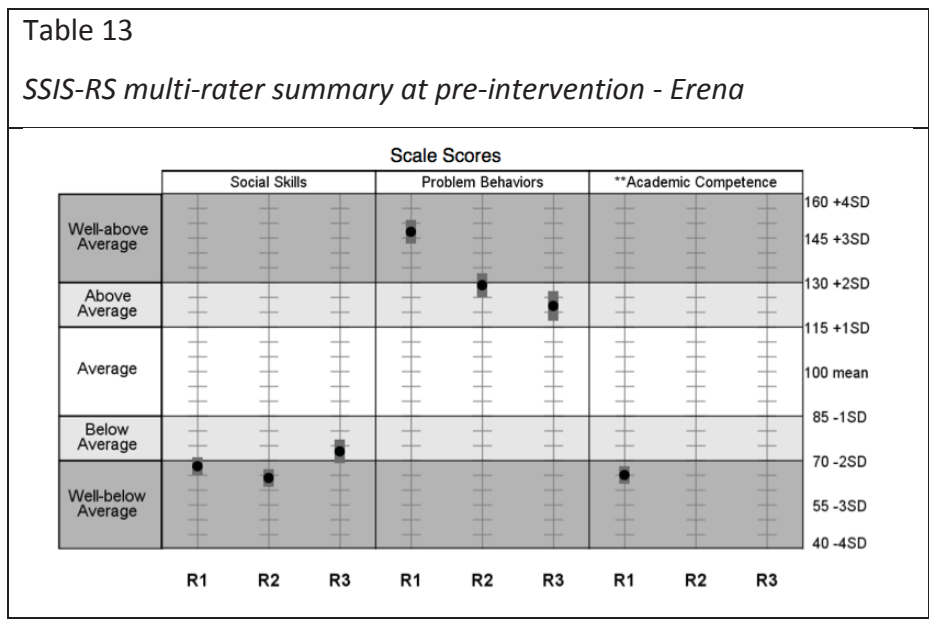
SSIS-RS CCAREES Social Skills subscales.

Scores of R1(E) rated six of the seven characteristics at *below average* level with ‘Cooperation’ scoring *average*; scores of R2(E) rated six at *below average* with ‘Engagement’ scored *unknown*; and R3(E) scores ranked five as *below average* with ‘Communication’ and ‘Assertion’ ranked *average*.

Problem behaviour subscales.

Within this scale, all five problem behaviour subscale scores by R1(E) and R2(E) ranked *above average*. Scores of R3(E), which does not include the ‘Autism Spectrum’ subscale, ranked *average* for ‘Hyperactivity/Inattention’ and ‘Internalizing’ and *above average* in ‘Externalizing’ and ‘Bullying’.

The graph provided in Table 13 provides a pictorial representation of the three raters’ major scale scores in the first administration.



Comparison of R1(E) and R2(E) scores identified that Erena’s social skills behaviours were *well below average*. Erena’s results, R3(E), scored higher, placing her at *below average* level. Within the problem behaviour scale the teacher scores came within the *well-above average* level, the parent score of 129 scored at the top end of *above average* as did Erena’s score albeit at a slightly lower ranking. Academically Erena’s teacher’s rating was at the top end of *well-below average* level. Overall it appeared Erena struggled with both social skills and problem behaviours as rated by all three raters; along with a concerning low level of academic difficulties as rated by her teacher.

SSIS-RS second administration.

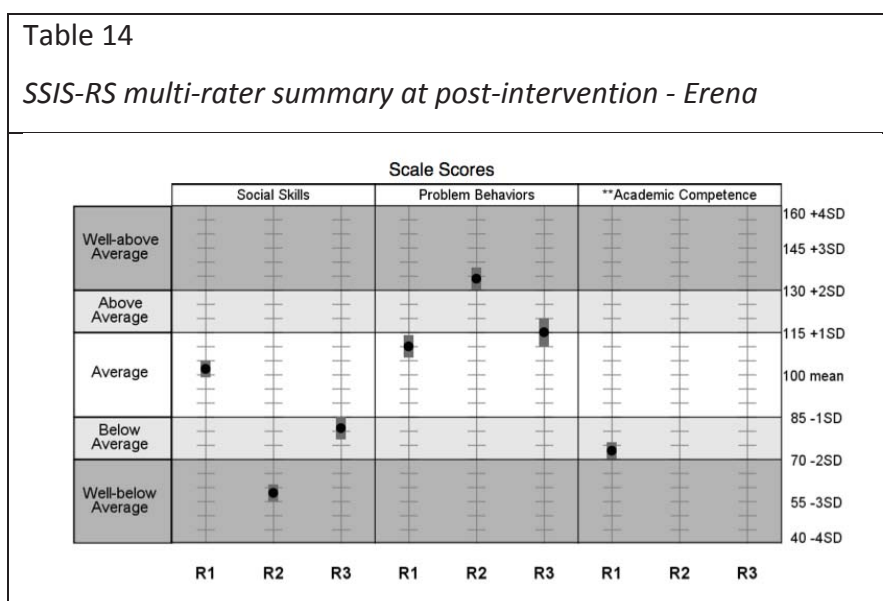
Erena’s teacher and foster mother completed a second administration of the SSIS-RS midway through the intervention.

Within the social skills scale Erena’s teacher’s results showed improvement with a statistically significant score difference of 21; the standard score increased from 68 to 89, ranking improved from 2 to 24 and the level of social skills moved from *well-below average* into *average* level. There was also a statistically significant score difference of 17 in the problem behaviours scale, with a decrease in standard score from 147 to 130, improving from *well above average* to the higher end of *above average* level.

Comparing the results of the second administration undertaken by Erena's foster mother to the first test completed by her biological mother showed a decrease in social skills level with the standard score dropping from 64 to 62; the percentile ranking remained at 1. The level of social skills remained within the *well below average* level. As with the social skills scale results, the scores of the foster mother within the problem behaviours scale also resulted in a less desirable result compared to the first administration with the standard score slightly increasing by 8 suggesting the problem behaviours had gotten worse. The standard score increased from 129 to 137, the percentile ranking from 95 to 97 and the behaviour level moved from *above average* level into *well-above average*. The validity index summary for the 'Response Pattern' of the parent rating reported *extreme caution*.

SSIS-RS third administration.

The summary of the major scale results of the third and final SSIS-RS assessment can be seen in Table 14.



The summary of the CCAREES subscale scores from the final SSIS-RS administration can be seen in Table 15.

Table 15

SSIS-RS multi-rater CCAREES subscale scores at post-intervention - Erena

Subscales	Raw Scores			Behavior Levels		
	Raw Scores			Behavior Levels		
	Rater 1	Rater 2	Rater 3	Rater 1	Rater 2	Rater 3
Social Skills						
Communication	15	16	11	Average	Average	Average
Cooperation	14	5	12	Average	Below Average	Below Average
Assertion	16	11	13	Average	Below Average	Average
Responsibility	10	3	10	Below Average	Below Average	Below Average
Empathy	18	0	14	Above Average	Below Average	Average
Engagement	17	13	13	Average	Average	Average
Self-Control	12	3	6	Average	Below Average	Below Average
Problem Behaviors						
Externalizing	8	20	13	Average	Above Average	Above Average
Bullying	2	7	3	Average	Above Average	Average
Hyperactivity/Inattention	7	14	9	Average	Above Average	Average
Internalizing	5	7	13	Average	Average	Average
Autism Spectrum	8	17		Average	Above Average	

Comparing R1(E) results across all three assessments within the social skills scale, showed improvement with a statistically significant scored difference of 13 from second administration resulting in an overall test score difference of 34 from a standard score of 68 to 102. The percentile rank improved from 2% to 54% and the social skills level moved from *well-below average* to *average* level. Problem behaviours also decreased over each assessment with a final score of 110, a statistically significant score difference decrease of 37 from the first test changing the level of problem behaviours from *well-above average* into the *average* level. The percentile rank improved from 98 to 80. There was also a statistically significant difference between pre and post-intervention scores in the academic competence scale which increased from 65 to 73, percentile rank change from 1 to 3, and improvement in level from *well below average* to *below average*. Changes within the social skills subscales included: 'Communication', 'Assertion', 'Engagement' and 'Self-Control' each improving from *below average* to *average* in the final test; 'Empathy' improved from *below average* to *above average* and 'Cooperation' remained at *average* level. All five problem behaviour subscales which scored *above average* in the first test improved to *average* level in the final test.

Over the three parent SSIS-RS ratings, the first carried out by Erena's biological mother and the remaining two by her foster mother, the social skills score differences between the first and third assessments decreased by 6 points from 64 to 58, and percentile ranking of 1 to <1, appearing to indicate the social skills behaviours had declined over the duration of the intervention. The social skills level remained at *well-below average* throughout all three administrations. In the problem behaviours scale, an increase of 5 points, with the standard score increasing from 129 to 134 and percentile ranking from 95 to 97, also suggested the problem behaviours had increased since commencement of the intervention. This changed the problem behaviour level from *above average* at pre-intervention to *well-above average* at post-intervention. Two improvements occurred within the social skills subscales of 'Communication' and 'Engagement', with levels improving from *below average* and *unknown* to *average*; the remaining five subscale levels remained at *below average*. Within the five problem behaviour subscales, 'Internalizing' improved from *above average* to *average* level with the other four subscales remaining at *above average*. As with the second parent test, the final test report produced an *extreme caution* warning within the 'Response Pattern' index.

The results between the two rating scale assessments undertaken by Erena showed an increase in the standard score of 8, within the social skills scale, from 73 to 81 and improvement in percentile rank from 6 to 12. In both assessments the level of social skills were *below average*. There were two changes in the 'Empathy' and 'Engagement' subscales with levels improving from *below average* in the first test to *average*. The other five subscales remained at *below average* level. The problem behaviour scale remained within *above average* level. There was one improvement within the four subscales, 'Bullying' improved from *above average* to *average* level while 'Externalizing' remained at *above average* and 'Hyperactivity/Inattention' and 'Internalizing' remained at *average* level.

SOLO rubrics assessment.

Erena's levels of attainment on each of the 15 rubrics was: 2 at extended abstract, 8 at relational and 5 at multi-structural level.

Case Study Four - Petra

Pre-intervention semi-structured interviews.

A summary of each interview conducted prior to the intervention is provided below in student, parent then teacher order.

Petra liked skiing, music, crafts and reading. This year she joined the school dance group but other than this did not belong to any clubs or after school activities. She has a younger half-brother and half-sister who she gets on well with. Her favourite subject at school was maths; she liked her teacher but sometimes thinks she can be unfair. She described all kids in her class as mean to her and could think of only two school friends, both girls who are in the year level below. Petra kept in contact by telephone with a friend she attended school with several years ago, who now lives in a different region. She reported she lost a friend this year after that girl accused her of pestering and being mean to the girl's other friends. Petra couldn't think of one thing she liked about herself.

Petra was diagnosed with PDD-NOS and ADHD a year ago. While Petra's parents separated some years ago her father lives locally and she sees him regularly. Her mother described Petra's relationship with her two siblings as typical, on occasion she tries to parent them. She could only think of one girl she would consider was a friend, who now lives in another district. Since beginning school Petra has had few friends and the three she did have during earlier school years have all moved away. Occasionally Petra attended the local Blue Light disco, which she attended alone. Petra liked her teacher and got on very well with her compared to previous teachers. She once belonged to a soccer team but was kicked out due to her behaviour. PE was one of her least liked school subjects; her mother attributed this to her lack of coordination. She struggled with the social aspects of school and her social skills were immature compared to children her age. As she got older she was beginning to cope better with change if given adequate explanation and warning. Petra's mother described her strengths as being caring, compassionate and fun.

Petra's teacher reported Petra as being neither liked nor disliked by her classmates, with no real friends within the classroom. While her classmates accepted her they did not make an effort to include her. One boy, who she described as a nurturer, tended to mollycoddle Petra. Socially she had observed Petra to have no

idea of how to start a conversation or approach a group. She had noticed her sulking on occasion when she felt she had been done an injustice. The teacher noticed the problem behaviours tended to occur in the playground. Petra enjoyed music, drama and reading and was kind hearted.

SSIS-RS first administration - Petra (P).

The major scale scores of the three raters at pre-intervention assessment are summarised in Table 16.

Table 16									
<i>SSIS-RS multi-rater results at pre-intervention – Petra</i>									
Rater	Social Skills Scale			Problem Behaviours Scale			Academic Competence Scale		
	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level	Std Score	%ile Rank	Behaviour Level
R1(P)	74	4	Below Average	120	89	Above Average	96	44	Average
R2(P)	70	3	Below Average	152	99	Well-above Average			
R3(P)	85	17	Average	127	94	Above Average			

Social skills subscales.

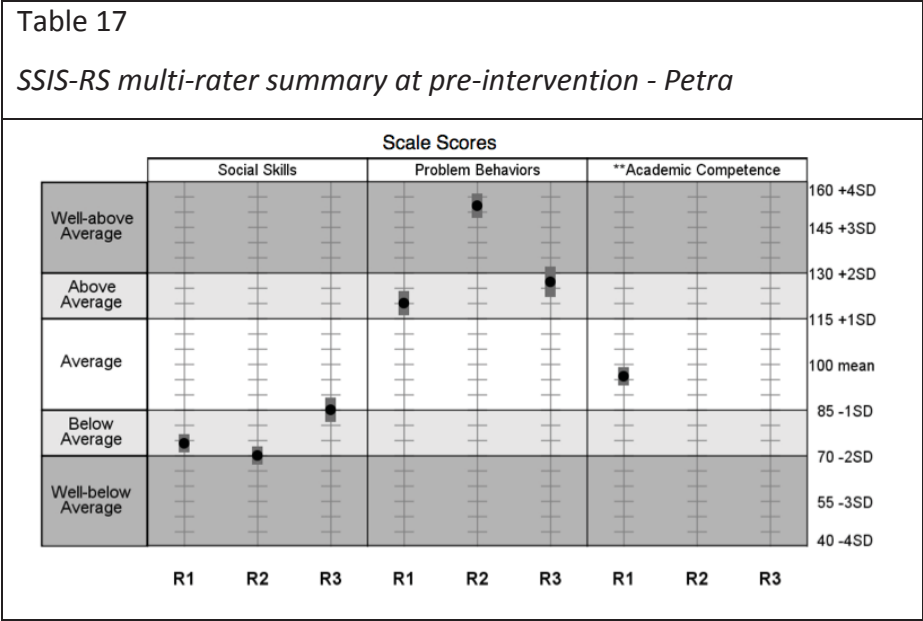
The scores of R1(P) resulted in three of the characteristics, 'Cooperation', 'Responsibility' and 'Empathy' at *average* level with the remaining four, 'Communication', 'Assertion', 'Engagement' and 'Self-Control' at *below average*. Scores of R2(P) rated five at *below average* with 'Assertion' and 'Empathy' scoring *average*. R3(P) scores ranked five *average* with 'Assertion' and 'Engagement' at *below average* level.

Problem behaviour subscales.

The subscale scores by R1(P) of 'Internalizing' and 'Autism Spectrum' both ranked at *above average* level; 'Externalizing', 'Bullying' and 'Hyperactivity/Inattention' rated *average*. The scores from R2(P) resulted in all five problem behaviours ranked *above average*. Scores of R3(P), which does not include the 'Autism Spectrum'

subscale, ranked *average* for ‘Internalizing’ and *above average* in the other three subscales.

Table 17 provides a summary of the three raters’ major scale scores in the first assessment.



Comparison of the ratings identified that both teacher and parent rated Petra’s social skill behaviour level at *below average*; Petra’s scores rated her slightly higher at *average* level. All three raters scored Petra’s level of problem behaviours as *above average* with the parent’s rating at *well-above average* level. The high level of problem behaviours at home identified Petra as displaying problem behaviours equal to or greater than 99% of girls her age, higher than the teacher ranking which placed her in the 89th percentile and Petra’s ranking in the 94th percentile. Academically Petra’s teacher’s scores placed her at *average* level compared to her classmates. Overall it appeared that Petra had social skills and problem behaviours difficulties as rated by her teacher and parent; based on self report there were difficulties within problem behaviours while social skills behaviour difficulties were borderline.

SSIS-RS second administration.

Petra’s teacher and mother undertook the SSIS-RS a second time at the intervention midway point.

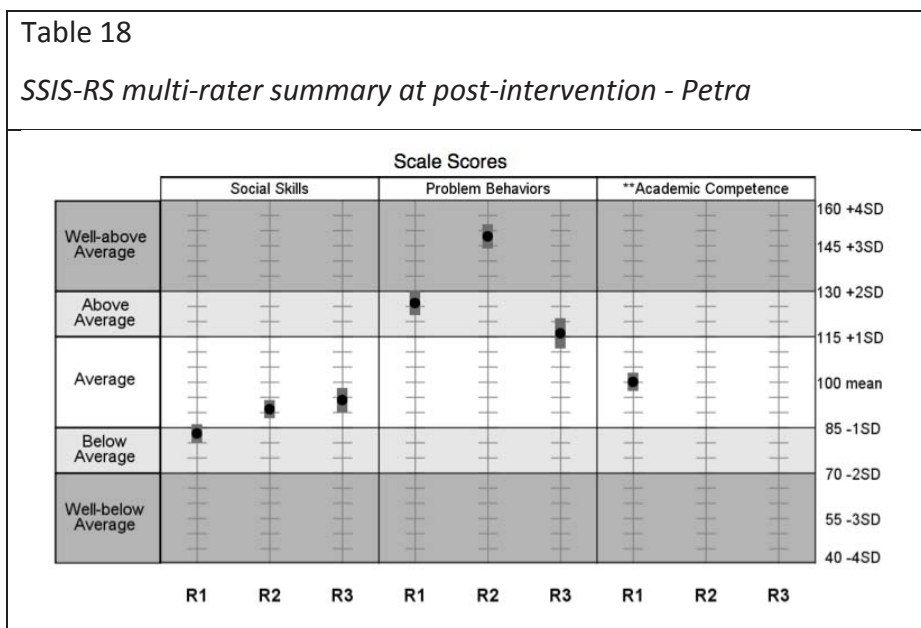
Petra’s teacher’s results within the social skills scale showed improvement with a statistically significant score difference of 11; the standard score improved from 74

to 85, percentile ranking from 4 to 17 and the social skills level moved into *average*. A small increase within the problem behaviours scale was evident with the standard score increasing from 120 to 122; and the level remaining at *above average*. Within the academic competence scale the score difference between tests was statistically significant increasing by 11, a standard score shift from 96 to 107, again within *average* level.

The parent rating within the social skills scale showed a small improvement; the standard score of 70 increased to 74 and the percentile ranking from 3 to 5, the level of social skills remained *below average*. A decrease in problem behaviours resulted in the standard score dropping from 152 to 144, and the percentile ranking from 99 to 98. The level of problem behaviours remained *well-above average* level.

SSIS-RS third administration.

The summary of the major scale results from the final SSIS-RS administration can be seen in Table 18.



The summary of the CCAREES subscale scores from the final SSIS-RS administration can be seen in Table 19.

Table 19

SSIS-RS multi-rater CCAREES subscale scores at post-intervention - Petra

Subscale Scores						
Subscales	Raw Scores			Behavior Levels		
Social Skills	Rater 1	Rater 2	Rater 3	Rater 1	Rater 2	Rater 3
Communication	11	16	11	Below Average	Average	Average
Cooperation	12	11	19	Average	Average	Average
Assertion	9	16	13	Average	Average	Average
Responsibility	12	14	12	Average	Average	Below Average
Empathy	11	13	13	Average	Average	Average
Engagement	8	10	15	Below Average	Below Average	Average
Self-Control	14	9	12	Average	Average	Average
Problem Behaviors						
Externalizing	10	18	14	Average	Above Average	Above Average
Bullying	2	8	5	Average	Above Average	Above Average
Hyperactivity/Inattention	5	10	8	Average	Above Average	Average
Internalizing	13	19	13	Above Average	Above Average	Average
Autism Spectrum	21	20		Above Average	Above Average	

Comparing the teacher's final test social skills scale results against the second administration, showed a slight decrease of -2 with the standard score moving from 85 down to 83 and the percentile rank from 17 to 13. However, over all three administrations there was a statistically significant score difference of 9 with the standard score improving from 74 to 83, percentile ranking from 4 to 13 and the level of social skills behaviour improving from being at the lower end of *below average* level to the higher end. The problem behaviours appear to have increased over each of the three administrations from a standard score of 120 to 122 to 126, and percentile change of 89 to 90 to 93; the score differences were not statistically significant. A familial situation occurred during the intervention period that may have been a contributing factor to the increase in problem behaviours; this is discussed in the next chapter. The level of problem behaviours remained at *above average* range across all administrations. Within the academic competence scale there was a -7 point decrease from the second test; the overall result however produced an increase of 4, improving the standard score from 96 to 100 with the level remaining at *average*. There were two improvements in the social skills subscales with 'Assertion' and 'Self-Control' increasing from *below average* level to *average*. There were no changes in the levels

of the five problem behaviour subscales with 'Internalizing' and 'Autism Spectrum' remaining *above average* and the other three at *average*.

Over the three SSIS-RS assessments carried out by Petra's mother, there was a statistically significant score difference in social skills between the second and third and first and third assessments. Over the three administrations the standard score improved by 21 from the initial score of 70 to 91, with the associated percentile ranking from 3 to 25. This raised Petra's mother's rating within the social skills scale, from *below average* to *average* level. As with R1(P), Petra's mother's overall score difference of -4, from -8 in the second administration, in the problem behaviours scale suggested these behaviours had gotten worse between the second and third administrations. Across the three administrations however there was a slight decrease in problem behaviours with the standard score improving from 152 to 148, the percentile ranking falling from 99 to 98. The overall level remained at *well-above average* level. As mentioned, a situation occurred within Petra's home life that may have contributed to this increase. There were four improvements in the social skills subscale behaviour levels: 'Communication', 'Cooperation', 'Responsibility' and 'Self-Control' increased from *below average* level to *average*, 'Assertion' and 'Empathy' remained on average and 'Engagement' stayed at *below average*. As with the first administration, the five problem behaviour subscales remained at *above average* level.

The results between both of Petra's administrations within the social skills scale, showed improvement with the standard score increasing from 85 to 94 and percentile ranking from 17 to 32; the behaviour level stayed at *average*. There were two subscale improvements with 'Assertion' and 'Engagement' increasing from *below average* to *average*. The 'Responsibility' subscale level decreased from *average* to *below average* in the final administration. The problem behaviour scale level remained *above average* in both administrations. Within the four subscales, 'Hyperactivity/Inattention' improved from *above average* level to *average*, while 'Internalizing' remained at *average* and 'Externalizing' and 'Bullying' *above average*.

SOLO rubrics assessment.

Petra's levels of attainment on each of the 14 rubrics she was assessed against was: 2 at extended abstract, 11 at relational and 1 at multi-structural level.

Assessment against one of the rubrics was not possible based on her absence from three consecutive sessions.

Post-intervention Follow-up Interviews

The teacher and parent raters each completed a follow-up interview question sheet seeking their opinion on intervention outcomes (see Appendix Y and Z). These are summarised by case study below.

Teacher interviews.

Case study one – Bridget.

Bridget's now used strategies to help her accept differences of opinion. Her self-confidence had grown and she now saw herself as "normal" compared to her peers. She was calmer, more positive, less argumentative, will reason and understands it isn't always about her. Bridget has had far less meltdown moments and will persevere with challenging tasks. A proud member of the *friendship group*, it made her feel like she belonged and she always talked about going. Overall behaviour, attitude, peer interactions and self-esteem had improved. If similar interventions were provided in the future, Bridget's teacher was keen for another student with social skill difficulties to participate in it.

Case study two – Sharnie.

The intervention provided Sharnie with strategies to use to enable positive interactions and foster happy relationships with peers. Post intervention she was less defensive, had nicer manners, was more accepting of others, displayed empathy and was able to reason without using physical or verbal aggression. Her peers became less cautious of her due to her behaviour being calmer and less reactive. She loved attending and was proud to be a member of the *friendship group*. Her teacher was keen to participate in similar interventions in the future should it be available.

Case study three – Erena.

Erena engaged positively with group co-operative learning situations. She managed herself better and sought help from her peers. Her attitude had improved – she was more accepting of differences and could now identify right from wrong. She began to look for opportunities to play with her peers. Overall her attitude towards learning has had a positive change. Erena's teacher too was keen to participate in a

similar intervention again in the future should it be available and appropriate for a student in her class.

Case study four – Petra.

In social situations Petra appeared more relaxed and occasionally made an effort to be involved in peer or group discussion. She was more proactive in seeking teacher assistance. Regarding peer attitude towards Petra, her teacher had not noticed much difference from students in the class, who still in general were indifferent towards her. During the programme Petra was absent from school for several days over several weeks. Her teacher was aware there might have been some difficulties at home. As with the other teachers she too was keen to utilise the programme in the future, if she had a student with similar social skills difficulties.

Parent/Caregiver interviews.

Case study one – Bridget.

Bridget was far more confident and thought about consequences. She was more empathetic towards others feelings and began listening before reacting. She used some of the strategies learnt with her younger brother. Due to attitudinal and behaviour changes she has more time for both brothers and they now played and talked together more. She enjoyed the *friendship group* and has told her mother she can do things better and make better choices now. Bridget's tantrums, when not getting her own way, have decreased. Her mother would recommend the intervention to a friend of a child with similar social skills difficulties and wished the programme continued as Bridget got so much out of it.

Case study two – Sharnie.

Sharnie's foster mother did not think the intervention had improved Sharnie's social skills other than her being a little more tolerant towards Erena. Sharnie enjoyed being part of the *friendship group*. The foster mother would not recommend the programme to a friend of a child with similar social skills difficulties.

Case study three – Erena.

The intervention had assisted Erena's tolerance towards other people and to stop lashing out when angry, with her levels of aggression and anxiety lessening. Erena was still very argumentative towards her foster mother and will not stop until she gets her point across. Since being part of the programme Erena and Sharnie have

fought less. Erena had enjoyed the *friendship group* and was very excited each session day morning. As she indicated with Sharnie, the foster mother would not recommend the programme to a friend; no reasons were provided.

Case study four – Petra.

The intervention helped Petra to stop and think about things. She enjoyed being part of the group and shared with her mother strategies she learnt. Since participating in the programme Petra had tried to socialise a lot more and has talked to her mother about a new friend she has made at school. She would recommend the programme to a friend of a child with similar social skills difficulties to Petra.

Students' group interview.

The four participants were interviewed as a group on what they liked and disliked about the intervention including if/how it had helped them at school and home (see Appendix X). They reported that making friends within the group and learning strategies to help gain friends were the best outcomes. They did not like the time during the intervention when a member of their group resorted to stealing some items from the intervention room. The oldest participant mentioned that she would have liked someone closer to her age among the participants.

Of all the videos watched they disliked only one - 'The dangers of anger'. The reason given was that while the clip showed the negative result of not dealing with anger effectively, it did not show how to deal with the situation positively. The students' mentioned that they actively used several of the strategies learnt during the intervention at school to stay calm, make new friends, not get into trouble, prevent getting into arguments and be nicer to others. Each of the girls said they had made new friends since attending the programme. They described the purpose of the SOLO rubrics as being - to help them see how good they had been; increase positive behaviour or friendship level; know where they were at with regards to learning and what was needed to improve; and to help them make more friends.

It is evident from the responses of all the participants that the girls were proud to be members of the *friendship group* and were fully motivated to participate. The biggest changes appeared to be within the school environment where each of the girls' social skills interactions improved both with their peers and teachers. With the exception of the foster parent, it is also appeared there were positive changes within

the home environment with the girls' sharing strategies learnt during intervention with their families and communicating to their parent their thoughts on dealing with social interactions in a positive way. From the follow-up interviews, it seemed the intervention was valued, enjoyed and enabled learning to support the use of effective social interactions and to decrease the level of problem behaviours detrimental to the fostering of positive relationships with peers and adults.

Chapter 5 - Discussion

This chapter addresses the findings of the study by responding to the two research questions via analysis of the case studies and in reference to the literature earlier reviewed; included is discussion on discrepancies that arose during the rating scale administrations. Following this, the validity index scale cautions raised within several of the test administrations are examined. The CCAREES model is used to analyse results as this is the model the SSIS-RS is based on; the four characteristics of FIAC are not used to independently analyse results as each of them relate to one or more of the seven CCAREES characteristics, as can be seen in Table 2. The chapter concludes with discussion on the integration of the SOLO taxonomy within the intervention.

Response to the Research Questions

Each of the two research questions will be responded to by discussing common themes across the four case studies.

What are the social skills characteristics of girls with high functioning ‘autistic-like’ behaviours?

‘Autistic-like’ symptoms identified in the literature review included social skills difficulties, such as: use of empathy and repetitive behaviours (Baron-Cohen, 2008a; Russell et al., 2012), lack of understanding or the misunderstanding of the emotions and beliefs of others (Hudson et al., 2012; Stevens et al., 2013); and difficulties with social interactions (Sansosti and Powell, 2008; Hsia et al., 2013; Stevens et al., 2013). The four participants were nominated by their schools as they met the given ‘autistic-like’ behaviour criteria.

Through analysis of the SSIS-RS multi-rater pre-intervention results, each girl was rated by at least one rater as displaying an overall level of social skills *below average* compared to girls their age; Erena rated *well-below average* by both parent and teacher raters and *below average* as self-rated. As the social skills scale subscales included communication, cooperation, assertion, responsibility, empathy, engagement and self-control social skill characteristics, it appeared that each of the girls nominated exhibited ‘autistic-like’ social skill behaviours using the CCAREES model. Supporting this is that all four received at least one *above average* rating in the ‘Autism Spectrum’ subscale included in the parent and teacher scales, developed based on behaviours

typical of ASD (Gresham & Elliott, 2007). These results lend support to the recommendation of Hsai et al. (2013) of the need for investigation within the general population to understand the effects 'autistic-like' social deficits can have on children. These 'autistic-like' behaviours appeared to have impeded the girls' ability to form stable friendships with girls their age with the exception of Sharnie who mentioned in the pre-intervention interview she had several classmates of both gender. Reasons given by the girls for not having friends included that other children considered them annoying or mean and, in Petra's case, because all her classmates were mean to her. The parents' and teachers' perspective of the lack of same-age friendships were attributed to: social awkwardness and immaturity; difficulty coping with change; aggressive, confrontational and controlling behaviour; and having a strong sense of social injustice. The behaviours reported in the pre-intervention interviews also appeared to negatively impact on family relationships, including - sibling rivalry in the case of the three younger girls, and, in Petra's case, trying to parent younger siblings. Bridget and Erena were also reported in the parent interviews to monopolise conversations and argue with adults. It appeared therefore that impairments in social competency reduced the girls chances of having positive interactions with same aged peers and family members which supported Attwood (2007) and Rao et al. (2008) findings that the core social impairment feature of ASD is the ability to develop satisfying relationships with peer and family members.

In addition to the Social Skills scale, the SSIS-RS also comprised a problem behaviour scale consisting of five subscales measuring internalising and externalising behaviours. Of particular interest with the results of this scale is that each of the three youngest participants were rated by teacher and parent as exhibiting *above average* behaviours in both the 'Externalizing' and 'Bullying' subscales whereas Petra, the oldest participant by 2.0 years, rated *above average* by both these raters within the 'Internalizing' and 'Autism Spectrum' subscales.

Over both scales the results support the research undertaken by the NASP (2002) that children with mild disabilities are likely to possess social skills difficulties and a higher level of problem behaviours compared to other children. Their *above average* levels of problem behaviours and *below average* levels of social skills also

lends weight to the assertion by Hendrickx (2010) that internalising behaviour is a risk factor that stems from a lack of positive peer relationships.

The situation with one of the participants stealing from the intervention venue midway through the programme also supports NASP's (2002) caution that without provision of appropriate intervention escalation of problem behaviours is likely. The dishonesty that occurred was incorporated into the intervention programme by way of inclusion of the learning of skills relating to trustworthiness and being apologetic. The result was that the perpetrator admitted responsibility and accepted the consequences, which included returning the stolen goods and apologising to all victims including their fellow *friendship group* participants. This also provided the group with a real-life opportunity to practise the use of several pro-social skills, including empathy, assertion and communication and potentially prevented peer rejection by the other *friendship group* members. This lends support to the risk challenging behaviours, in those with social difficulties, can have of being ostracised and excluded from participating in future positive social interactions (Dunlop et al., 2012). This unplanned event demonstrated a practical example of development of the skills with which social cognitive theory is based on, where behaviour, cognitive and environmental factors acted in congruence with each other (Twente., 2014). It also provided evidence of the *friendship group* members growth in cognitive empathy, (Baron-Cohen, 2008a; 2008b), and use of affective empathy to problem solve and respond to a social situation in a way that fostered healthy reciprocal interactions (Bauminger, 2007).

The results generated from the SSIS-RS, and the CCAREES social skills model it is based on, confirmed the first hypothesis that girls identified with high functioning autistic-like traits will have social skill impairments compared to typically developing girls of the same age.

What is the impact of a social skills intervention on girls with high functioning 'autistic-like' behaviours?

Social skills behaviours

The results from the post-intervention SSIS-RS administration in the social skills scale showed improvement of each participant. The overall ratings of the two youngest, Bridget and Sharnie, identified improvement by all three raters; Bridget's

level of social skills improved from pre-intervention results ranging from *below average* to *average*, to all three ratings within *average* level at post-intervention; Sharnie's levels improved from *below average* to *average* ranges to *average* to *above average* at post-intervention. These results identified social skills behaviour improvement within both school and home environments for both girls. The overall social skills scale results for Erena and Petra also showed improvement from pre to post-intervention administrations. Petra's post-intervention ratings showed improvement within the social skills scale by each of the three raters with the most significant improvement at home. Erena's results showed significant improvement in her social skills within the school environment with minimal change at home, however the validity index ratings of the parent scores suggested this needed to be treated with caution.

The girls' self-ratings levels in the social skills scale remained at the same range in both their SSIS-RS administrations; examining changes at the subscale level between administrations enabled closer scrutiny. Bridget's ratings identified just one improvement in 'Self-Control'; however it is important to take into account the self-rated post-intervention validity index scores for both 'Response Pattern' and 'Response Consistency' resulted in *caution* ratings. Sharnie's self ratings identified improvement in the 'Empathy' subscale along with two decreases in behaviour levels in 'Assertion' and 'Engagement'. There were similar discrepancies for these two participants within the problem behaviour scale's pre and post-intervention subscale results that are discussed below. Erena's self-rated post-intervention results identified social skills behaviour level increases in 'Empathy' and 'Engagement'. The rating differences between Petra's administrations saw two subscale level improvements in 'Assertion' and 'Engagement' along with one decrease in behaviour level for 'Responsibility'; this is likely attributable to the theft incidence and Petra's cognition regarding this.

Linking the social skills subscale results of the four participants to both the CCAREES and FIAC social skills models identified improvements in characteristics that scored a *below average* rating, from pre-intervention to post-intervention, by at least one rater of each participant. Bridget's results identified improvement in each of the seven characteristics of CCAREES – communication, cooperation, assertion,

responsibility, empathy, engagement and self-control and all four skills – foundation, interaction, affective and cognitive of the FIAC model. Of the four characteristics Sharnie received a *below average* score at pre-intervention, by at least one rater - ‘Cooperation’, ‘Responsibility’, ‘Self-Control’ and ‘Assertion’ – the results showed improvement in foundation, interaction, affective and cognitive skills of the FIAC model. Of the five subscales Erena scored *below average* by at least one rater, the results identified improvement in all by at least one rater at post-intervention. These were ‘Communication’, ‘Assertion’, ‘Engagement’, ‘Self-Control’ and ‘Empathy’ within the CCAREES model and foundation, interactive, affective and cognitive skills within FIAC. Petra received at least one rater score of *below average* at pre-intervention for six of the seven CCAREES model characteristics with only ‘Empathy’ not receiving a *below average* result. At post-intervention the results identified improvement of each of these by at least one rater and includes foundation, interaction, affective and cognitive skills of the FIAC model. Use of these two frameworks enabled appropriate learning outcomes, as can be seen in Table 2, to be identified for inclusion in the treatment plan based on social skills characteristics found to be key to the forming of positive interactions and assessment and evaluation of them.

Problem behaviours

Bridget’s problem behaviours over the duration of the intervention were found to decrease based on the statistically significant score differences of both teacher and parent raters across administrations. Bridget’s self-rating at post-intervention however suggested her problem behaviours had increased. The validity index *caution* raised in her final administration suggested she might have scored herself negatively. As recommended by the test developers, comparing her results to her other two raters, whose scores rated *acceptable* in the validity scale index, it is reasonable to suggest the level of problem behaviours had significantly declined at home and school at the time the intervention concluded. The teacher and parent results of Sharnie’s post-intervention ratings also identified a statistically significant decrease in the level of problem behaviours. As with Bridget, Sharnie’s rating suggested the opposite with an increase in problem behaviours ratings changing the overall behaviour level from *below average* to *average* at post-intervention. Her scores however did not signal a caution. One possible reason for Sharnie and Bridget’s higher problem behaviour and

lower social skill subscale ratings could be that participation in the intervention increased their level of social cognitive awareness. Another reason could be that at the time of the pre-intervention administration they demonstrated 'optimistic bias'. As discussed in the literature, Rudolph and Clarke (2001, as cited in Hoglund et al, 2008) suggest optimistic bias can occur due to a poor level of social-cognitive competency with the child disregarding their behaviour as being the reason for peer rejection and neglect. The use of SOLO as a self-evaluation tool may also have been a contributing factor for the discrepancies and is supported by the girls' comments during the group follow-up interview regarding how SOLO helped them see how good they had been, where they were at and what they needed to do to improve.

Petra's problem behaviour levels remained the same by parent and student raters; however the standard scores of both decreased identifying an overall decline. While over the three parent administrations the rating overall decreased, the standard score between the second and third administration showed a slight increase in problem behaviours suggesting that between the midway and ending of the intervention Petra's problem behaviours increased. The teacher ratings, while remaining at *above average* level, showed a slight increase in problem behaviours across each of the administrations. As mentioned earlier, a stressful situation arose early in the intervention within Petra's family of serious enough nature to cause her several days' absence from school, over a two-week period, and three successive intervention sessions. As reported by Laird et al. (2001), a HFASD adolescent child is likely to have more externalising problem behaviours than their peers due to the rejection by their peer group earlier in life; in Petra's case, this combined with difficulties occurring within her home life may explain the slight increase in the level of problem behaviours exhibited.

Academic Competence

The academic competence results from the ratings of all three teachers showed improvement in three of the participants between pre and post-intervention administrations; one remained on exactly the same standard scale score - within *average* level. This outcome supports Topping (2012) that academic grades suffer when a child lacks the skills necessary to have positive interactions with peers. In this study there appeared a correlation between an increase in social skills and, as the

results suggested for both girls with academic level ratings of *well-below average* at pre-intervention, significant academic gains. The results of two of the girls identified statistically significant score differences lifting Sharnie's pre-intervention rating of *well-below average* to *average* and Erena's from *well-below average* to *below average*. While Bridget's standard score remained the same, and Petra's improved slightly, their academic level remained at *average*. These results support the collaborative decision made to include Erena and Sharnie in the study regardless of them not meeting the criteria of being at age-expected academic level. They also support Delano's (2007) study that recommended future research look into the efficacy of using VM to address problem behaviour and improve academic skills in addition to social-communicative needs.

Outcomes of Using SOLO

The provision of SOLO enabled consistent delivery of learning outcomes with the use of the describe ++ map template and SOLO rubrics in each session, developed using the Hook (2012) templates. As reported by Bauminger-Zviely (2013), and Hook and Mills (2011), mapping encouraged linkage of concepts, exploration around 'what' and 'how' questions, followed by a deeper level of thinking using 'why' questions. The rubrics enabled self and peer evaluation, supported with guidance from the researcher, of where learning currently was at and what was required to achieve at a higher level. Revisiting previous rubrics when evidence suggested there had been gains was undertaken during subsequent sessions. This confirmed Biggs and Tang's (2007) claim that based on the criterion referenced nature of the SOLO rubrics, teacher feedback throughout the learning will assist the learner to identify their current level of learning and what they need to do to improve. The identification of success possibly generated intrinsic motivation to practise the learnt skill, thereby counteracting the possibility for diminished motivation that, according to Chevallier et al. (2014), is often experienced by those on the ASD spectrum. On several occasions during the review at the start of a session, a participant would describe a situation they had experienced and justify why they believed they should go up a level on the related rubric. The results of this study suggest, as reported by Hudson et al. (2012) and as provided within Baron-Cohen's (2008a) E-S theory, that when provided with a system that helps predict behaviour and make sense of the parts that make up the

whole, those with social impairments similar to that experienced at the higher end of the autism spectrum are able to develop social competence skills conducive to positive social interactions. In this case that system was SOLO.

The outcomes of this study confirmed the second hypothesis that social skill characteristics of girls with high-functioning autistic-like behaviours will improve when provided with a social skills intervention, based on their learning strengths and needs.

Implications

The results supported the findings of January et al. (2011) that social skills impairment can negatively impact academic and behaviour in general and, as suggested by Bauminger-Zviely (2013), the closer to adolescence the greater the girl becomes aware of her social inadequacies, which can lead to an increase of internalising behaviours. The results also back up Rao et al. (2008) that as the child moves up from junior school, the difficulties forming and maintaining positive social interactions with their peers' increases. Hoglund et al. (2008) suggest most children by age 6-8 are able to demonstrate ToM and deal positively with social ambiguity limiting the risk of internalising and externalising problem behaviours. In this study two of the participants were 8 years old; pre-intervention results identified that they, along with the 9-year-old, exhibited higher levels of externalised behaviours compared to the 12-year-old participant who had a higher level of internalised behaviours. This may mean problem behaviours in girls with 'autistic-like' behaviours are more externalised in nature when they are younger - with these being easier to detect at risk girls could be identified around 8 years of age, and several years before puberty, for intervention to improve their social competency. Earlier intervention could also reduce the potential of antisocial behaviour during adolescence associated with continued experience of rejection by peers, of which a real-life example occurred during this study. While this proposition is in line with other literature around early intervention, the small sample size for this study does not lend itself to generalization. Also, given that there is a huge range in the nature of social skills deficit for girls with HFASD any intervention needs to be tailored accordingly. The difficulty gaining participant nomination for this study highlights the concerns raised of girls going unnoticed for their 'autistic-like' symptoms. Teacher professional development on how to identify these at risk girls would enable consideration on the impact their social competence, or lack of, has on

ability to interact positively with peers, and behaviour in general, and ways to address this.

It was apparent that while the biological parents were supportive of the intervention, both in terms of their daughters being nominated for assistance in social skills development and participating in the programme, the foster parent did not, understandably, appear to have the same level of investment. Potentially this was because the foster care situation was for a limited period. This could explain the extreme caution ratings of the foster parent in both administrations on Erena. This was further evident in the foster parent's post-intervention interview in which she responded she would not recommend the programme, and without giving any explanation. Unlike the biological parents the foster parent was not involved in the initial nomination process, the girls' mother and CYF provided the required consent. In situations like this in the future, collaboration between the school and foster parent highlighting the potential benefits of participation may assist in the investment of all parties in the best interest of the child.

Based on the results at post-intervention it appeared the multi-dimensional approach used was effective in the promotion of social skills for each of the four pre-adolescent girls with high functioning autistic-like behaviour who participated in this study. . In this study strategies included the use of VM to meet visual learning preferences, SOLO to capitalise on systemising strengths and positive reinforcement by way of a token economy to assist in behaviour management. The relative success of the program could be attributed to the use of learning and motivational strategies based on the strengths and learning preferences of children with autism.

Chapter 6 - Conclusion

The aim of this study was to answer what are the social skills characteristics of girls with high functioning 'autistic-like' behaviours and what impact would an intervention using video modelling integrated with the SOLO taxonomy have on these girls.

All four participants when tested using the SSIS-RS were rated as exhibiting 'autistic-like' behaviours. The one participant with a formal diagnosis of a disorder, in this case a high functioning autism-related disorder of PDD-NOS, was not initially identified by her school for nomination. This supports Baker's (2004) description of girls at the higher end of the spectrum as being invisible and the claim by Wilkinson (2011) that children with mild autistic characteristics are an underserved and under identified population in our schools. Without this study these four girls would unlikely have been identified for participation within an intervention aimed to improve their social competence, a core symptom of ASD (Attwood, 2007; Rao et al., 2008; Wilkinson, 2008b).

The study had several limitations including the improvements being more pronounced at school than home. This partly replicates Bauminger's (2007) findings where an intervention provided to HFASD children showed while they more positively co-operated with each other in the classroom this did not generalise to home. Additionally, as reported by (Stichter et al., 2012), divergence across raters is considered to be common in the rating of children's social behaviours. However, while the parent rating results of this study were not as favourable as the teacher ratings, for three of the participants there was positive improvement identifiable through analysis of the triangulation of parent data. In regards to the unfavourable parent rating for the remaining participant, a major limitation in this study occurred when comparing rating scale results over the duration of the intervention where there was a change in this participant's parent rater, the first being the biological parent and the two subsequent ratings the foster parent. Unlike Bauminger's (2007) study, the improvement in social competency did extend to peers who were not part of the *friendship group*. Therefore consideration on how to strengthen the programme-school-home connection within intervention is recommended. One possibility is to incorporate a homework component into intervention; this is a recommended

behavioural technique and one that has been suggested is positively linked to maintenance and generalisation of learned skills (Bauminger-Zviely, 2013). Another area that appears worthwhile to investigate, based on the results and limitations of this study, is what effects does an intervention based on improving social skill have on levels of academic competence. Maintenance of the pro-social skills cannot be reported in this study as there was no follow-up after the initial post-intervention assessment. Future research should include longitudinal follow-up to examine the sustainability of the intervention and identify the need for ongoing training that may strengthen learning.

The results identified targeted intervention to this group of girls had positive outcomes to the improvement of social competence. This intervention was carried out in an after-school setting with a group of girls assessed with social skills deficits. Future research could investigate the effects this type of programme has when delivered in an integrated class-wide situation. The development of pro social skills is clearly linked to at least three of the key competencies that form part of the New Zealand curriculum (NZC). These are 'relating to others', 'managing self' and 'participating and contributing' and along with the remaining two competencies, 'thinking' and 'using language, symbols and texts' are considered key to learning in all areas (Ministry of Education, 2007). In addition, many NZ primary and secondary schools are using the SOLO taxonomy. A potential future study could investigate the possibility of implementing a social skills program, such as the one developed for this study, embedded into the key competencies of the NZC to provide the development of social skills that enable positive reciprocal interactions and managing of self within the everyday classroom environment. This could remove any concern of fitting another learning area into an already very full curriculum, the singling out of 'at risk' children, the encouragement of acceptance of class-wide diversity, and to assist in the teaching and assessment of NZC key competencies.

Results of this study identified that provision of a multi-dimensional intervention based on the learning needs and strengths of those with HFASD can enhance the social competency of high functioning pre-adolescent girls with 'autistic-like' behaviours, giving them confidence in their ability to form and maintain positive social interactions with their peers now and in the future. The use of a reliable and

valid assessment tool enabled identification and evaluation at teacher, parent and student level while SOLO facilitated in the provision of a progressive system to assist in the development and quality of learning, the monitoring of the individual's progress and the identification of next learning steps.

References

- Alberto, P.A., & Troutman, A.C. (2013). *Applied behavior analysis for teachers* (Ninth ed.). Upper Saddle River, NJ: Pearson.
- American Psychiatric Association, APA. (2011). Autism Spectrum Disorders. Retrieved 8 April, 2014, from <http://www.psychiatry.org/mental-health/autism-spectrum-disorders>
- Andron, Linda (Ed.). (2000). *Our journey through high functioning autism and Asperger's syndrome : a roadmap*. London: Jessica Kingsley.
- APA. (2013a). Autism Spectrum Disorder. Retrieved 5 February, 2014, from <http://www.dsm5.org/Documents/Autism Spectrum Disorder Fact Sheet.pdf>
- APA. (2013b). Social (Pragmatic) Communication Disorder. Retrieved 28 March, 2014, from <http://www.dsm5.org/Documents/Social Communication Disorder Fact Sheet.pdf>
- APA. (2014). Educational psychology promotes teaching and learning. *Psychology: Science in action*. Retrieved 7 May, 2014, from <http://www.apa.org/action/science/teaching-learning/index.aspx>
- Attwood, Tony. (2007). *The complete guide to Asperger's syndrome*. Philadelphia, USA: Jessica Kingsley Publishers.
- Attwood, Tony. (2013). The pattern of abilities and development of girls with Asperger's Syndrome. Retrieved 7 April, 2014, from http://www.tonyattwood.com.au/index.php?Itemid=181&id=80:the-pattern-of-abilities-and-development-of-girls-with-aspergers-syndrome&option=com_content&view=article
- Autism New Zealand. (n.d.). About autism. Retrieved 2 October, 2014, from http://www.autismnz.org.nz/about_autism
- Autism Speaks Inc. (2014). DSM-5 & Autism: Autism-Speaks study clarifies impact of new criteria. Retrieved 28 March, 2014, from <http://www.autismspeaks.org/science/science-news/dsm-5-autism-autism-speaks-study-clarifies-impact-new-criteria>
- Baker, R. (2004). *Invisible at the end of the spectrum: Shadows, residues, 'BAP', and the female Aspergers experience*. Article. Autism Spectrum Consultancy. Christchurch, NZ.

- Baron-Cohen, S. (2008a). *Autism and Asperger Syndrome*. Oxford, UK: Oxford University Press.
- Baron-Cohen, S. (2008b). Theories of the autistic mind. *Psychologist*, 21(2), 112-116.
- Baron-Cohen, S, O'Riordan, M, Stone, V, Jones, R, & Plaisted, K. (1999). Recognition of faux pas by normally developing children and children with Asperger Syndrome or High-Functioning Autism. *Journal of Autism & Development Disorders*, 29(5), 407-418.
- Bauminger, N. (2002). The facilitation of social-emotional understanding and social interaction in high-functioning children with Autism: Intervention outcomes. *Journal of Autism & Development Disorders*, 32(4), 283-298.
- Bauminger, N. (2007). Brief report: Group social-multimodal intervention for HFASD. *Journal of Autism & Development Disorders*, 37, 1605-1615.
- Bauminger, N, & Kasari, C. (2000). Loneliness and friendship in high-functioning children with autism. *Child Development*, 71(2), 447-456.
- Bauminger, N, Solomon, M., & Rogers, S.J. (2010). Predicting friendship quality in Autism Spectrum Disorders and typical development. *Journal of Autism & Development Disorders*, 40, 751-761.
- Bauminger-Zviely, N. (2013). *Social and academic abilities in children with high-functioning autism spectrum disorders*. New York: The Guilford Press.
- Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Children*, 73(3), 264-287.
- Biggs, John B., & Collis, Kevin F. (1982). *Evaluating the quality of learning : the SOLO taxonomy (structure of the observed learning outcome)*. New York: Academic Press.
- Biggs, John B., & Tang, C. (2007). *Teaching for quality learning at university* (3rd ed.). Berkshire, England: McGraw-Hill.
- Brabrand, C., & Dahl, B. (2009). Using the SOLO taxonomy to analyze competence progression of university science curricula. *Higher Education*, 58(4), 531-549.

- Canney, C., & Byrne, A. (2006). Evaluating circle time as a support to social skills development - reflections on a journey in school-based research. *British Journal of Special Education*, 33(1), 19-24.
- Chan, C.C., Tsui, M.S., & Chan, M.Y.C. (2002). Applying the structure of the observed learning outcomes (SOLO) taxonomy on student's learning outcomes: An empirical study. *Assessment & Evaluation in Higher Education*, 27(6), 511-517.
- Chevallier, C., Parish-Morris, J., Tonge, N., Le, L., Miller, J., & Schultz, R.T. (2014). Susceptibility to the audience effect explains performance gap between children with and without autism in a theory of mind task. *Journal of Experimental Psychology: General*, Advance online publication, 1-6. doi: 10.1037/a0035483
- Chung, K-M, Reavis, S., Mosconi, M., Drewry, J., Matthews, T., & Tasse, M.J. (2007). Peer-mediated social skills training program for young children with high-functioning autism. *Research in Developmental Disabilities*, 28, 423-436.
- Coyne, I.T. (1997). Sampling in qualitative research. Purposeful and theoretical sampling: merging or clear boundaries? *Journal of Advanced Nursing*, 26, 623-630.
- Creswell, J.W., Klassen, A.C., Plan Clark, V.L., & Clegg Smith, K. (2011). The nature and design of mixed methods research *Best practices for mixed methods research in the health sciences*. MD, USA: Office of Behavioral and Social Sciences Research (OBSSR).
- Delano, Monica E. (2007). Video modeling interventions for individuals with autism. *Remedial and Special Education*, 28(1), 33-42.
- Demaray, M.K., Ruffalo, S.L., Carlson, J., Busse, R.T., Olson, A.E., McManus, S.M., & Leventhal, A. (1995). Social skills assessment: A comparative evaluation of six published rating scales. *School Psychology Review*, 24(4), 648-671.
- Dunlap, G, Strain, P., & Fox, L. (2012). Positive behavior support for young people with Autism. In B. Kelly & D. F. Perkins (Eds.), *Handbook of implementation science for psychology in education*. New York, NY: Cambridge University Press.

- Ehlers, S., & Gillberg, C. (1993). The epidemiology of Asperger syndrome: A total population study. *Child Psychology & Psychiatry & Allied Disciplines*, 34(8), 1327-1350.
- Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Elliott, S.N., Sheridan, S.M., & Gresham, Frank M. (1989). Assessing and treating social skills deficits: A case study for the scientist-practitioner. *Journal of School Psychology*, 27, 197-222.
- Fernandez, K. (2010). Behavior support strategies for students with Autism. *New Teacher Advocate*, 17(3), 6-7.
- Fombonne, E. (2009). Epidemiology of pervasive development disorders. *Pediatric Research*, 65(6), 591-598.
- Ganz, J.B., Earles-Vollrath, T.L., & Cook, K.E. (2011). Video modeling: A visually based intervention for children with autism spectrum disorder. *TEACHing Exceptional Children*, 43(6), 8-19.
- Goin-Kochel, R.P., Mackintosh, V.H., & Myers, B.J. (2006). How many doctors does it take to make an autism spectrum diagnosis? *Autism*, 10, 439-451.
- Gresham, Frank M. (2007). Social skills training for children and youth: Linking assessment with intervention in a 3-tier model. San Antonio, TX: Pearson Education Inc.
- Gresham, Frank M., & Elliott, S.N. (2007). *SSiS Social Skills Improvement System: Rating scales manual*. Ontario, Canada: Pearson Education Inc.
- Gresham, Frank M., Elliott, S.N., Vance, M.J., & Cook, C.R. (2011). Comparability of the Social Skills Rating System to the Social Skills Improvement System: Content and psychometric comparisons across elementary and secondary age level. *School Psychology Quarterly*, 26(1), 27-44.
- Hendrickx, Sarah. (2008). *Asperger syndrome and employment: What people with Asperger syndrome really really want*. London, UK: Jessica Kingsley Publishers.
- Hendrickx, Sarah. (2010). *The adolescent and adult neuro-diversity handbook : Asperger's syndrome, ADHD, dyslexia, dyspraxia and related conditions*. London Philadelphia: Jessica Kingsley Publishers.

- Hoglund, W. G., Lalonde, C. E., & Leadbeater, B. J. (2008). Social-cognitive competence, peer rejection and neglect, and behavioral and emotional problems in middle childhood. *Social Development*, 528-553.
doi:10.1111/j.1467-9507.2007.00449.x
- Honda, H., Shimizu, Y., Imai, M., & Nitto, Y. (2005). Cumulative incidence of childhood autism: A total population study of better accuracy and precision. *Developmental Medicine & Child Neurology*, null(1), 10-18.
- Hook Education Ltd. (2011). HookED SOLO functioning knowledge rubric generator. Retrieved 13 March, 2014, from <http://pamhook.com/solo-apps/functioning-knowledge-rubric-generator/>
- Hook, P. (2006). A thinking curriculum. *Curriculum Matters*, 2, 81-104.
- Hook, P. (2011). HookED social skills rubrics. Retrieved 26 March, 2014, from <http://pamhook.com/wp-content/uploads/2013/10/HookED-Social-Skills-Rubrics.pdf>
- Hook, P. (2012). Hooked SOLO describe ++ map. Retrieved 13 March, 2014, from <http://pamhook.com/2012/07/04/hooked-solo-describe-map/>
- Hook, P., & Mills, J. (2004). SOLO taxonomy and metacognition: How metacognition can be advanced with HOT mapping and a common understanding of the learning process. Retrieved 7 July 2014, 2014, from http://pamhook.com/mediawiki/images/d/dc/SOLO_Taxonomy,_Metacognition_and_HOT_Maps.pdf
- Hook, P., & Mills, J. (2011). *SOLO taxonomy: A guide for schools*. Invercargill, NZ: Essential Resources Educational Publishers Limited.
- Hsia, M-N., Tseng, W-T., Huang, H-Y., & Shur-Fen Gau, S. (2013). Effects of autistic traits on social and school adjustment in children and adolescents: The moderating roles of age and gender. *Research in Developmental Disabilities*, 34, 254-265.
- Hudson, M., Nijboer, T.C.W., & Jellema, T. (2012). Implicit social learning in relation to autistic-like traits. *Journal of Autism & Development Disorders*, 42(12), 2534-2545.
- January, A.M., Casey, R.J., & Paulson, D. (2011). A meta-analysis of classroom-wide interventions to build social skills: Do they work? *School Psychology Review*, 40(2), 242-256.

- Kaufmann, W.E. (2012). DSM-5: The new diagnostic criteria for autism spectrum disorders. Retrieved 10 April, 2014, from <http://www.autismconsortium.org/symposium-files/WalterKaufmannAC2012Symposium.pdf>
- Ke, F., & Im, T. (2013). Virtual-reality-based social interaction training for children with high-functioning autism. *The Journal of Educational Research*, 106, 441-461.
- Killen, R., & Hattingh, S.A. (2004). A theoretical framework for measuring the quality of student learning in outcomes-based education. *South African Journal of Higher Education*, 18(1), 72-86.
- Kim, Y. S., Fombonne, E., Koh, Y.-J., Kim, S.-J., Cheon, K.-A., & Leventhal, B.L. ("in press"). A comparison of DSM-IV Pervasive Development Disorder and DSM-5 Autism Spectrum Disorder prevalence in an epidemiologic sample. *Journal of the American Academy of Child and Adolescent Psychiatry*.
- Kirkovski, M., Enticott, P., & Fitzgerald, P. (2013). A review of the role of female gender in autism spectrum disorders. *Journal of Autism & Developmental Disorders*, 43(11), 2584-2603.
- Konstantareas, M.M. (2005). Anxiety and depression in children and adolescents with Asperger Syndrome. In K. P. Stoddart (Ed.), *Children, youth and adults with Asperger Syndrome: Integrating multiple perspectives* (pp. 47-59). London, UK: Jessica Kingsley Publishers.
- Kopp, S., Berg Kelly, K., & Gillberg, C. (2010). Girls with social and/or attention deficits: A descriptive study of 100 clinic attenders. *Journal of Attention Disorders*, 14(2), 167-181.
- Kreiser, N.L., & White, S. (2013). ASD in females: Are we overstating the gender difference in diagnosis? *Clin Child Fam Psycho Rev*, 17, 76-84.
- Lai, M.-C., Lombardo, M.V., Pasco, G., Ruigrok, A.N.V., Wheelwright, S.J., Sadek, S.A., . . . Baron-Cohen, S. (2011). A behavioral comparison of male and female adults with high functioning autism spectrum conditions. *PLoS ONE*, 6(6), e20835.
- Laird, R.D., Jordan, K.Y., Dodge, K.A., Pettit, G.S., & Bates, J.E. (2001). Peer rejection in childhood, involvement with antisocial peers in early adolescence, and the development of externalizing behavior problems. *Development and Psychopathology*, 13, 337-354.

- LD Online. (2010). Practicing social skills: How to teach your student social interactions. Retrieved 5 March, 2014, from <http://www.ldonline.org/article/21025/>
- Lucander, H., Bondemark, L., Brown, G., & Knutsson, K. (2010). The structure of observed learning outcome (SOLO) taxonomy: A model to promote dental students' learning. *European Journal of Dental Education*, 14, 145-150.
- Magntorn, O., & Helldén, G. . (2007). Reading nature from a 'bottom-up' perspective. *Journal Of Biological Education (Society Of Biology)*, 41(2), 68-75.
- Massey University. (2014). Code of ethical conduct for research, teaching and evaluations involving human participants (pp. 19). Palmerston North, NZ: Massey University.
- Matson, J.L., & Kozlowski, A.M. (2011). The increasing prevalence of autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5, 418-425.
- May, T., Cornish, K., & Rinehart, N. (2014). Does gender matter? A one year follow-up of autistic, attention and anxiety symptoms in high-functioning children with autism spectrum disorder. *Journal of Autism & Development Disorders*, 44(5), 1077-1086.
- McInerney, D.M., & McInerney, V. (2006). *Educational psychology constructing learning* (4th ed.). Frenchs Forest, NSW: Pearson Education Australia.
- McNaught, C. (2011). *A framework for assessment*. Centre for Learning Enhancement and Research. The Chinese University of Hong Kong. Hong Kong. Retrieved from <http://www.cuhk.edu.hk/policy/assessment/SOLO-description.pdf>
- Ministry of Education. (2007). Key competencies. Retrieved 8 October, 2014, from <http://nzcurriculum.tki.org.nz/The-New-Zealand-Curriculum/Key-competencies>
- Ministry of Education. (2014). About Autism Spectrum Disorder (ASD). Retrieved 11 April, 2014, from <http://www.minedu.govt.nz/NZEducation/EducationPolicies/SpecialEducation/OurWorkProgramme/SupportingChildrenWithASD/AboutAutismSpectrumDisorder.aspx>
- National Association of School Psychologists, (NASP). (2002). Social skills: Promoting positive behavior, academic success, and school safety.

- Retrieved 21 February 2014, 2014, from
http://www.nasponline.org/resources/factsheets/socialskills_fs.aspx
- National Professional Development Center on Autism Spectrum Disorders (NPDC). (2010). Video modeling: Evidence based. USA: NPDC.
- Onwuegbuzie, A.J., & Collins, K.M.T. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report*, 12(2), 281-316.
- Pajares. (2002). Overview of Social Cognitive Theory and of self-efficacy. Retrieved 18 June, 2014, from <http://www.uky.edu/~eushe2/Pajares/eff.html>
- Pearson Education. (2007). Social Skills Improvement System (SSIS). TX, USA: PsychCorp.
- Pegg, J. (1997). Broadening the descriptors of van Hiele's Levels 2 and 3. *MERGA 20 Aotearoa*.
- Rao, P.A., Beidel, D.C., & Murray, M.J. (2008). Social skills interventions for children with Asperger's Syndrome or High-Functioning Autism: A review and recommendations. *Journal of Autism & Development Disorders*, 38(2), 353-361.
- Rodkin, Philip C., & Hanish, Laura D. (Eds.). (2007). *Social network analysis and children's peer relationships*. San Francisco: Jossey-Bass.
- Russell, G., Golding, J., Norwich, B., Emond, A., Ford, T., & Steer, C. (2012). Social and behavioural outcomes in children diagnosed with autism spectrum disorders: A longitudinal cohort study. *Journal of Child Psychology and Psychiatry*, 53(7), 735-744.
- Rustin, L., & Kuhr, A. (1999). *Social skills and the speech impaired* (Second ed.). London, UK: Whurr Publishers Ltd.
- Sansosti, Frank J., & Powell-Smith, Kelly A. (2008). Using computer-presented social stories and video models to increase the social communication skills of children with high-functioning autism spectrum disorders. *Journal of Positive Behavior Intervention*, 10(3), 162-178.
- Sansosti, Frank J., Powell-Smith, Kelly A., & Cowan, Richard J. (2010). *High-functioning autism/Asperger syndrome in schools : assessment and intervention*. New York: Guilford Press.
- Sattler, J.M., & Hoge, R.D. (2006). *Assessment of children: Behavioral, social, and clinical foundations* (Fifth ed.). Ca, USA: Jerome M. Sattler, Publisher, Inc.

- Saumure, K., & Given, L.M. (2008). *The SAGE encyclopedia of qualitative research methods* (Vol. 2). Thousand Oaks, CA: Sage Publications Inc.
- Schneider, K, Regenbogen, C, Pauly, K.D., Gossen, A, Schneider, D.A., Mevissen, L, . . . Schneider, F. (2013). Evidence for gender-specific endophenotypes in high-functioning Autism Spectrum Disorder during empathy. *Autism Research*, 6(6), 506-521.
- Schreiber, C. (2011). Social skills interventions for children with high-functioning autism spectrum disorders. *Journal of Positive Behavior Interventions*, 13(1), 49-62.
- Selman, R.L. (2003). *The promotion of self awareness: Powerful lessons from the partnership of developmental theory and classroom practice*. New York, USA: Russell Sage Foundation.
- SERVE Center. (2008). Types of research methods. Retrieved 5 June, 2014
- Shaffer, D.R. (2002). *Developmental psychology childhood & adolescence* (6th ed.). Belmont, CA: Wadsworth/Thomson Learning.
- Simone, Rudy. (2010). *Aspergirls : empowering females with Asperger Syndrome*. London Philadelphia: Jessica Kingsley.
- Sinclair, A., & Davis, M. (2011). Talking allowed: 'I really enjoy being able to discuss something without the teacher sort of telling us what to say'. *Australian Curriculum Studies Association*, 31(3), 1-10.
- Slater, Alan, & Bremner, J. Gavin (Eds.). (2011). *An introduction to developmental psychology* (2nd ed.). Chichester, West Sussex: British Psychological Society and Blackwell Publishing Ltd.
- Soppitt, R. (2006). Clinical observations in children with autistic spectrum disorders. *Autism*, 10(4), 429-.
- Stake, R.E. (2008). *Strategies of qualitative inquiry*. Thousand Oaks, Ca: Sage Publications.
- Stanford University. (n.d.). How is humanities research conducted? Retrieved 23 September, 2014, from <http://shc.stanford.edu/how-humanities-research-conducted>
- Stevens, S.A., Nash, K., Koren, G., & Rovet, J. (2013). Autism characteristics in children with fetal alcohol spectrum disorders. *Child Neuropsychology*, 19(6), 579-587.

- Stichter, J.P., O'Connor, K.V., Herzog, M.J., Lierheimer, K., & McGhee, S.D. (2012). Social competence intervention for elementary students with Aspergers Syndrome and high functioning autism. *Journal of Autism & Development Disorders*, 42(3), 354-366.
- Sun, X., & Allison, C. (2010). A review of the prevalence of Autism Spectrum Disorder in Asia. *Research in Autism Spectrum Disorders*, 4, 156-167.
- Taylor Rivet, T., & Matson, J.L. (2011). Gender differences in core symptomology in Autism Spectrum Disorders across the lifespan. *Journal of Development and Physical Disabilities*, 23, 399-420.
- Topping, K.J. (2012). Framework for improving the impact of school-based social competence programs. In B. Kelly & D. F. Perkins (Eds.), *Handbook of implementation science for psychology in education*. New York, NY: Cambridge University Press.
- Twente., University of. (2014). Social cognitive theory: Explanation of behavioral patterns. Retrieved 7 April, 2014, from [http://www.utwente.nl/cw/theorieenoverzicht/Theory_clusters/Health Communication/Social_cognitive_theory/](http://www.utwente.nl/cw/theorieenoverzicht/Theory_clusters/Health_Communication/Social_cognitive_theory/)
- Volker, M. A., Lopata, C., Smerbeck, A.M., Knoll, V.A., Thomeer, M.L., Toomey, J.A., & Rodgers, J.D. (2010). BASC-2 PRS profiles for students with high-functioning autism spectrum disorders. *Journal of Autism & Development Disorders*, 40(2), 188-199.
- Wilkinson, L.A. (2008a). The gender gap in Asperger syndrome: Where are the girls? *Teaching Exceptional Children Plus*, 4, 1-10.
- Wilkinson, L.A. (2008b). Suffering in silence: Girls with Asperger Syndrome. *Autism Spectrum Quarterly*(Fall), 20-23.
- Wilkinson, L.A. (2011). Identifying students with autism spectrum disorders: A review of selected screening tools. *Communique Online*, 40(2).
- Wilkinson, L.A. (2012). DSM-5: Rethinking Asperger's Disorder. *Autism - Open Access*, 2(4), 1-4. Retrieved from Autism - Open Access website:
- Yin, R.K. (2014). *Case study research: Design and methods* (Fifth ed.). Thousand Oaks, USA: Sage Publications.

Appendices

Appendix A

Information sheet for school principal and the Board of Trustees



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

INFORMATION SHEET FOR SCHOOL PRINCIPAL AND THE BOARD OF TRUSTEES

Researcher Introduction

My name is Denise Eddowes and I am a Master of Educational Psychology student with Massey University. I am a fully registered primary school teacher who previously taught at [REDACTED] School from 2009 until my resignation at the end of 2013. This year I am working on my thesis full time.

Project Description and Invitation

Several leading researchers in the field of Autistic Spectrum Disorder (ASD) suggest girls with high functioning 'autistic-like' traits go unnoticed for their social skills difficulties. These difficulties tend to become problematical just prior to teenage years with its expectation by peers of social conformity. Without assistance to learn adaptive social skills, these girls are at risk of peer rejection, bullying, anxiety, anorexia, depression, and other negatively associated conditions.

The study involves a two-part process:

- i) identification of at-risk girls for assessment of social skills, and
- ii) selection of up to 6 girls who meet the intervention criteria.

I would like to invite you to nominate any at-risk girls who fit the criteria as a potential participant for intervention. The process is described below sequentially.

Identification and Recruitment for School Nomination of Potential Participants

The following criteria MUST be met for identification by the school of potential participants for nomination:

- Girls currently in a Year 5-8 class and aged 9-12 years between 1 May 2014 and 17 October 2014.
- Academic performance is at an age appropriate level.
- MUST present with the following behaviours which have been persistent for longer than 6 months: restricted, repetitive patterns of behaviour such as a need for routine/dislike of change, rigid thinking, finger tapping, hair twisting, talking loudly, echoing what others have said, an interest in something marked by its intensity, AND/OR difficulties with peer relationships and social skills such as making friends, keeping friends, getting on with others in small group activities, loud, making inappropriate comments, peculiar and (or) inappropriate facial expression.
- There must be consensus among the principal, SENCO (Or Team/Syndicate Leader) and the teacher in identifying and nominating potential participants.

The school is not restricted to the number of potential participants for nomination. Schools who do not have students who fit the criteria will not be included in the study.

Project Procedures

If the school identifies a student/s who meets the above criteria as a potential participant, the school will:

- i) Exclude any student who attended [REDACTED] School in the last two years. The purpose of this is to prevent any potential conflict of interest due to the researcher having taught at this particular school during this time and will know/be known to the student and their family.
- ii) Identify if the student is Maori and, if so, use the school's protocol regarding the cultural needs of that student. Consultation with the school's Maori liaison person and/or kaumatua regarding the cultural needs of that child, their whanau and hapu, must be sought by the school prior to the family being contacted by the school's representative to seek their interest in receiving information regarding the study.
- iii) Contact the parents/caregivers of the student/s to inform them of the study, explain why the student has been considered for nomination and invite them to receive information about the study; including consent by parent and child for the school to make a nomination. (It is considered sensitive to the needs of the family that initial contact is made by the school, as the school will have an established relationship with the family. The researcher's contact details are provided in the information for the families and they are welcome to contact her.)
- iv) Receive consent forms from parents/students who agree to school nomination by a set date.

The researcher will collect the consent forms and participant nomination/s from the school.

Testing using a Standardised Rating Scale

Each nominated girl, their parent/caregiver and their teacher will individually complete by pen and paper the Social Skills Improvement System (SSIS) rating scale. This will be completed at a time suitable to the participant and in the presence of the researcher. The teacher will undertake the SSIS at school.

Estimated time required by the student's teacher to undertake the SSIS rating scale test is 15-30 minutes.

The researcher will analyse results of the SSIS to identify, using a priority system, a maximum of 6 students who meet the intervention criteria. The priority system is based on identification of those most in need of the social skills intervention based on the severity of their skill level. Six is considered the maximum number of participants to ensure optimum delivery.

The researcher will provide the teacher and family with a summary of the SSIS results. This will be done by phone; a PDF copy will also be offered. At the same time, the teacher and family will be informed if they have met the criteria for intervention. Other people and resources of support will be offered to families of girls who do not meet the study's intervention criteria. Such supports include the school's SENCO and local [REDACTED] SD Support Group.

At this point, schools with no students who meet the intervention criteria will cease involvement in the study.

Small Group Social Skills Intervention

Up to 6 girls will participate in an intervention designed to enable/improve the acquisition of social skills. Selected participants, their teacher and parent/caregiver will participate in a short interview with the researcher prior to the commencement of the intervention programme.

Estimated time required by the student's teacher to participate in the pre-intervention interview is 15-30 minutes.

Intervention consists of 8 sessions; 2 x 1 hour sessions per week in term 3, outside of regular school hours.

Intervention sessions will be held in a suitable room at one of the participating schools. A staff member appointed by the principal will be required to be available to the researcher should she require assistance due to the needs of a participant. The intervention will consist of a) observation using video modeling demonstrating a given social skill in action, b) small group discussion, c) role-play - opportunities to practice, and d) evaluation.

The video clips chosen vary in length from 0.46 seconds to 4.51 minutes and have been sourced from You-Tube. Their suitability has been assessed based on content, quality and motivational level relative to the participants age range. One clip will be used as the focus social skill for each session. Discussion and evaluation will be undertaken with the use of a rubric based on the social skill under focus. Rubrics are based on the SOLO-taxonomy's five stages of complexity, which allows the student to assess the quality of their skill level of the social skill in focus, and to compare their use of it over time.

Estimated presence on site of an appointed staff member of the hosting school will be 1 hour, twice a week, at approximately 3.30-4.30 pm, for 8 weeks (a total of 16 hours).

To identify how the student is going, a progress report using the SSIS will occur after 4 weeks of intervention and again after the 8-week conclusion of it. The researcher carries this out separately with the student, teacher and parent.

Estimated time required by the student's teacher to undertake each of the two progress reports is 15-20 minutes.

Data Management

- Information collated on potential participants including completed consent forms and rating scales, will be used to assess suitability for intervention based on the set criteria. Information gained in pre-intervention interviews will be used in the development of the intervention programme.
- Data will be analysed by the researcher in accordance with the SSIS standardized testing procedures.
- All hard copy data will be secured in a locked cabinet at the researcher's home. Electronic data will be stored on the researcher's local hard drive and password coded.
- A SSIS summary of the participant's results will be emailed to each participant (student and their teacher) as a pdf file.
- Each participating school will receive a summary of the project's findings as a pdf document.
- Names of all participants will be concealed to ensure anonymity. The researcher cannot guarantee anonymity of schools involved if they disclose it in a professional learning situation, for example at a principal's meeting.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study at any time;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Please contact me and/or my supervisor if you have any questions about the project. Our contact details are below.

Denise Eddowes (PGDipEd, GDipTch) Master of Educational Psychology Student	E: [REDACTED]	P: [REDACTED] Ext: [REDACTED] E: [REDACTED]
--	---------------	---

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/18. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email humanethicsoutha@massey.ac.nz.

Appendix B

Information sheet for families of potential participants



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

INFORMATION SHEET FOR FAMILIES OF POTENTIAL PARTICIPANTS

Researcher Introduction

My name is Denise Eddowes and I am a Masters of Educational Psychology student with Massey University. I am a fully registered primary school teacher who previously taught at [REDACTED] School from 2009 until my resignation at the end of 2013. This year I am working on my thesis full time.

Project Description

In my years of teaching, I have come across girls who appear to have high functioning 'autistic-like' difficulties, particularly with regards to social skills. While these girls are performing as expected academically for their age, they may struggle with change, have repetitive behaviour and (or) experience difficulties with peer relationships. These difficulties tend to become problematical just prior to teenage years with its social expectations. Without assistance to acquire adaptive social skills these girls are at risk of peer rejection, bullying, anxiety, and other adverse conditions.

My study involves a two-part process:

- i) Identification of at-risk girls for assessment of social skills, followed by
- ii) Selection of up to 6 girls who meet the intervention criteria to take part in a small group intervention programme aimed at improving social skills.

Identification of Potential Participants and Invitation to Participate

Eight primary schools in the [REDACTED] township were invited to participate in this study. The school your daughter attends accepted the invitation.

The school was asked to identify potential participants for nomination by using the following criteria:

- Girls currently in a Year 5-8 class and aged 9-12 years between 1 May 2014 and 17 October 2014.
- Academic performance is at an age appropriate level.
- MUST present with the following behaviours which have been evident for longer than 6 months:
 - Restricted, repetitive patterns of behaviour. This may include a need for routine/dislike of change, finger tapping or hair twisting, talking loudly and/or an interest in something that is marked by its intensity. **AND/OR**
 - Difficulties with peer relationships and social skills. This may include making and keeping friends, getting on with others in small group activities, making inappropriate comments, peculiar and (or) inappropriate facial expression.

Additionally, agreement was required among the principal, the teacher responsible for the special education needs of the school (known as the SENCO) and the student's teacher in identifying potential participants for nomination to partake in the study.

Your daughter's school, using these criteria, identified her as a potential candidate for nomination.

Project Procedures

Consent Procedures

This information sheet has been sent to you following the identification of potential participants by the school. Included with this information sheet are two consent forms – one for the parent/caregiver and one for the student.

Only the names and contact details of invited families who sign and return both consent forms to the school by **Monday, 26 May** will be given to me as schools are not permitted to nominate a student if the parent/caregiver and student consent forms are not returned by this date.

I will collect the consent forms and participant nomination/s from the school immediately after the consent return date. Consenting families will be contacted by me to set up a time for completing the social skills inventory, as described below.

Social Skills Testing using a Rating Scale

Each nominated student, their parent/caregiver and teacher will individually complete the Social Skills Improvement System (SSIS) rating scale. This test involves the selection of a given code to each question asked.

Te Kunenga
ki Pūrehuroa

Institute of Education
Cnr Albany Drive & Collinson Road, Private Bag 11222, Palmerston North 4442, New Zealand T +64 6 356 9099 www.massey.ac.nz

It takes approximately 15-30 minutes to complete the SSIS questionnaire.

Students who MEET the intervention criteria

Students who DO NOT meet the intervention criteria

Data Management

- Personal details of participants will be kept confidential in all reports and publications relating to the study's findings. This includes the name of schools. Names made up by the researcher will be used in place of real names.

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Thank you for taking the time to consider taking part in my project.

Please contact me and/or my supervisor if you have any questions about the project. Our contact details are below.

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/18. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email humanethicssoutha@massey.ac.nz.

Appendix C

Information sheet for families considering participation in intervention



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

INFORMATION SHEET FOR FAMILIES CONSIDERING PARTICIPATION IN INTERVENTION

Thank you for agreeing to consider participation in the social skills intervention. You are receiving this information as the results of the rating scale test identified your daughter as meeting the intervention criteria. It is hoped the information on the program, described below, will help you decide if you would like to consent to the invitation to participate in the intervention I have designed.

A Small Group Social Skills Intervention

Up to 6 girls who meet the intervention criteria will be invited to participate in an intervention designed to enable and/or improve the acquisition of social skills.

Pre-intervention Interviews

The student, their teacher and their parent/caregiver will each be required to participate in a short interview with the researcher prior to the commencement of the intervention program. This will enable the gathering of data to help ensure areas of difficulty are thoroughly planned for.

It is estimated the time required for each interview will be 15-30 minutes.

Intervention Timeframe

The intervention will take place over 8 weeks, with a total of 16 sessions. This will consist of two 1-hour sessions each week during term 3. These will occur after school hours on two different afternoons. The time will be set following consultation with those students participation consent is received from. The sessions will be held in a suitable room at one of the participating schools.

Intervention Content

The intervention will consist of:

- Observation – this will be done using video modeling (VM). This involves the participants watching a short You-Tube movie clip demonstrating a given social skill in action.
- Discussion – this will involve discussing effective and ineffective use of a given social skill.
- Role-play - opportunities to practice how to use a given social skill effectively.
- Evaluation - self-evaluation of how well the student is currently performing the skill.

Each video clip chosen varies in length from 0.46 seconds to 4.51 minutes. Their suitability has been assessed based on content, quality and motivational level relative to the participants age range. One or two clips will be used as the focus social skill for each session.

Discussion and evaluation will be undertaken with the use of a rubric-based system. Each rubric is based on the SOLO-taxonomy's five stages of complexity. The SOLO taxonomy, Structured on Learning Outcomes, is a well-researched system which is being used in several schools throughout the Taupo region. The rubric enables the student to assess the quality of their skill level of the particular social skill in focus. It also enables them to compare their use of that social skill in later intervention sessions and provides the student with a system they can refer to when they may come across a real-life situation of which the skill is required.

Parental Attendance at Sessions

Some parents/caregivers may be interested in being present during intervention sessions. It is important participating students feel comfortable with the presence of persons other than each other. Each participating student will be asked if they consent to the presence of parents/caregivers

Time commitment by participants for intervention sessions is 1 hour, twice each week, at a time after school yet to be confirmed, for 8 weeks during term 3 (a total of 16 hours).

Progress reports using the same social skills rating scale (SSIS) undertaken prior to the commencement of intervention, will occur 4 weeks after the intervention commences and again following the 8-week conclusion of it.

- Information collated on potential participants including completed consent forms, test forms and test results, will be used to inform intervention and analyse progress. Information gained in pre-intervention interviews will be used in the development of the intervention program.
- All information collected will be filed in locked storage by the researcher at her home.
- A summary of each SSIS test result will be communicated by phone and emailed in PDF file format to each participant (student and their teacher).
- Each participating family will receive a summary of the project's overall finding as a PDF document.
- Names of all participants will be concealed in research findings to ensure anonymity.

- decline to answer any particular question;
- withdraw from the study at any time;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Please contact me and/or my supervisor if you have any questions about the project. Our contact details are below.

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/18. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email humanethicssoutha@massey.ac.nz.

Appendix D

Massey University Human Ethics Committee approval



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

1 May 2014

Denise Eddowes
[REDACTED]
[REDACTED]
[REDACTED]

Dear Denise

Re: HEC: Southern A Application – 14/18
Intervention for improving social skills in girls

Thank you for your letter dated 30 April 2014.

On behalf of the Massey University Human Ethics Committee: Southern A I am pleased to advise you that the ethics of your application are now approved. Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Brian Finch, Chair
Massey University Human Ethics Committee: Southern A

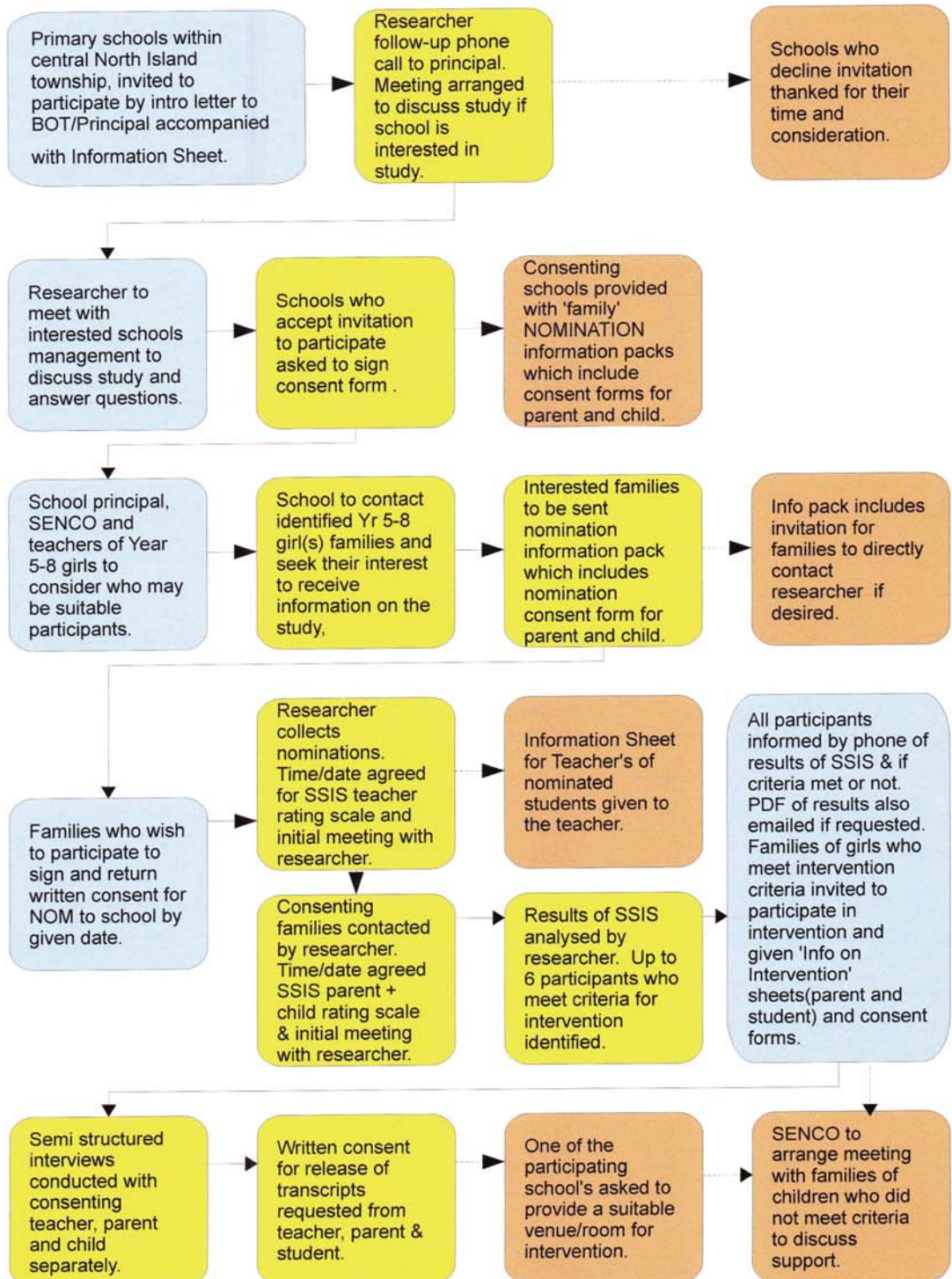
cc [REDACTED] [REDACTED]
[REDACTED] [REDACTED]
[REDACTED] [REDACTED]
[REDACTED] [REDACTED]
[REDACTED] [REDACTED]

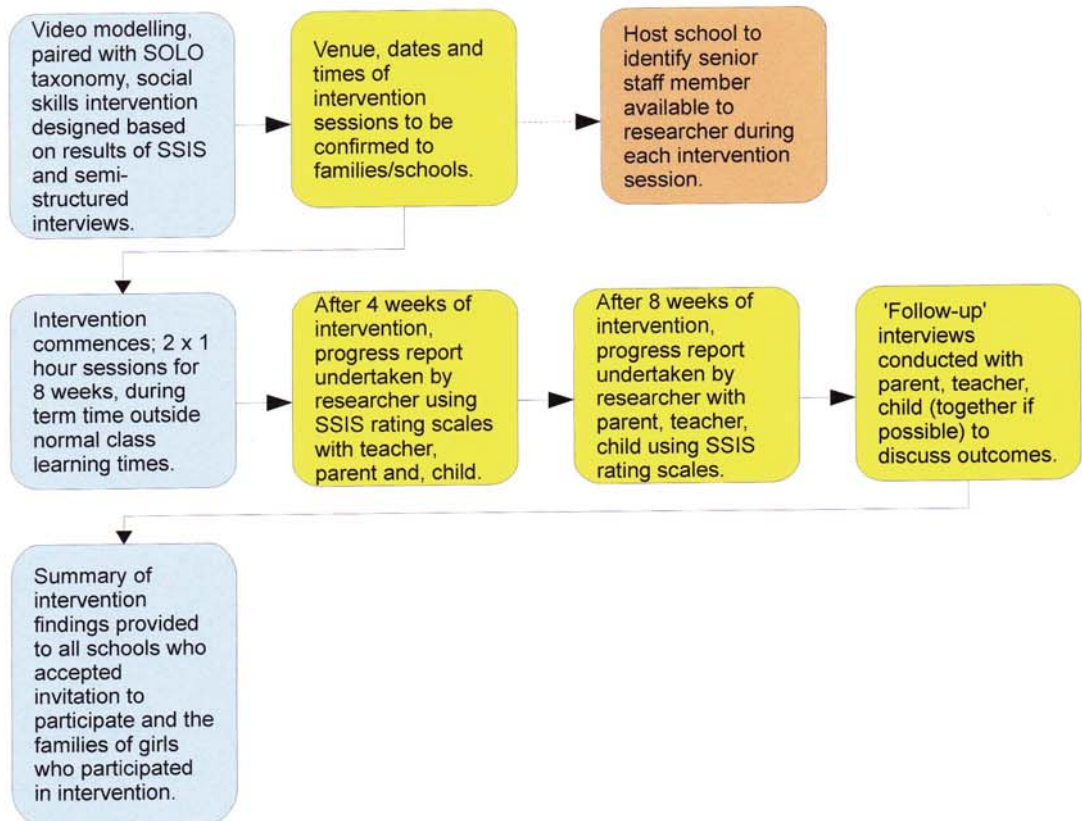
Massey University Human Ethics Committee
Accredited by the Health Research Council
Research Ethics Office, Research and Enterprise

Massey University, Private Bag 11222, Palmerston North 4442, New Zealand T 06 3505573; 06 3505575 F 06 350 5622
E humanethics@massey.ac.nz or animalethics@massey.ac.nz or ethics@massey.ac.nz www.massey.ac.nz

Appendix E

Procedural Flow Chart





Appendix F
Invitation to participate letter to school



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

8 May 2014

Principal & BOT

School address

Dear(name of school principal) and Board of Trustees

Intervention for improving social skills in girls

I would like to request permission from you to access (name of school) to conduct my study as part of Massey's Masters degree in Educational Psychology. All eight schools within the [REDACTED] area that have students within the years 5-8 age group are being sent this letter.

The attached 'Information Sheet' provides details of the project, which is to focus on girls aged 9-12 years with 'autistic-like' social skill behaviours. I would like to invite you to consider being part of this project, as it will make a valuable and important contribution to the sparse field of New Zealand and global research on the topic.

Within the next few days I will contact you by phone to seek your response to this invitation, unless I hear from you prior to that call. If you are willing to be part of the project, I will arrange to meet with you, and other school staff you nominate, to further clarify the study. In the meantime, please do not hesitate to contact me on 027 230 3025.

This research project has been approved by the Massey Human Ethics Committee. Thank you for your consideration.

Yours sincerely

Denise Eddowes BAppSci(Psych), GradDipTch(Primary), PGDipEd (Ed Psych)

Enc 1

Appendix G

Participate to consent form – school



MASSEY UNIVERSITY

INSTITUTE OF EDUCATION

TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

PARTICIPANT CONSENT FORM – SCHOOL

PRINCIPAL/BOT/SENCO/TEACHER

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to participate in this study under the conditions set out in the Information Sheet.

Name of School:

Principal/BOT/SENCO/Teacher Signatures:

Date:

.....
.....
.....
.....

Full Names Printed:

Designation:

.....
.....
.....
.....

Appendix H

Information sheet for girls in years 5-8



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

INFORMATION SHEET FOR GIRLS IN YEARS 5-8

My name is Denise Eddowes and I am studying with Massey University towards a qualification called a Masters Degree. I have to complete a large study called a 'thesis' as part of my qualification. I have chosen to work on a project to help girls in Years 5-8 who have difficulties in areas like making friends and adjusting to changes in routines in school.

Lots of girls can find it difficult to make good friendships, but some girls find it really hard. Sometimes these girls may lose a friend without knowing why. They may feel like they are being left and don't understand why other girls don't seem to want them to join in. In my study I am looking for girls who are experiencing some of these things.

Skills that help us understand and get on well with other people, and make friends, are called social skills. I would like to invite you to answer some questions about social skills. This will take around 20 minutes to complete and I will be with you to help. Using a pen, you will pick the answer to each question on the form by circling the code that fits with how you feel. The answers you give will help me find out if you are having difficulties with particular social skills. Your parents have been given information on this study too. Talk with them and together decide if you would like to answer the list of questions.

If you would like to answer the questions, please read the consent form and fill it in. Your parents and teacher will also complete some questions around your social skills. From the answers that you, your parents and teacher give me, I will be able to see if you can benefit by attending some social skills lessons. I will be taking these lessons with a small group of girls who have similar social skills difficulties. Each lesson will involve watching a short movie clip from You-Tube that shows a particular social skill; like how to make new friends. After watching the movie, there will be a discussion about what we observed and then a chance to practice using the skill really well. Sometimes, the answers may also show that you do not need to attend these social skills lessons. Either way, I will let your parents, teacher and you know whether you need the social skills lessons or not.

Thank you for taking the time to read about my study. Remember, you do not have to agree to answer the questions if you don't want to. You can phone me if you have any questions about this information.

Denise Eddowes

Phone: [REDACTED]

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/18. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799, Ext 84459, email humanethicsoutha@massey.ac.nz.

Te Kunenga
ki Pārehuroa

Institute of Education
Cnr Albany Drive & Collinson Road, Private Bag 11222, Palmerston North 4442, New Zealand T +64 6 356 9099 www.massey.ac.nz

Appendix I

Participant consent form for nomination – parent/caregiver



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

PARTICIPANT CONSENT FORM FOR NOMINATION

PARENT/CAREGIVER

I have read the 'Information Sheet for Nomination' and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to my child being nominated for this study.

I agree to participate in this study under the conditions set out in the 'Information Sheet for Nomination as a Potential Participant'.

Parent/Caregiver Signature:..... Date:

Parent/Guardian Signature:..... Date:

Full name(s) -
printed: Date:

Appendix J

Participant consent form for nomination – student



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

PARTICIPANT CONSENT FORM FOR NOMINATION

STUDENT

I have read the 'Information Sheet for Nomination' and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to being nominated for this study.

I agree to participate in this study under the conditions set out in the 'Information Sheet for Nomination as a Potential Participant'.

Student's Signature: **Date:**

Full name - Printed: **Date:**

Appendix K

Information sheet for family identified by ASD branch



MASSEY UNIVERSITY

INSTITUTE OF EDUCATION

TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

INFORMATION SHEET FOR FAMILIES OF POTENTIAL PARTICIPANTS

Researcher Introduction

My name is Denise Eddowes and I am a Masters of Educational Psychology student with Massey University. I am a fully registered primary school teacher who previously taught at [REDACTED] School from 2009 until my resignation at the end of 2013. This year I am working on my thesis full time.

Project Description

In my years of teaching, I have come across girls who appear to have high functioning 'autistic-like' difficulties, particularly with regards to social skills. While these girls are performing as expected academically for their age, they may struggle with change, have repetitive behaviour and (or) experience difficulties with peer relationships. These difficulties tend to become problematical just prior to teenage years with its social expectations. Without assistance to acquire adaptive social skills these girls are at risk of peer rejection, bullying, anxiety, and other adverse conditions.

My study involves a two-part process:

- i) Identification of at-risk girls for assessment of social skills, followed by
- ii) Selection of up to 6 girls who meet the intervention criteria to take part in a small group intervention programme aimed at improving social skills.

Identification of Potential Participants and Invitation to Participate

Eight primary schools in the [REDACTED] township and the [REDACTED] ASD Support Group were invited to participate in this study.

Identification of potential participants for nomination was made by using the following criteria:

- Girls currently in a Year 5-8 class and aged 9-12 years between 1 May 2014 and 17 October 2014.
- Academic performance is at an age appropriate level.
- MUST present with the following behaviours which have been evident for longer than 6 months:
 - Restricted, repetitive patterns of behaviour. This may include a need for routine/dislike of change, finger tapping or hair twisting, talking loudly and/or an interest in something that is marked by its intensity. **AND/OR**
 - Difficulties with peer relationships and social skills. This may include making and keeping friends, getting on with others in small group activities, making inappropriate comments, peculiar and (or) inappropriate facial expression.

[REDACTED] ASD Support Group, using these criteria, identified your daughter as a potential candidate for nomination.

Project Procedures

Consent Procedures

This information sheet has been sent to you following your acceptance of it from [REDACTED] ASD Support Group. Included with this information sheet are two consent forms – one for the parent/caregiver and one for the student.

Only the names and contact details of invited families who sign and return both consent forms to [REDACTED] ASD Support Group by **Monday, 26 May** will be given to me.

I will collect the consent forms and participant nomination/s immediately after the consent return date. Following this I will contact the school your daughter attends to seek their consent to participate. Consenting families will be contacted by me to set up a time for completing the social skills inventory, as described below.

Social Skills Testing using a Rating Scale

Each nominated student, their parent/caregiver and teacher will individually complete the Social Skills Improvement System (SSIS) rating scale. This test involves the selection of a given code to each question asked.

Testing will be completed at a time that suits each person. I will be present during the completion of the test and to enable assistance if required. The teacher will undertake the test at school. Parent and student test completion will take place, each at different times, in a private room at the school unless an alternative suitable venue is agreed to.

It takes approximately 15-30 minutes to complete the SSIS questionnaire.

Following testing I will analyse results, using a pre-determined priority system, to identify a maximum of 6 students who meet the intervention criteria. The priority system has been developed to enable identification of those most in need based on the severity of their skill level. I will provide the family and the student's school with a summary of the test results by phone. A PDF copy will also be offered and sent by email. At the same time I will inform the family if the criteria for intervention has or has not been met.

Students who MEET the intervention criteria

Students, who meet the intervention criteria, and their parent/caregiver, will be invited to participate in an 8-week social skills intervention program I have designed. Detailed information relating to what the intervention consists of, including time commitment etc, will be provided to the family to help them decide whether they wish to agree to participate in it. Consent will be required in writing by both the parent and the student for participation. Intervention is planned to take place during term 3, outside of regular school hours.

Students who DO NOT meet the intervention criteria

For students who do not meet intervention criteria, the school SENCO will meet with the families to discuss what other supports are available to meet the student's needs identified through the testing process.

Data Management

- Information collected by the researcher on nominated potential participants, including consent forms, test forms and test results, will be used to assess suitability for intervention based on the set criteria.
- All information collected will be filed in locked storage by the researcher at her home.
- A summary of each SSIS test result will be communicated by phone and emailed in pdf file format to each participant.
- On completion of the project, each participating family will receive a summary of the project's overall finding.

Personal details of participants will be kept confidential in all reports and publications relating to the study's findings. This includes the name of schools. Names made up by the researcher will be used in place of real names.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study at any time;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Thank you for taking the time to consider taking part in my project.

Project Contacts

Please contact me and/or my supervisor if you have any questions about the project. Our contact details are below.

Denise Eddowes (PGDipEd, GDipTch) Masters of Educational Psychology Student	M:			P:	
				Ext:	
	E:			E:	

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/18. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email humanethicsoutha@massey.ac.nz.

Appendix L

Information sheet for teachers of nominated students



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

INFORMATION SHEET FOR TEACHERS OF NOMINATED STUDENTS

This information is to enable teachers of consenting students nominated as potential participants in this study, understand what is required from them. A full description of the study is provided in the 'Information Sheet for Schools' sent to the principal.

Social Skills Improvement System (SSIS) Test

You will be required to complete by pen and paper the SSIS 'Teacher' rating scale on the nominated student. This will be completed at a time that suits you, at school and in the presence of the researcher to assist you if needed. This will take 15-30 minutes of your time. Tests will be analysed by the researcher to identify, using a priority system, a maximum of 6 students who meet the study's intervention criteria. You will receive a summary of the result and be informed if the student has or has not met the intervention criteria. If the student does not meet the criteria you will no longer be involved in the study.

Small Group Social Skills Intervention

If the student meets the intervention criteria, you will participate in a short interview with the researcher prior to the commencement of the intervention programme. This will take approximately 15-30 minutes.

Progress Reports

You will be involved in providing a 'Progress Report' by completing the SSIS 'Teacher' rating scale on two separate occasions, after 4 weeks of intervention and again after 8 weeks at the conclusion of the intervention. The estimated to each take 15-20 minutes to complete.

Interview Following Completion of Intervention

At the end of the 8-week intervention, the researcher will meet with the student, parent(s)/caregiver(s) and you to discuss the intervention outcomes. This will take approximately 30 minutes.

Time Requirement of Teacher

The total time you will be involved, if your student meets the criteria and undertakes intervention, is estimated to be 2 hours. This is from the time you undertake the first SSIS rating scale, prior to commencement of the 8-week intervention, until the week following conclusion of the intervention.

Thank you for agreeing to be a part of this study. Your time and contribution is greatly valued.

Project Contacts

Please contact me and/or my supervisor if you have any questions about the project. Our contact details are below.

Denise Eddowes (PGDipEd, GDipTch) Masters of Educational Psychology Student	M: [REDACTED] E: [REDACTED]	[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]	P: [REDACTED] Ext: [REDACTED] E: [REDACTED]
---	--------------------------------	--	---

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 14/18. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email humanethicsoutha@massey.ac.nz.

Te Kunenga
ki Pūrehuroa

Institute of Education
Cnr Albany Drive & Collinson Road, Private Bag 11222, Palmerston North 4442, New Zealand T +64 6 356 9099 www.massey.ac.nz

Appendix M

Teacher semi-structured interview schedule

Student's Name:		School's Name:	
Teacher's Name:		Date:	
Interviewer's Name:		Venue:	
Time of Interview:			
<p>1. The purpose of this interview is for us to discuss the results of (child's name) rating scales and for me to be able to explain to you the intervention I propose (child's name) participates in, along with (#) girls who have also met the criteria. It will also enable me to get more information from you to help me design the intervention based on (child's name) needs. As I share the results of the SSIS assessment with you, please feel free to ask me any questions. Does that make sense? <i>(Go through results)</i></p>			
<p>2. The intervention will involve playing short video-clips from You Tube of typical social situations, such as making friends, being modelled. The group will then analyse the situation, practice it and evaluate their performance using a criterion-based system called SOLO. What would you like to know to help you better understand the intervention?</p>			
<p>3. Is (child's name) in general disliked by their classmates?</p>			
<p>4. <i>(If 'Yes' to #4)</i> Why you think other children dislike (child's name)?</p>			
<p>5. What do they do when (child's name) engages in the problem behaviour?</p>			
<p>6. How do other children react to (child's name) in general?</p>			
<p>7. Where does (child's name) problem behaviours occur (eg classroom, playground etc)?</p>			
<p>8. What are (child's name) interests and how often do they talk about or engage in these?</p>			
<p>9. <i>(Only ask if teacher scored an O or A for #54 on SSIS.)</i> You scored (child's name) with Often (or Almost Always) on the test for 'Has stereotyped motor behaviours'. Could you please describe these?</p>			
<p>10. What are (child's name) strengths?</p>			
<p>11. Are there any questions you would like to ask me?</p>			

Appendix N

Parent semi-structured interview schedule

Student's Name:		School's Name:	
Parent(s) Name(s):		Date:	
Interviewer's Name:		Venue:	
Time of Interview:			
<p>1. The purpose of this interview is for us to discuss the results of (child's name) rating scales and for me to be able to explain to you the intervention I propose (child's name) participates in along with (#) girls who have also met the criteria. It will also enable me to get more information from you to help me design the intervention based on (child's name) needs. As I share the results of the SSIS assessment with you, please feel free to ask me any questions. Does that make sense?</p>			
<p>2. The intervention will involve playing short video-clips from You Tube of typical social situations, such as making friends, being modelled. The group will then analyse the situation, practice it and evaluate their performance using a criterion-based system called SOLO. What would you like to know to help you better understand the intervention?</p>			
<p>3. Tell me about (child's name) family – siblings, ages etc?</p>			
<p>4. How does (child's name) get along with her siblings (if relevant)?</p>			
<p>5. Does (child's name) have friends?</p>			
<p>6. (If 'Yes' to #3) Tell me about them – ages? gender? Do you approve of these friends?</p>			
<p>7. Does (child's name) seem to have difficulty keeping friends? (If yes, ask why parent thinks that)</p>			
<p>8. Does (child's name) have the opportunity to meet other children? How, where?</p>			
<p>9. How does (child's name) get on with her teacher?</p>			
<p>10. What interests does (child's name) have and how would you describe them in terms of intensity and engagement?</p>			
<p>11. Is (child's name) involved in any extra-curricula activities? How long for? Does she enjoy these?</p>			
<p>12. Does (child's name) like school? What does she like? Dislike?</p>			
<p>13. How would you compare (child's name) social skills to children her age?</p>			
<p>14. How does (child's name) cope with change?</p>			
<p>15. What are (child's name) strengths?</p>			
<p>16. Are there any questions you would like to ask me?</p>			
<p>17. Do you consent for (child's name) to be interviewed on their own with me?</p>			

Appendix O

Student semi-structured interview schedule

Student's Name:		DOB/Age:	
Interviewer's Name:		Venue:	
Time of Interview:		Date:	
<p>1. I would like you to think about being in a special learning programme with me and (#) other girls who have similar difficulties to you with friendships. The reason I have chosen you is because the results of the test you, your parent and teacher completed show me you could do with some help. I am going to explain the results to you and you can ask me questions about it at any time. Does that make sense?</p>			
<p>2. The programme will involve watching short video-clips of social situations you often find yourself in, like making friends, being modelled. After watching the clip the group will discuss it and then get to practice how to do it well. You will also assess how well you did and find out what you can do next time to make it even better. This is called an intervention. Do you have any questions about it?</p>			
<p>3. The questions I'm going to ask you may seem similar to those you answered in the SSIS rating scale. You will be able to tell me more about yourself than the brief answers on those questions were able to do. It will let me get to know you better and what your likes and dislikes are at school and after school. Your answers will help me make the programme as helpful for you as I can. Does that make sense?</p>			
<p>4. What do you like to do? What hobbies and interests do you have outside of school?</p>			
<p>5. Do you belong to any groups, like Girl Guides, a sports club, a voluntary group? Tell me about that group (if relevant).</p>			
<p>6. Do you have any brothers or sisters? How do you get along with them (if relevant)?</p>			
<p>7. Tell me about school. What do you like most about it?</p>			
<p>8. What don't you like about school?</p>			
<p>9. Do you have friends at school? Tell me about them (are they the same age, gender, class etc).</p>			
<p>10. How do you get along with your teacher?</p>			
<p>11. What's your favourite subject at school and why?</p>			
<p>12. What's your least favourite subject at school and why?</p>			
<p>13. Do you have friends who don't go to your school? Tell me about them.</p>			
<p>14. Tell me about not having friends (if relevant).</p>			
<p>15. Do you ever get into fights or arguments with people? Tell me about that.</p>			
<p>16. What do you like best about yourself?</p>			
<p>17. If you could change one thing about yourself, what would it be?</p>			
<p>18. Are there any questions you would like to ask me?</p>			

Appendix P

Authority for release of transcripts – teacher



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS **TEACHER**

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: _____ **Date:** _____

Full Name - printed _____

Appendix Q
Authority for release of transcripts – parent



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS
PARENT

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: _____ **Date:** _____

Full Name - printed _____

Appendix R
Authority for release of transcripts – student



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS
STUDENT

I confirm that I have had the opportunity to read and change the transcript of the interview(s) that was held with me.

I agree that the edited transcript and parts from this may be used in reports and publications that are written from this research project.

Signature: _____ **Date:** _____

Full Name - printed _____

Appendix S

Participant consent form for intervention – parent/caregiver



MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

Intervention for improving social skills in girls

PARTICIPANT CONSENT FORM FOR INTERVENTION PARENT/CAREGIVER

I have read the 'Information Sheet for Intervention' and have had the details of the study explained to me. I understand my child has met the criteria for intervention and is invited to participate in the intervention program.

My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to participate in this study under the conditions set out in the 'Information Sheet for Participation in Intervention'.

Parent/Caregiver Signature:..... **Date:**

Parent/Guardian Signature:..... **Date:**

**Full name(s) -
printed:** **Date:**

Appendix T
Participant consent form for intervention – student



Intervention for improving social skills in girls

PARTICIPANT CONSENT FORM FOR INTERVENTION
STUDENT

I have read the 'Information Sheet for Intervention' and have had the details of the study explained to me. I understand I have met the criteria for intervention and am invited to participate in an intervention program. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to participate in this study under the conditions set out in the 'Information Sheet for Participation in Intervention'.

I agree that my parent(s)/caregiver(s) and the other participants parent(s)/caregiver(s) may be present to watch the intervention sessions, if they would like to.

Student's Signature: **Date:**

Full name - Printed: **Date:**




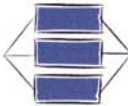

Appendix U

Team code SOLO rubric

NAME:

SELF ASSESSMENT RUBRIC

DEMONSTRATE: following our team's 'Code'

SOCIAL SKILLS - <i>Foundation Skills</i> Rustin & Kuhr (1989) FIAC model <i>Communication skills</i> Elliott & Gresham (2007) CCAREES model					
Demonstrate following and using the agreed code when I am a member of the friendship skills team	I need help to demonstrate appropriate use of following the code.	I can demonstrate appropriate use of the code if I am prompted or directed.	I use several strategies to demonstrate following the code but I am not sure when and or why to use them. <i>(trial and error – aware of strategies but not sure why or when to use them so makes mistakes)</i>	I use several strategies to demonstrate following the code and I know when and why to use them. <i>(strategic or purposeful use of strategies – knows why and when).</i>	I use several strategies to demonstrate following the code and I know when and why to use them. I can teach others to demonstrate following the code. I act as a role model for others to help them demonstrate following the code. I seek feedback on how to improve how I can demonstrate following the code.
Effective Strategies <i>Student dates where they are pre role play, after practise opportunities then again in a later session</i>	<i>Tell, Show, Do, Practice, Self-evaluate, Generalise</i>	Set & explain LO Video modelling (observation) Self evaluate using rubric (pre teaching) Role play/prompting	Social skill autopsy using Describe ++ map	Practise opportunities Self evaluate using rubric	Random role-plays in later sessions Explaining skill in a given situation Self-evaluate

CODE

Best – be the best I can be
Emotions – express how I feel effectively
Praise – congratulate self and others
Safety – care for self and others – say sorry, be sorry

We agree to follow this code:

Appendix W
Intervention lesson format

1. Review of the previous session and sharing of how, or if, the social skill in focus had been used by the student at school and/or home.
2. Introduction of the session's learning outcome, eg 'Demonstrate making friends', with open discussion on what this meant with encouragement to share real-life experiences. Questions were written up on the whiteboard for students to consider the skill while viewing the clip. These were based on: what does good use of this skill look like and how do we do it; and, why should we do it like that?
3. Playing of the video clip modelling the social skill. Some of the clips depicted the social skill being positively modelled while others depicted both good and not so good examples of use of the skill. Most sessions involved viewing one video clip, however in the learning outcomes that dealt with anger, empathy, making an apology and appropriate eye contact, two to three video clips were played.
4. A group concept map was co-created to help order thinking of the learning outcome and to encourage deeper thinking, in terms of what, how and why. The maps were based on the 'Describe ++ Map' model designed by Hook (2012). A lot of discussion took place during this task.
5. Role-plays were then carried out with the researcher providing a scenario in relation to the social skill and assigning the girls into pairs, or as a single group, to act it out. Several scenarios were provided to ensure each girl had a chance at being the main character. Often this included acting out the skill in a way that was not conducive to positive social interacting. On some occasions examples from situations the girls had experienced would be used for the role-play. Discussion would take place following the acting on how the social skill was or wasn't used, the consequences of this and what could be done to effect more positive results, if this was appropriate.
6. The associated learning outcome rubric would then be reviewed, as a group, with the girls justifying where they believed their learning was currently at and

a sticker and the date put on that level. Discussions took place on what was required for them to achieve the next level.

7. On occasion the rubrics would be revisited at the beginning of a session, during review, when a student described a real-life situation they had experienced since the previous session and their action justified them moving up a level for the specific social skill used. This occurred on several occasions and was justified with explicit descriptions, dates, times, and experiences provided by the student. The group as a whole then decided if this identified a higher level of learning on the associated rubric and which of the levels this was relevant to.

Appendix X
Post-intervention interview - student

(Group interview)

Date:

Present:

1. What did you like most about the Friendship Group (FG)?
2. What did you like least?
3. What videos were your favourite?
4. What strategies have you used at school/home?
5. How has the FG helped you at school?
6. How has the FG helped you at home?
7. Since coming to the FG have you made any new friends?
8. What were the rubrics for?
9. What will you miss most about the FG?

Appendix Y
Post-intervention interview - parent

Date:

Parent Name:

Student Name:

1. This intervention was developed to improve social skills. How, if anything, do you think it has helped this student?
2. Describe changes, good or not-so-good, you have noticed in this student over the period they have participated in the intervention.
3. Has there been any change in behaviour/attitude towards this student by their siblings over the duration of the intervention? Please describe.
4. Has the student shared their thoughts with you on being part of the 'Friendship Group'? If so, in what way?
5. Have you noticed any other changes in the student's overall behaviour? If so, please describe.
6. If you had a friend with a child with similar social skills difficulties, and the intervention was available, would you recommend they participate in it?

Appendix Z
Post-intervention interview - teacher

Date:

Teacher Name:

Student Name:

1. This intervention was developed to improve social skills. How, if anything, do you think it has helped this student?
2. Describe changes, good or not-so-good, you have noticed in this student over the period they have participated in the intervention.
3. Has there been any change in behaviour/attitude towards this student by her peer's over the duration of the intervention? Please describe.
4. Has the student shared their thoughts with you on being part of the 'Friendship Group'? If so, in what way?
5. Have you noticed any other changes in the student's overall behaviour? If so, please describe.
6. If you had another student with similar social skills difficulties, and the intervention was available, would you be keen they participate in it?