


2020

## Alannah, Bree and CASSIE: The ABC of girls on the Autism Spectrum in early years classrooms

Jillian Stansfield  
*Edith Cowan University*

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**Alannah, Bree and CASSIE:  
The ABC of Girls on the Autism Spectrum  
in Early Years Classrooms**

**This thesis is presented for the degree of  
Doctor of Philosophy**

**Jillian Stansfield  
M.Ed., B.GenStud./B.Teach**

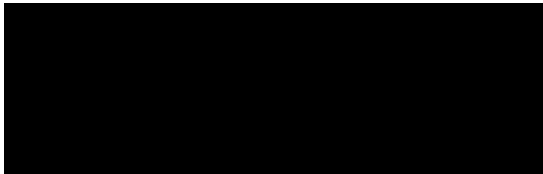
**School of Education  
Edith Cowan University, Perth, Australia**

**2020**

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Jillian Stansfield

7<sup>th</sup> December 2020

.....  
Date

## Abstract

The prevalence of children diagnosed with autism spectrum disorder in classrooms is an increasingly common phenomenon in schools in Australia and in many other countries. While there is increasingly growing literature on how autistic boys manage and are managed in schools, little is known about the learning needs of girls on the autism spectrum. One reason offered for this imbalance of literature is that fewer girls are diagnosed than boys, as their presentations may differ. As girls on the autism spectrum are an underdiagnosed phenotype, it is little wonder that teachers do not have adequate knowledge or strategies to support girls in the classroom.

The shortage of research evidence on autistic girls in the education context is one reason why girls are missing out on vital supports and understanding in the classroom due to the lack of knowledge and resources available to teachers. This, in turn, means teachers are underprepared to teach girls on the autism spectrum. One of the main aims of this study was to develop knowledge and theory about girls on the autism spectrum and their diverse learning needs in the early years of schooling, to provide further support to teachers and their students with an autism diagnosis and those who are yet to be diagnosed.

This qualitative, in-depth case study explored the learning experiences of two girls on the autism spectrum in early years classrooms, to develop knowledge and theory on autistic girls' varied behaviours and characteristics and how they can be best supported. Key ideas emerged throughout the cross-case analysis and were categorised under six themes: Communication, Academic, Social, Sensory, Identity and Encircle. Encircle further encompassed four areas: Challenges, Intervention, Professional Development and Classroom Strategies. Each area overlaps one another and impacts the key themes for every student on the autism spectrum. From this process, the CASSIE tool was developed to identify girls on the autism spectrum in the early years classroom and assist teachers to better manage their learning and social experiences.

Development of CASSIE was the principal outcome, a teaching tool and resource for teachers to understand how girls on the autism spectrum learn and help them develop strategies for these students to reach their potential in the classroom. The CASSIE tool will not only benefit teachers and parents, but the wider support network of girls on the autism spectrum who are both diagnosed and undiagnosed. In doing so, it will shine a light on the learning needs of girls on the autism spectrum to ensure they are no longer invisible.

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## Glossary

This glossary refers to the terms that appear throughout the text. It helps readers to understand the application of the terms as they apply to the context of the autism spectrum more so than in common usage.

<b>Term</b>	<b>Definition</b>	<b>Reference (if applicable)</b>
Academe	The academic environment.	Oxford Learners' Dictionary (2020)
Academic	Relating to education and the people involved in it.	Oxford Learners' Dictionary (2020)
Anxiety	Natural response to stress: may be ongoing but not necessarily diagnosed with an anxiety disorder.	DSM-5 (American Psychiatric Association, 2013)
Autism Community	Anybody for whom autism is a part of their lives e.g. family members, scientists who research autism, autism organisations.	Iraeidle (2019)
Autistic Community	Exclusively autistic people – diagnosed or self-diagnosed.	Iraeidle (2019)
Autism Spectrum Disorders	Deficits in social communication, restrictive and repetitive behaviours.	DSM-5 (American Psychiatric Association, 2013)
Asperger's/Asperger's Syndrome	Developmental disorder that was a diagnosis prior to the DSM-5 and its traits are now collated under ASD.	DSM-IV (American Psychiatric Association, 2000)
Camouflaging	Compensating for and masking autistic characteristics.	Hull et al., (2020)
Challenges	Definition emerging from this study and refers to difficulties encountered within the education environment.	CASSIE tool (2020)
Classroom Strategies	A term used in this study to cluster ways to assist and improve learning outcomes for students.	CASSIE tool (2020)
Communication	A theme word used in this study referring to the medium the student uses to exchange information to others.	CASSIE tool (2020)

Disability	The inability to do something and then impeding on a person's life to do everyday activities.	Mitra (2006).
Distraction	Pertaining to this study; something that distracts a student's attention away from a task.	Oxford Learners' Dictionary (2020)
Early Years Classroom	The learning space for students who are in the year level/grade of Preparatory, 1 or 2 at school.	Retrieved from Queensland Government: <a href="https://education.qld.gov.au/schools-educators/school-types/early-years">https://education.qld.gov.au/schools-educators/school-types/early-years</a>
Echolalia	Repetition of words or phrases that have just been heard or heard in the past.	Carpenter (2017, p. 298)
Emotional	Pertaining to the students in this study when they exhibit or express strong feelings.	Oxford Learners' Dictionary (2020)
Encircle	A theme word to describe the areas surrounding the key themes of CASSIE that emerged from this study.	CASSIE tool (2020)
Hyperfocus	A student on the autism spectrum who has highly focused attention on a specific interest.	Hupfeld, Abagi & Shah (2018)
Identity	A theme word to describe the key ideas that emerged from this study around how a student views themselves and how others view them.	CASSIE tool (2020) and Baumeister, R. F. (1999)
Inclusion	A set of processes concerned with removing barriers to presence, participation and progress for all students.	Hyde (2017, p. 7)
Independent Play	A child engaging in solo play.	Healthline Parenthood (2020) retrieved from <a href="https://www.healthline.com/health/solitary-play#Going-it-alone-already?">https://www.healthline.com/health/solitary-play#Going-it-alone-already?</a>
Intervention	Any action taken by the school or parent to support a student's learning in the classroom.	CASSIE Tool (2020) and Queensland Government (2019)
Kindergarten	In Queensland, Australia, Kindergarten offers early education programs to prepare children for the Preparatory year.	<a href="http://www.qld.gov.au/families/babies/childcare/types/kindergarten">www.qld.gov.au/families/babies/childcare/types/kindergarten</a>
Literal	A student on the autism spectrum taking phrases or ideas in the most basic sense.	Oxford Learners' Dictionary (2020)



Mainstreaming	Students formerly placed in special schools should be placed in local, regular schools.	Hyde (2017, p. 5)
Meltdown	A word from this study to describe students on the autism spectrum who are emotionally overwhelmed and no longer able to self-regulate.	Craft (2016, p.1648) & CASSIE Tool (2020)
Minimally verbal	Uses fewer than 30 words, and may also be speaking quietly and only in a selectively appropriate environment. Different to selective mutism – defined below.	Brignell et al., (2018)
Neurotype	Not yet a standard term in neuroscience or psychology but in this study refers to the neurological differences or ‘brain wiring’ in a student e.g. neurotypical or neurodivergent.	Singer (2016)
Neurotypical	Having a style of neurocognitive functioning that falls within the dominant societal standards of typically developing.	Walker (2014)
Neurodiversity	The diversity of human brains and minds – the infinite variations in neurocognitive functioning within our species.	Walker (2014)
Neurodivergent	Having a neural architecture that functions in ways that diverge significantly from the dominant societal standards of typically developing.	Walker (2014)
Non-verbal	A term from this study when a student communicates without using spoken words. Different to selective mutism – see definition.	Oxford Learners’ Dictionary (2020)
Perfectionist	A word from this study to describe a student’s need to have every task completed perfectly.	CASSIE tool and Oxford Learners’ Dictionary (2020)
Professional Development	Further training undertaken in the education sector to strengthen knowledge and understanding on a topic.	Oxford Learners’ Dictionary (2020)

Repetitive Play	A large variety of behaviours characterised by sameness, rigidity and repetitiveness to describe play activities that are continually repeated.	Honey, E., Leekam, S., Turner, M., & McConachie, H. (2007).
Selective Mutism	A student is unable to communicate verbally when expected in specific situations. A condition requiring a diagnosis and not used in the CASSIE tool.	DSM-5 (American Psychiatric Association, 2013)
Self-conception	A set of beliefs the student has about themselves.	Baumeister, R. F. (1999)
Self-expression	A way a student expresses their feelings or thoughts, which is usually creatively.	Oxford Learners' Dictionary (2020)
Sensory	As a theme in this study, this word pertains to the five senses and the way the student experiences the school environment around them.	CASSIE tool (2020) and Oxford Learners' Dictionary (2020)
Sensory Processing	The way we interact with the world through our sensory prism, which is different for people on the autism spectrum.	Critchley (2019, p. 165)
Stimming	In this study, the word is used to describe a range of repetitive physical movements, sounds or words.	DSM-5 (American Psychiatric Association, 2013)
Theory of Mind	The student assumes the person they are talking to will already know or have experienced the context around the conversation.	Baron-Cohen, Leslie & Frith (1985)
Tic	The word used in this study to describe a student's involuntary spasmodic response to the environment, which was most often in the face.	Oxford Learners' Dictionary (2020)
Universal Design for Learning	UDL is a pedagogical model enabling curriculum access for all children through flexible, accessible learning environments.	Goodall, 2015

## Common Acronyms

AS	Asperger’s Syndrome
CASSIE	Communication, Academic, Social, Sensory, Identity, Encircle: the six major themes that emerged from the data analysis.
DSM-5	The Diagnostic and Statistical Manual of Mental Disorders. Published by the American Psychiatric Association (2013). Because of the number of times this reference appears, because of its well-known status, and for ease of reading, after the first full reference, it is subsequently referred to throughout the text as DSM-5.
FAP	Female Autism Phenotype.
HFA	High functioning autism.
IT (A or B)	Interview with Teacher (of either Alannah or Bree). These are references to primary data sources.
ToM	Theory of Mind.
TP (A or B)	Interview with Parent (of either Alannah or Bree). These are references to primary data sources.
ON	Observation Notes. These are references to primary data sources.
PD	Professional Development.
UDL	Universal Design for Learning.

## Autism Terminology

Throughout this thesis, the terms “autistic” and “on the autism spectrum” are the preferred terminology when referring to a student diagnosed with an autism spectrum disorder. I do not wish to impose either “person first” or “autism first” because some people in the autism community prefer one term over the other (Kenny et al., 2015). However, it is essential for the terms adopted in this research to respect the autistic community (Kenny et al., 2015) who are not only contributors to this study, but who may read the dissemination of findings.

## Chapter 1: Introduction

Children presenting with an autism spectrum disorder (ASD) is a well-known phenomenon in schools, but research and contextual evidence (Carpenter et al., 2019; Cook et al., 2017; Jarman & Raynor, 2015; Moyse & Porter, 2015; Ranson & Byrne, 2014) suggest there are limited understandings of the nature and requirements of autistic children by teachers, school support staff and school administrators (Cook et al., 2017). When teachers lack knowledge and understanding of autism, there is less likelihood that they are enacting appropriate strategies and approaches to assist the learning of such children. A lack of knowledge further limits the possibility that teachers understand there are differences between the ways in which boys and girls on the autism spectrum present at school. More is known about autism traits associated with boys than how they present in girls (Cook et al., 2017) and has led to the learning needs of autistic girls being overlooked (Carpenter et al., 2019) and also misunderstood.

Problems at school for young children on the autism spectrum are exacerbated by social discourse that uses the words “disability” and “disorder”, indicating a deficit in ability or that something is “wrong”. However, when identified (Goodall, 2013), some autism deficits could be viewed as strengths or advantages. There is an inconsistency in language and definitions of autism (Cleaton & Kirby, 2018). Instead of a disability or disorder, as used in the formal term, autism is regarded by some as more of a neurological difference (Goodall, 2013). Many people on the autistic spectrum use a former medical diagnostic term, Asperger’s Syndrome, to refer to themselves as “Aspies”, a term coined by an author diagnosed with autism, Liane Holliday Willey (Holliday Willey, 2012). Although now removed from the latest *Diagnostic and Statistical Manual of Mental Disorders 5* (DSM-5) (American Psychiatric Association, 2013) and replaced with the umbrella term of ASD, the term Asperger’s is still used by the autism community. Preferential terminologies used in the autism community also include “aspergian” and “autistic”. A more modern term that encompasses autism to assist with identity is “neurodivergent” (den Houting, 2018).

There has been little research on autistic girls in the primary classroom (Carpenter et al., 2019; Cook et al., 2017; Jarman & Raynor, 2015; Moyse & Porter, 2015; Ranson & Byrne, 2014 ). The purpose of this study was to explore and develop understanding and theory around the teaching and learning of girls on the autism spectrum in the early years of schooling, mainly through observations in primary classrooms. In doing so, the aim was to

develop theory around the experiences of such girls that will inform teachers, teacher educators and parents about how to manage their learning.

There are two parts to the overarching research question for this study:

- 1. What are the (varied) behaviours and characteristics of girls on the autism spectrum in early years classrooms?**
- 2. How can girls on the autism spectrum be best supported in their learning in early years classrooms?**

This brief synopsis is followed by further detail in the rest of the chapter that: (i) establishes the research problem; (ii) specifies the aims of the study; (iii) explains the significance of the research and considers future outcomes. The chapter concludes with an overview of the thesis.

## **Research Problem**

Autism spectrum disorder is an “umbrella” term under the DSM-5 that includes previously separate diagnoses encompassing a wide range of traits and characteristics. Autism is still an emerging area in the field of educational research due to its expansive spectrum, and understanding the non-linear spectrum, the higher functioning autism (HFA) or Asperger’s Syndrome (AS) is still in its infancy (Young et al., 2017). My interest in autism and how it presents in girls stems from a personal journey, leading to extensive reading of books and articles on the topic that came across my news feeds, as well as literature recommended by friends, family and colleagues. My personal interest led to further exploration of this topic at a global level until I came to the realisation that there was something amiss between peer-reviewed, academic research and what the autism community was reporting in social media, blogs and books. It became clear that this gap needed to be addressed to provide a more holistic view of girls on the autism spectrum.

There is increasing awareness about the limited diagnoses of autism in girls, as reported in a Queensland newspaper, *The Sunday Mail*, a few months before data collection for this research project began in January 2018 (Appendix A). The author of the article questioned why so many girls had a “missed diagnosis” and were not as readily identified as boys. The article claimed that going undiagnosed and subsequent interventions were affecting how girls learned in the classroom, with further issues developing by the time they reached high school.

In the final stages of writing this thesis in early 2020, autism again featured in a Queensland newspaper (Appendix B), *The Courier Mail*. Here, the focus was on the failure of

the state's education system to support children on the autism spectrum, arguing that in less than three years, state schools had made little or no progress in supporting the learning of any child on the autism spectrum, let alone girls.

While there may be more attention on preparing teachers in Initial Teacher Education programs to deal with students on the autism spectrum, teachers are not necessarily educated on the traits of autistic girls and their learning needs. Further professional development (PD) in detecting and supporting autistic girls may mean more girls will be referred for formal assessment and receive the support they need to not only navigate primary school but also high school and their transition to adulthood (Cook et al., 2017). Acknowledging that there may be at least one girl on the autism spectrum in every class will also enable teachers to differentiate their practice, even if a student has not been formally diagnosed.

A further dimension to the problem lies in the controversy surrounding the language used in reference to autism (Sproston et al., 2017). Chris Bonnelo, a former primary classroom teacher and now autism activist, had been diagnosed with Asperger's Syndrome.

**Figure 1.0:**

*Meme about autism and associated terminology*



*Note: From Bonnelo, 2018 (Autistic Not Weird Facebook post)*

Bonnello (2018) loved to talk about autism but struggled with terminology. The author pointed out that there is always someone who will take issue with the words used to discuss autism, and it is better to talk about autism than not to talk about it at all for fear of offending.

Throughout this thesis, the terms “on the autism spectrum”, “autistic” or simply “autism” are used to refer to the student participants who were given a diagnosis of autism spectrum disorder level 1 by the DSM when they were diagnosed, to respect the diversity of views. It is important to acknowledge that each individual, professionally or self-diagnosed, has their own preference for how they refer to themselves, and may use identity-first language, e.g. Aspergian, Aspie, Autistic, or person-first language “...with autism” (Singer, 2017). Nevertheless, as Bonello (2018) pointed out, the worst thing is not to talk about autism at all.

While acknowledging the challenges that come with being on the autism spectrum, it is equally, and possibly more important, to also acknowledge the strengths of someone with autism. Underpinning this research is the view that autism is a different neurology, and in alignment with the view of neurodiversity, the word “disorder” is not referred to as part of the “autism spectrum” in this thesis. This is further discussed in the following chapters.

The DSM-5 refers to ASD as an umbrella term and is based on a deficit medical model that focuses on traits most often associated with males. Diagnoses of females are predicated on these same narrow criteria and is one reason why girls do not receive an autism diagnosis, also referred to as a “missed diagnosis”. A “misdiagnosis” can occur when someone is diagnosed with a mental disorder based on a cluster of traits that overlap with autism. The lack of understanding and research about autism in girls is reflected in the disparity of diagnoses between males and females, a ratio of 4:1 (Hull et al., 2020). Missed or misdiagnoses have resulted in inadequate support for girls inside and outside the classroom.

The underlying issues, assumptions and drivers of this research were that (i) girls with autism present differently to boys, but this is not represented in diagnostic tools which are deficit-based; (ii) girls more often have a missed diagnosis or misdiagnosis resulting in a lower proportion of female to male diagnoses; (iii) due to their lower rate of diagnosis, girls are missing out on vital support and understanding in the classroom; (iv) the lack of knowledge on girls and autism means teachers are underprepared to teach girls on the autism spectrum; and (v) due to lower numbers of girls diagnosed compared to boys, there is a lack of research on girls on the autism spectrum in the classroom.

The overview of the literature in Chapter 2 highlighted the gap in the literature on girls on the autism spectrum in early years classrooms and emphasised the need for insights and understanding of this phenomenon.

### **Aims of the Research and Reasons**

In light of the problems outlined above, the overall aim of this study was to develop knowledge and theory about female school children on the autism spectrum and the diverse learning needs of girls and boys in early years classrooms. As identified in the research problem, there is a lack of knowledge about the learning needs of girls compared to boys (Carpenter et al., 2019; Cook et al., 2017; Mademtzi et al., 2017;). One reason for fewer girls being diagnosed than boys is that their presentations may differ. The diagnosis of fewer girls and their misdiagnosis has led to a deficit of knowledge about girls on the autism spectrum in classrooms. Since girls on the autism spectrum are an underdiagnosed phenotype, it is not surprising that teachers often do not have the adequate knowledge or strategies to support them. As mainstreaming students with autism in schools is a relatively recent initiative, there is an urgent need for further research on how students with autism are accommodated (Soto et al., 2012).

This research had two objectives. The first was to record and substantiate evidence of the characteristics of girls on the autism spectrum and their behaviours in early years classrooms. This has already been identified as an area of deficiency, coupled with a shortfall in teachers' understandings and coping strategies to respond to female students. The second objective emerged from the findings of the study and existing theoretical knowledge: to develop a model that can assist teachers to manage the learning and social experiences of girls on the spectrum in their classrooms.

Research that focuses on female students diagnosed with autism in primary classrooms has been limited (Moyle & Porter, 2015). Previous studies on girls and autism are predominantly qualitative, using a thematic data analysis approach with semi-structured interviews (Beteta, 2008; Cook, Ogden & Winstone, 2017; Jarman & Rayner, 2015; Land, 2015; Moyle & Porter, 2015). Few studies employed quantitative approaches; and research methods mainly adopted pre-existing testing schedules (Land, 2015; Ranson & Byrne, 2014). The most similar topic and research design to the current study were ethnographic case studies of three primary school-aged girls conducted by Moyle and Porter (2015). Like this project, the authors used non-structured, non-participant observation and semi-structured interviews. Their data analysis followed an approach outlined by Opie (2004, as cited in



Moyse and Porter, where raw data were organised according to categories and subcategories that emerged from the data and were subsequently refined and revised as more data were added. This approach shares similarities with the thematic data analysis approach of Miles, Huberman and Saldãna (2014) used in the current study.

In view of the shortage of hard research evidence of young girls on the autism spectrum, an additional aim of this study was to explore the topic in great depth, in the form of exploratory case-studies. This entailed spending considerable time observing the behaviours of a limited number of girls over an extended period of time. The research was undertaken over eight months and involved connected dimensions: one was observations of the individual student participants in their classroom settings, and the other was interviews with the girls' teachers and parents. As it turned out, each parental interview was only with the mother of each girl. The data from these two sources were triangulated to produce powerful findings, from which emerged the first principle of this research – to understand in greater detail the varied characteristics of these young girls on the spectrum in early years classrooms.

Cross-case analysis furthered the second aim of the study by identifying patterns and themes within these characteristics, and led to the development of a model for assisting teachers of girls in the early years of schooling to manage their learning and socialisation. The outcomes of the study will give teachers a better understanding of how girls on the autism spectrum best learn and provide them with strategies to assist these students reaching their potential in the classroom.

### **Significance of the Research**

Most previous research on autism was approached from a psychology perspective and involved a majority of male participants, thereby generating disproportionate gender perspectives in the findings (American Psychiatric Association, 2013; Beteta, 2008; Finks et al., 2018; Kopp & Gillberg, 1992; Land, 2015; Moyse & Porter, 2015; Ranson & Byrne, 2014). The majority of studies with a focus on schooling examined the perspectives of teachers; and case studies involved predominantly male participants (Lindsay et al., 2013; Parrish-Morris et al., 2017). They highlighted the DSM-5, in particular the changes from the DSM-IV, where the diagnostic description combined a number of conditions and classified them under one umbrella term, ASD. Psychology paved the way for the recognition of differences in the way males and females on the spectrum present, which explains the

underdiagnosis through misdiagnosis or missed diagnosis of autism in females and why fewer studies focus on girls in a school setting in real-time.

From a schooling perspective, educational studies share conclusions on the need for teachers to accommodate students in their classrooms, particularly professional development on autism and appropriate teaching and learning strategies (Hendrickx, 2015; Jarman, 2015; Sherratt, 2005). Several recent studies recommended that future research focus on female students' perspectives and observing their engagement and inclusion in the classroom (Dykstra Steinbrenner & Watson, 2015; Jarman & Raynor, 2015; Mademtzi et al., 2017; Moyse & Porter, 2015; Ranson & Byrne, 2014).

The findings from a single small-scale qualitative research study cannot be generalised or representative of a larger cohort of participants dealing with the same issues in different geographic locales without clarification and supporting evidence. Nevertheless, the depth of this study and the richness of the data and its findings mean that (i) the emergent theory is transferable; and (ii) it provides a springboard for further research. It is anticipated that future, multiple, independent, small-scale qualitative research studies on girls diagnosed with autism will reinforce the veracity and robustness of this research. As the number of girls diagnosed with autism increases, so too will the number of suitable participants for similar, ongoing studies.

This study sought to expand on the work of previous researchers in the field and responds to the call for further examination of autism with a particular focus on diagnosed school-aged girls. The findings add to the literature on autism and provide evidence-based strategies derived from real-time observations in the classroom. The benefits of the findings are not merely limited to teachers; but also extend to parents, medical practitioners, allied health professionals, and most importantly, autistic girls, particularly those who would otherwise not have received a diagnosis and follow-up support in the classroom.

### **Expected Outcomes from the Research**

The principal outcome to emerge from this research was the development of a communication tool, "the wheel", to facilitate change in the classroom and provide a resource for teachers to support their female students. The wheel was designed to broaden the knowledge of teachers and challenge current beliefs about what autism "looks like" in the classroom, and brings understanding and awareness to the diverse learning needs of school-aged girls on the autism spectrum. The outcomes provide a springboard for further research

in this under-researched area and support the anecdotal evidence in books and blogs, many written by people on the autism spectrum.

In keeping with the emphasis on applied research, the findings will be more broadly disseminated through journal articles in specialist journals and contribute to knowledge in this growth area by enhancing the understanding of academics. The findings and communication wheel developed from this research were presented at a 2019 AARE conference. The intention is to continue sharing this information through in-service training programs (teachers and pre-service teachers) and articles in professional journals to reach broader audiences.

### **Structure of the Thesis**

Following this introductory chapter, Chapter 2 presents an overview of the relevant literature that informed the study. It draws from two categories of literature: (i) literature based on empirical research or professional literature around the phenomenon of autism; and (ii) what is referred to as non-technical literature, i.e., the corpus of literature that emanates from personal memoirs, biographies, blogs and media, all of which are outside the traditional research canon. Topics in the overview include: a history of autism and what researchers understand about autism; the central role of the DSM-5; the prevalence of autism, in particular, females with an autism diagnosis and their traits; and the inclusion of children on the autism spectrum in mainstream schooling. In relation to the non-technical literature, twelve important themes and their relevance to the study are presented from the perspectives of people with autism. Finally, controversies surrounding different models of perspectives on disability – medical, social and activist – are outlined and related back to the theoretical perspectives of this study.

In Chapter 3, the methodology and methods employed in the research are described. The research design, participants, data collection and data analysis, are covered, and importantly for research involving young participants, the ethical considerations outlined. In Chapter 4, the findings from the first of two case studies are described, together with key emerging research themes. In Chapter 5, the findings from the second case study are outlined and the principal themes elaborated. In Chapter 6, the detailed findings are brought together in a cross-case analysis to compare differences and similarities. Importantly, in this chapter, the themes that emerged from the findings are consolidated into a tentative theory that subsequently led to the development of the communication wheel, CASSIE. The ability of CASSIE to stand up to rigorous analysis is the focus of Chapter 7. Chapter 8, the concluding

chapter, summarises the study and includes its limitations, suggestions for future research, and the implications and recommendations for CASSIE. This brings the wheel full circle and wraps up the study of Alannah, Bree and CASSIE, who contributed to furthering our knowledge of girls on the autism spectrum and placed a spotlight on the plight of “invisible” learners.

## Chapter 2: Overview of the Relevant Literature

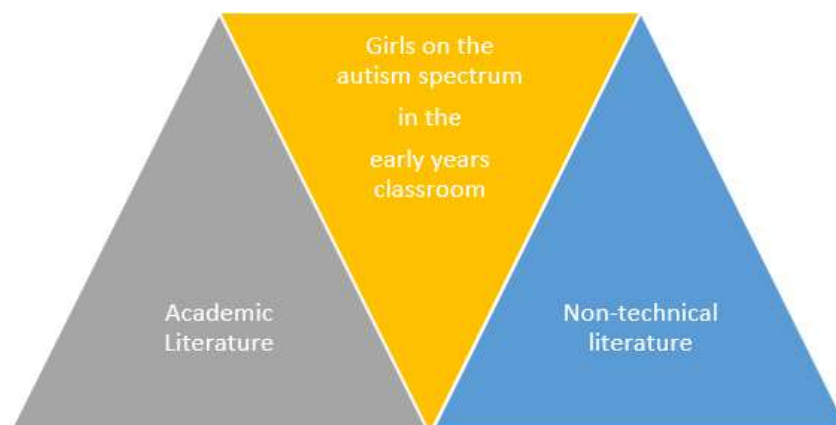
This chapter examines current understandings of autism from a number of perspectives, all with a focus on education, school contexts and young females in particular. It draws on empirical literature in the fields of psychology and psychiatry and acknowledges their historical contribution to the discourse on autism. The review brings together a range of contextual literature, some of which can be termed technical because it is academic and peer-reviewed, and others non-technical, in that it encompasses a range of personal and collective experiences but are not considered as academically rigorous. Collectively, this range of literature has contributed to the quality of the current research by: (i) informing my understanding of the research problem; (ii) deepening my thinking in addressing the research questions; and (iii) supporting the findings from the empirical research in this study and contributing to the development of theory. While autism embraces a number of concerns, my principle focus arose from an education context and reflects my role and expertise as a practitioner in the early years of schooling.

The chapter begins by presenting an overview of autism spectrum disorder (ASD) and the history of thought and responses around this condition. Following this historical account, its prevalence, current understandings and models of disability are discussed, followed by what is known and unknown about its presentation in girls within a schooling context. The chapter concludes with an overview of contemporary understandings and how autism impacts on girls in early years classrooms.

The first part of the literature review examines the peer-reviewed literature on the topic of autism, funnelling down to girls on the autism spectrum and their learning experiences in the early years of schooling. The second part of the chapter draws on the non-technical literature, a primary data source derived from non-academic literature, such as biographies and blogs. These can supplement interviews and field observations when discourse on a topic is in need of further development and highlight ambiguities in academic studies (Strauss & Corbin, 1998). The non-technical literature served to close the gap between peer-reviewed, academic literature and “autistic voices”, reducing the delay in acquiring current knowledge and increasing understanding and acceptance of the female autism phenotype (Figure 2.0). This same model can be applied to other research topics that require a deep understanding of a particular social phenomenon.

**Figure 2.0**

*Bridging the gap between peer-reviewed literature and non-technical literature.*



## **History of Autism**

The history of autism is confronting, with an evolving line of thought that includes many misconceptions and perspectives from “refrigerator mothers” to “rain man” and “extreme male brain” (Silberman, 2015). Due to pathologising traits and stigmatisation, today’s knowledge and understanding of autism is still in its infancy and appears some way off from understanding and acceptance of this different way of thinking. Even more glaring is the lack of research on autistic girls that has led to a gap in empirical research on autism, particularly in an Australian context. Although the early years of research on autism provided increasing clarity on these students in schools, when presented through the lens of ingrained theories, many autistic females have been prevented from receiving support or understanding through a diagnosis (Carpenter et al., 2019).

Child psychiatrist Leo Kanner identified the “classic” model of autism towards the middle half of the last century (Kanner, 1943; 1944; Silberman, 2015; Singer, 2017). Kanner identified traits, such as children/young people appearing to be in their own world, ignoring others, focussing on rituals, amusing themselves for hours and not coping with change. Additionally, these traits could be verbal and non-verbal ( Silberman, 2015). Kanner used the term “autism” from the Greek word for self (autos) to describe this cluster of traits, as these children “seemed happiest in isolation” (Silberman, 2015, p. 5).

At the same time, Asperger’s Syndrome, commonly known as Asperger’s, was first identified by Dr Hans Asperger who noted some similar characteristics of children in his

paediatric practice (Attwood, 2004; Silberman, 2015). Although Asperger described similar traits to Kanner's model of autism, there were differences. He referred to his patients as "little professors" due to their abilities in math and science (Silberman, 2015, p. 6). However, this more positive view of Asperger's work is tainted by his link to the Nazi era, where he was said to be amongst doctors who had the power to make decisions about the fate of children who did not meet certain physical and mental abilities (Scheffer, 2018; Szalai, 2018). Although this origin of autism and the term "Asperger's Syndrome" are shrouded in this tainted narrative, it was the starting point for discourse on autism.

When Lorna Wing, a psychiatrist, had a daughter who was diagnosed with Kanner's classic autism in the 1960s, it was almost unheard of for a female to receive an autism diagnosis. Following the realisation that her daughter had autism, Wing made it her quest to seek out the supports available to families of children like her own (Silberman, 2015). Wing (1981) found that many children did not fit the mould of Kanner's rigid traits and set out to expand the definition of autism, proposing that it was a "continuum" and later adopting the term "spectrum" (Silberman, 2015, p. 353). In many ways, through her personal advocacy for her daughter, Wing was a pioneer of recognising that females could also be diagnosed with autism. Her credentials as a qualified psychiatrist married to a medical practitioner allowed her work to be recognised by the broader medical community.

Despite Wing's work, several decades later the connection between autism and girls remains relatively undiscovered and far more is known about autism in males (Tomlinson, Bond & Hebron, 2020). Singer (2017) argued that work around autism was "gaining momentum" in the 1990s thanks to medical professionals like Tony Attwood and Lorna Wing who laid the foundations for progress. During this time, autism diagnoses were increasing and spreading fear of an "unknown epidemic" (Silberman, 2015, p. 6), reflecting the ignorance around autism as a disease. Clearly, autism had existed for a time, but the clusters of traits had not yet been named.

## **The DSM-5**

The works of Kanner, Asperger and Wing, among others, reflect the genesis of the condition in the medical field of psychiatry and it is, therefore, appropriate to consider the psychiatric perspectives of autism. American Psychiatric Association's (2013) Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) is the latest in an evolution over many years, with hundreds of professionals around the world, mainly medical practitioners, contributing to the diagnostic criteria for mental disorders to assist clinicians with treatment

recommendations. In 2013, autism was reclassified under the “umbrella” term of autism spectrum disorders (ASD) in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), along with Asperger’s Syndrome, Rhett Syndrome, Pervasive Developmental Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS). This view of autism nomenclature was intended to reduce some of the confusion of labelling and differentiating between this group of disorders (Kite et al., 2012). However, the use of one term, “autism”, has resulted in confusion about where people diagnosed under the range of autistic-like conditions should be placed along the autism spectrum (Bennett & Goodall, 2016). This is particularly problematic when individuals are overlooked or misdiagnosed, particularly females, or when the preconceived view is that the overarching diagnostic term is “Kanner-type” or “classic” autism traits.

Throughout this research project, the fifth edition of the DSM prevailed. “Clinical training and experience” (5TH ED.; DSM-5; American Psychiatric Association, 2013, p. 5) are required to use the DSM or the ICD-11 (World Health Organisation, 2018) manuals as tools for making a diagnosis. The criteria are used by health professionals, such as paediatricians, psychologists and psychiatrists, for determining whether a person presenting with a specific cluster of autism traits meets the ASD criteria, which has been typically viewed as geared towards the male gender stereotype (Ranson & Byrne, 2014). As there is no definitive biological test for determining autism, a process is followed that involves a number of tests and observations by multiple stakeholders, such as parents, teachers, speech therapists and occupational therapists, to assist medical professionals with making a diagnosis. A diagnosis of ASD is now assigned a “severity specifier” of level 1, 2 or 3, depending on the support required; however, this does not align with the severity of social communication difficulties or repetitive behaviours (American Psychiatric Association, 2013).

There are many autism assessment tools available to clinicians, which is why Australian guidelines were developed to improve consistency of the diagnostic process of ASD in this country (Whitehouse et al., 2018). The Cooperative Research Centre for Living with Autism (Autism CRC) and the Commonwealth Department of Social Services developed the *Diagnosis and Introduction of the National Guidelines for the Assessment and Diagnosis of Autism Spectrum Disorders* (Whitehouse, et al., 2018) with two parts: (i) A Comprehensive Needs Assessment (CNA); and (ii) a Diagnostic Evaluation (DE). The CNA consists of a functioning assessment and a medical assessment, whereby information is gathered by medical or allied health professionals about a child’s developmental and



functional abilities, including their medical and family history, and a general physical examination is conducted by a medical practitioner (Whitehouse et al., 2018). The DE uses the CNA information to evaluate whether the criteria for a clinical diagnosis of autism are met, and if not, reviews other considerations that could explain the person's presentation. The DE is conducted by a single clinician. If high diagnostic confidence is not achieved, the case is referred to a consensus team (Whitehouse et al., 2018). These two parts form the written component of the report and provide the rationale for a diagnosis to ensure appropriate support and funding can be accessed. The guidelines provide a holistic approach to the diagnostic process that incorporates the autism spectrum disorder criteria from the DSM-5 and the 11<sup>th</sup> revision of the International Classification of Diseases (ICD-11) published by the World Health Organisation (2018).

### **Prevalence of Autism: Boys, Girls and their Diagnoses**

The cluster of deficit-based traits for ASD identified in the DSM-5 are oriented toward males (Ranson & Byrne, 2014), leaving girls undiagnosed or misdiagnosed when their collective autistic traits are misinterpreted and categorised under a mental illness rather than autism (Carpenter et al., 2019). According to the traditional definition of autism, identified as a male syndrome, the number of children diagnosed with ASD has risen over the last decade (Sproston et al., 2017). The higher rate of diagnoses does not mean the number of people who have been born with the condition has risen; rather, it is illustrative of a better understanding of autism due to ongoing research, education and awareness (Carpenter, 2017). Further research on girls and autism is likely to see the number of female diagnoses increase, shrinking the gap between males and females.

The lack of knowledge around girls and autism due to a dearth of research leaves many girls unsupported, misdiagnosed and misunderstood, even though they may receive a later diagnosis as an adult (Carpenter, et al., 2019; Cook, et al., 2017; Mademtzi, et al., 2017). The later diagnoses of women may be one reason why ASD is statistically diagnosed four times more in males than females, since it presents differently in males (American Psychiatric Association, 2013; Mademtzi, et al., 2017; Morse & Porter, 2015) and diagnostic tools derived from the DSM-5 are skewed towards male traits and characteristics of autism (Ranson & Byrne, 2014). Another reason frequently cited for missed or late diagnoses in females is their ability to mask traits associated with autism (Cook, et al., 2017; Ranson & Byrne, 2014).

To illustrate the lack of research on autistic girls, literature on autism was coded at the beginning of the research project to identify sources that focused on both boys and girls as well as each individual gender. Figure 2.1 displays the original literature that included journal articles, mainly from the Scopus database, theses and other sources, coded into themes by NVivo™, a qualitative software program.

**Figure 2.1**

*Coding of the literature in the Qualitative Software Program, NVivo™*

Name	Files	References
Emergent Nodes	0	0
Anxiety	6	35
Classroom	31	54
Academic	2	2
Bullying	6	21
Collaboration	14	28
friendships	5	21
Social	4	5
communication	4	5
Playground	1	12
Teachers	7	14
professional developme	2	8
transition	3	9
History	9	11
HWCA to NDIS	1	2
Inclusion	21	61
Inclusion strategies	9	25
intervention	16	30
IEP	0	0
Limitations	2	2
Methodology	14	21
Recent studies	43	70
Traits of AS	19	55

The literature on autism and females was then separated and recoded into themes that were used as a starting point for coding in Chapters 4, 5 and 6. Figure 2.2 shows that the literature on autism and females comprised a small percentage of the overall discourses on autism. Nine main topics emerged from the initial coding of the literature to form the emergent codes or themes for the data analysis chapters. Starting with the most discussed topics they were: (1) masking or camouflaging abilities; (2) acknowledgement that there are differences between male and female phenotypes; (3) social/friendships; (4) autistic female stories; (5) language and cognition ability; (6) less aggressive traits; (7) the need for

intervention; (8) creative, artistic traits; (9) stress and anxiety. Masking or camouflaging was the most referenced, closely followed by differences between male and female phenotypes.

**Figure 2.2**

*Recoded themes on autism and females*

Name	Files	References
intervention	16	30
Limitations	2	2
Methodology	14	21
Recent studies	43	70
females	12	33
future studies	27	35
Traits of AS	19	55
Description	40	68
Diagnosis	19	44
DSM V	12	18
<b>Females</b>	<b>11</b>	<b>31</b>
acknowledgement o	6	6
autistic female storie	3	5
creative, artistic	1	1
interventions neede	1	1
language and cognit	3	4
less aggressive	1	1
masking or camoufla	7	7
social - friendships	4	4
stress and anxiety	1	1

The literature coded in NVivo™ was imported through referencing software, Endnote™. Figure 2.3 shows the large amount of literature that was reviewed for this research study with only 22 pieces devoted to the topic of females and autism, signalling the lack of research in this area.

**Figure 2.3**

*Endnote™ database of literature reviewed on autistic females*

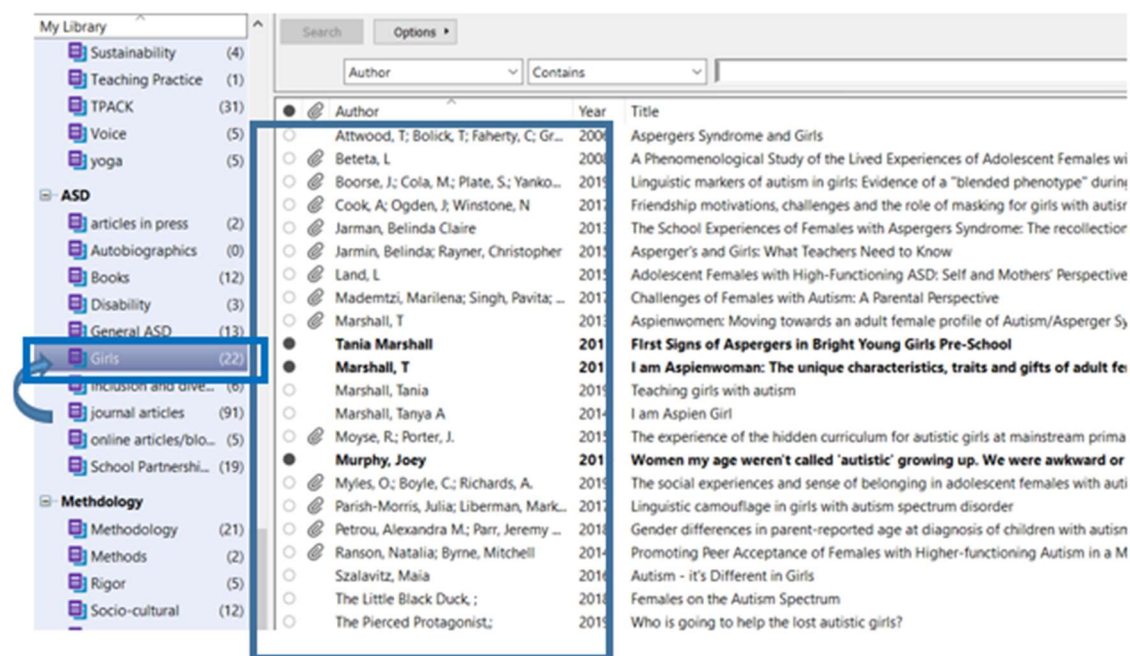


Figure 2.3 shows a subfolder under “ASD” labelled “Girls” with a smaller proportion of literature focused solely on females and autism – most of them published within the last five years. The “Girls” subfolder included literature already filed under other subfolders of “ASD”, including research on either or both genders. Research on girls and autism is still gaining momentum, and what is known about this phenotype is still in its infancy.

### Female Autism Traits

There is evidence that teachers may not know how girls on the autism spectrum present in the classroom and therefore may not know how to best support them (Myles, et al., 2019). Two reasons are provided for this: (i) females may not receive a diagnosis until their later schooling years or adulthood; and (ii) females are better at masking or camouflaging their symptoms through the use of strategies such as mimicking and scripting (Myles et al., 2019). Due to being able to mask their inadequacies and mimic others, girls on the autism spectrum are perceived as “normal”, with the result that many autistic girls “fly under the radar” and suffer in silence during their primary years (Attwood, 2006).

As girls on the autism spectrum grow older, they are more likely to be misdiagnosed with mental health issues (Myles et al., 2019). Misdiagnosis can have devastating long-term effects, as undiagnosed females may be medicated, develop limited survival strategies and are often left to navigate a challenging world as “misunderstood” individuals, leading to a plethora of problems in their adulthood (Holliday-Willey, 2012). Thus, it is important for teachers to understand how girls on the autism spectrum present in the classroom and recognise the need for a referral so that these students receive support and intervention in the early years.

A critical element of diagnosis for girls on the autism spectrum is camouflaging and appreciating that differences between the ways in which boys and girls present will aid the implementation of appropriate support and integration (Attwood, 2006). Attwood documented the links between girls camouflaging and autism as early as 1995, but this has only recently been explored more deeply in the academic literature. Camouflaging or masking is one of the most prevalent topics in the academic literature and online resources, most often associated with girls, although boys can also camouflage (Jarman & Rayner, 2015; Mademtzi, et al., 2017; Moyse & Porter, 2015; Parish-Morris et al., 2017; Petrou et al., 2018;). Camouflaging is characterised by girls who mask their social communication difficulties through observing and mimicking perceived social norms (Attwood, 1995; Parish-Morris et al., 2017). Girls on the autism spectrum often use camouflaging strategies to fit in with friendship groups (Petrou et al., 2018). This ongoing camouflaging and masking of their struggles to understand the social world can result in stress and anxiety (Moyse & Porter, 2015). Camouflaging, social difficulties and anxiety are all interlinked, which explains why they are prevalent topics in the discourse on “autism and girls”.

Children on the autism spectrum have more difficulty with social interactions compared to their neurotypical peers (Winchell, Sreckovic, & Schultz, 2018). Difficulties with social communication affect their interaction with peers, both in the classroom and playground, and impact on their friendships (Gilmore, Frederick, Santillan, & Locke, 2018). However, girls on the autism spectrum are more likely to engage in social interactions through observations and mimicking, as they are usually more socially aware (Petrou, 2018) and these subtle differences make it difficult to identify a girl on the autism spectrum.

Anxiety is a common trait of autism spectrum disorders, and to date, little research has explored the link between children on the autism spectrum and anxiety in a schooling context (Adams et al., 2018; Adams et al., 2019; Syriopoulou-Delli, 2018). What is known is that anxiety and stress, particularly from academic, social and environmental factors, impact

the school experiences of autistic children (Adams et al., 2018; Adams et al., 2019; Syriopoulou-Delli et al., 2018). Although anxiety is prevalent amongst autistic children, it is not predominantly attributed to one gender; however, its presentation may differ in boys and girls (Hendrickx, 2015). For example, favourite interests may differ between boys and girls but the interest is used in the same way – to immerse themselves in knowledge as an escape from anxiety. Girls may prefer animals, characters from books and collecting things more than boys (Hendrickx, 2015). Girls also tend to internalise their anxiety, resulting in emotional outbursts (Hendrickx, 2015). In other words, how autistic girls experience anxiety and the strategies they use to cope may differ from boys.

As females on the autism spectrum are under-represented in the research, female stories are often shared to gain insights (Jarman & Rayner, 2015). Jarman and Rayner presented themselves as case studies and shared their personal stories and knowledge of being on the autism spectrum. Temple Grandin in *Asperger's and Girls* (2006) and Wendy (Wenn) Lawson in *Girls and Autism: Educational, Family and Personal Perspectives* (2019) are frequently cited works throughout this thesis. They highlight the importance of listening to the voices of females with autism by adding an element of authenticity to the academic discourse. Academics also emphasised the enormous challenges experienced by girls with autism, even when they perform well academically (Beteta, 2008; Jarman & Rayner, 2015). In her thesis (2013), Jarman talked about the lack of teachers' understanding and the social challenges encountered by females on the autism spectrum and described their impact on learning in the classroom. She emphasised the need to educate teachers on girls with autism (Attwood & Grandin, 2006) since despite their lack of training, teachers are often the first to notice something different about a child's social and academic development (Attwood & Grandin, 2006).

Many anecdotal and clinical observations exist on the female profile of autism in the form of checklists and online stories about “lived experiences”, as a resource for girls who have been misdiagnosed, have a missed diagnosis or are seeking answers to explain their differences (Craft, 2016; Marshall, 2015; 2016; Starlight and Stories, 2018; The Little Black Duck, 2018). Tania Marshall is an Australian psychologist, specialist and prolific writer on autistic girls and women, who has published numerous books and blogs on the female presentation of autism, including *I am Aspien Girl* and *I am Aspien Woman*. Marshall (2019) described two variants of girls on the autism spectrum: those who are “quieter and more reserved” and those who are “loud and outspoken”. She explored the many overlapping traits between these two variants of girls on the autism spectrum, as well as themes such as

masking, anxiety, perfectionism, emotion, high achievement and better social understanding in autistic females and males, acknowledging that many of these traits make it difficult for teachers to identify and support autistic girls, in turn, impacting on their learning. To make matters worse, many teachers do not receive vital training for understanding autism and developing strategies to improve the school experiences of autistic students (Marshall, 2019).

Jarman's (2013) research involved interviewing adult females about their experiences at school. The author proposed further case studies on school-aged females on the autism spectrum to enhance understanding and recognise their unique challenges and characteristics. A key outcome of the research was a resource to support teachers of young girls in the classroom; however ethical considerations made it impossible to conduct interviews to attend to the voices of the two case study participants, as was the case in my research project. As research often lags behind clinical and anecdotal observations, Jarman's work was important for advancing our understanding of the relatively new medical term ASD (Marshall, 2015).

### **Non-Technical Literature**

A review of the non-technical literature was included in this study as an additional source of information on the lived experiences of people whose lives are touched by autism. These sources are non-technical in the sense that they are not peer-reviewed or derived from empirical research, and while outside the parameters of a conventional literature review, were important for informing this study. This was partly a reflection of the paucity of literature on autistic girls in the academic canon.

Part of my research involved using academic empirical sources to "explore" occurrences of the phenomena described or commented on by authors of the non-technical literature in different media, such as news articles, books, blogs and social media. The perspectives provided by people helped me to understand their experiences at school and how they were treated. Triangulating the different perspectives and honouring the voices of the autistic community was an attempt to close the gap between what is known and understood in the academic and autistic communities. One problem is that early childhood students, like Alannah and Bree, are unable to report their experiences in the way adults can from the perspective of hindsight, which is what made autistic adults' retrospective accounts of their schooling so valuable. Numerous non-technical literature sources are mentioned throughout this thesis, restating the gap between academic research and the anecdotal evidence available in the non-technical literature.

Twenty-six works of non-technical literature (Appendix C) that I read or reviewed over the last five years were included in this literature review; a number of them have been referred to in other chapters of this thesis. They served to broaden my knowledge and perspectives of current issues and debates within the autism community. From the 26 chosen sources that included books, newspaper articles, informal interviews and social media posts, I organised the ideas (Appendix C) into 11 most commonly occurring themes: Anxiety; Masking; Sensory Issues; Friendship and Socialisation; Intense Emotions/Sensitive; Routines and Schedules; Comorbidities; High Intelligence; Female Phenotype/Diagnosis Ratio; Meltdowns; and Narrow Interests. Each theme is discussed below from the perspective of the autistic voice.

### **Anxiety**

Anxiety was described as a trigger for meltdowns due to sensory overload (Dark, 2019). Anxiety also falls under the theme of Comorbidity, since anxiety disorders can be diagnosed alongside autism; however, it is often discussed as a separate topic. Although there are triggers for anxiety, embracing an autistic child's special interest can reduce their anxiety levels (Starlight & Stories, 2018). One reported experience described evidence of an autistic woman's anxiety as repetitive behaviours, such as playing with her hair and tapping her foot (Russo, 2018).

### **Masking**

Masking is thought to be a more common trait in the female phenotype and is one of the most frequently occurring traits in females (Hayden, 2020, Little Black Duck, 2018). As girls are more socially aware, they are inclined to "mask" in order to be socially accepted and fit in (Hayden, 2020). Behaviours such as forcing eye contact, scripting and mimicking are all examples of masking (Hayden, 2020). Girls also mask by suppressing their emotions, letting go when they get home, which is when meltdowns typically occur. Although masking is viewed as a female trait, there is some evidence that males also mask to fit in, but the ways in which they mimic and express emotion differs from females (Rose, Skype interview, 16<sup>th</sup> December 2019).

### **Sensory Issues**

Many sensory issues may affect how autistic students learn at school, yet it is a neglected area within the academic literature (Grandin & Panek, 2014). The school experience can be stressful due to sensory overload from bright lights, crowded, noisy



classrooms and hallways (Castellon, 2020). A few adjustments can provide a more conducive environment for autistic students; including adjusting lights, sensory/fidget necklaces and headphones (Castellon, 2020). While sensory issues can be overwhelming and cause some level of anxiety for autistic girls (Szalavitz, 2016), small changes can make a big difference to their learning.

### **Social/Friendships**

Craft (2016), an autistic mother, shared her own experiences and insights of social interactions. She claimed that friendships are difficult to make and retain for reasons of oversharing; girls focusing on their own interests; confusion over social expectations; and overthinking social communication. Girls often study other girls to learn about social interactions, but this constant effort to fit in takes its toll on autistic girls in the form of exhaustion and source of anxiety (Russo, 2018). Understanding the rules and expectations of social interactions also makes it difficult for autistic girls in the playground and sometimes it's easier and less onerous to play by themselves, even though they want to be included (Hendrickx, 2015).

### **Intense Emotions**

Intense emotions can stem from hypersensitivity to negative emotions that, when combined with bullying and rejection, may lead to a misdiagnosis of a different disorder (Holliday-Willey, 2012). An inability to deal with intense emotions from constantly trying to fit in socially can lead to issues of low self-esteem and self-identity (Holliday-Willey, 2012). One reason autistic girls struggle with emotions is that they are hard to identify. Emotions such as fear and outrage are more difficult to distinguish than feelings of joy and calmness (Craft, 2016). In her book *The Spectrum Girl's Survival Guide*, autistic teenager, Castellon (2020, p. 100) outlined a four-step approach that helped her through her schooling: (i) name what you are feeling; (ii) accept what you are feeling; (iii) express your feelings; and (iv) practice self-love to assist with controlling intense emotions.

### **Rituals and Routines**

Autistic students like the predictability of rituals and routines as a way of managing anxiety – it gives them time to mentally prepare for the day ahead (Castellon, 2020). The need for routine and rituals can also be seen as a need for control, but this is a simplistic label for the complexities of autism (Simone, 2010). An unexpected deviation from routine or rituals can lead to meltdowns (Simone, 2010). However, prior notice and explanations for a

change of routine can minimise stress and anxiety (Hendrickx, 2015). At school, routine can provide a sense of safety and relief, as long as they are understood (Hendrickx, 2015).

## **Comorbidities**

In this context comorbidities refer to more than one condition co-occurring with autism. Two common comorbidities are Attention Deficit Hyperactivity Disorder (ADHD) and anxiety disorders (Craft, 2016; Hendrickx, 2015; Pang, 2020). Joey Murphy (2019), a writer and teacher at university, received a late diagnosis of autism and was also diagnosed with ADHD, dyslexia and other learning disabilities. Murphy reported that while these comorbidities did not affect her academically, they did create challenges. The later the diagnosis for a female, the more likely it is that they will receive more than one diagnosis (Hendrickx, 2015).

## **High Intelligence**

The autistic voices in the non-technical literature demonstrated their cognitive and academic abilities through their writing and achievements (Appendix C). Girls with higher intelligence may not score high enough on autism testing instruments to receive a diagnosis, resulting in a missed or misdiagnosis (Russo, 2018). An autistic girl's academic capability may not always be evident, as she may struggle with group work and class participation (Castellon, 2020).

## **Female Autism Phenotype/Diagnosis Ration**

Several autistic writers collated a checklist of autism traits believed to be representative of the female autism phenotype (Craft, 2016; Little Black Duck, 2018; Marshall, 2015; Hayden, 2020). The traits they listed were derived from their personal and lived experiences, rather than formal diagnostic tools such as the DSM-5 manual. Coupled with diagnostic tools geared towards male presentation (Fields, 2020), differing presentations of autism in girls and boys has led to disparate diagnosis rates. Fewer girls are diagnosed at an early age, and many are either misdiagnosed or undiagnosed until they reach adulthood.

## **Narrow Interests**

Interests vary between boys and girls. However, autistic boys and girls usually have narrow interests, with girls often drawn to animals, dolls or celebrities (Russo, 2018). Intense interests can be used by autistic people as a distraction from the challenges of the world and act as a "form of escape" (Castellon, 2020, p. 95). It can also lead to them becoming very

well versed on their subject of interest. For example, autistic teenager, Greta Thunberg, is best known for her activism on climate change and claims that her Asperger's diagnosis was based on climate change being her "superpower", enabling her to "think outside the box" (CBC News: The National, 2019).

## **Meltdowns**

Meltdowns are "crippling, intense and debilitating" (Simone, 2010, p. 108) and a result of something real that has occurred. A meltdown is different from a panic or anxiety attack (Holliday Willey, 2012) and usually involves vocalisation, such as screaming, and an inability to stop or communicate. It is typically accompanied by stimming, and results in exhaustion, and at times, memory loss of the meltdown. They are usually triggered by an event or a build-up of sensory input until the child becomes overwhelmed (Testoni, 2018).

Some of the themes described overlap others, as they either trigger, work together or reduce certain behaviours. For example, anxiety can be linked to masking, stimming, comorbidities, sensory issues, meltdowns and exhaustion. Autism is complex and requires deeper understanding than a diagnostic tool can provide. Combined with evidence-based research, the non-technical literature explored in this section provides a more current and holistic understanding of autism in girls. Delving deeper into this perspective, the next section describes models of disability and the various perspectives of disability, specifically the medical and societal views on autism.

## **Inclusion of Children on the Autism Spectrum in Mainstream Schooling**

In the education setting, inclusion can be described as "a set of processes concerned with removing barriers to presence, participation and progress for all students" (Hyde, 2017, p. 7). Inclusive education refers to the right of all students, including those with a physical or neurological disability, to receive an equitable education alongside similar-aged (Queensland Department of Education, 2020). Some disabilities, such as autism have invisible traits, making it more difficult to respond and implement strategies that promote inclusivity. Students with a verified disability have the right to access the same education as students without a disability, and this rights-based approach has seen a rising number of students on the autism spectrum attend mainstream schools, rather than separate schools for "special education" (Goodall, 2015). In saying this, there would be undiagnosed students who are attending mainstream schools and if identified at school as a student needing to be referred to a medical practitioner, they may be diagnosed on the autism spectrum (Sun et al., 2015). For several reasons they have been misdiagnosed or not yet diagnosed, such as: (i) parent or

teacher missing the signs of autism; (ii) parents' refusal for the child to be diagnosed; (iii) viewed as quirky, different or naughty; and (iv) the student is female. This is not to say all students who are "quirky" are on the autism spectrum, as several traits need to be present for a diagnosis, but suggests following up with students who may present with some known autistic traits to see whether a referral is needed. A diagnosis may ultimately provide the student with extra support and understanding. The challenges of ensuring an inclusive education for students with autism in general education environments often stem from their unique individual characteristics (Liu, 2018; Marshall & Goodall, 2015).

Teaching resources is one tool for better supporting autistic students with their learning needs through inclusion in the classroom. One such resource is *How to support and teach children on the spectrum* (Sherratt, 2005). The book's statistics are outdated, and the author contends that a cure has not yet been found, implying that autism is a condition that can be cured. It provides a general background and understanding of autism traits and difficulties but does not recognise or differentiate between girls and boys. Nevertheless, the book cites specific strategies that may assist teachers with inclusion in the classroom. Current resources on autism are not widely available, reinforcing the need for developing comprehensive resources to support teachers of girls on the spectrum, especially in early years classrooms.

Sproston et al. (2017) acknowledged the lack of research on inclusion of girls on the autism spectrum. Their study used semi-structured interviews with girls on the autism spectrum (aged 11-18) and their parents, and found inclusive attitudes and positive relationships with parents essential for successful inclusion. The three main findings for excluding girls on the autism spectrum from general education classrooms were: (i) non-conforming behaviours related to communication issues, and more specifically, inappropriate school environments (including sensory); (ii) tensions in school relationships (staff and peers); and (iii) problems with staff responses (between parent and staff) – all arising from a lack of understanding the girls' needs. The researchers recommended further studies on anxiety and friendships and their effect on the exclusion of girls with autism.

In an ethnographic case study, Moyse and Porter (2015) examined three girls on the autism spectrum and the difficulties they encountered in mainstream primary schools. The authors found the stress of transitioning between class and play times and challenges associated with social interaction during those times impacted their behaviour and learning. The study acknowledged the differences between boys and girls on the autism spectrum, in particular, that girls often used strategies like masking to cope in mainstream schools by

hiding and internalising their anxiety. As these case studies were conducted over a short period of time, the researchers recommended further observations over an extended period of time to increase reliability. The current thesis was an attempt to address this call.

## **Models of Disability**

The previous section discussed the importance of both academic and non-technical literature for bridging the gap in our current understanding of girls with autism. To extend those understandings, various models of disability are examined next to determine where autism fits within the sector, an issue of continuing debate and contention. Several models of disability are referred to in the research literature, such as religious, ableist, social and medical. Most commonly referenced is the social model in juxtaposition with the medical model, the two often viewed in opposition (Singer, 2017). A firm grounding in medical history makes it difficult to shift the lens on autism from a deficit-based model to a focus on strengths. What constitutes a disability in one context may be considered an ability in another, and therefore there is more than one definition of disability, depending on the perspective (Mitra, 2006). The word “disabled” is commonly viewed as denoting something is wrong and needs to be cured (Angulo-Jimenez & DeThorne, 2019; Singer, 2017). In this research on autism, disability is “an umbrella term, covering impairments, activity limitations and participation restrictions” (WHO, 2020) affecting the continuing limitations of a person in everyday activities.

### **Medical Model vs. Social Model**

The medical model/social model debate is frequently highlighted in the literature (Alsharif, 2019; Liu, 2018; Manago, 2017; Pickard, 2019; Singer, 2017) and is included in this overview to acknowledge how far our thinking has come in terms of what autism is or is not and how it presents in everyday life, particularly in the context of the classroom. It is important to draw attention to the fact that although autism has its roots in psychology and psychiatry, this research was conducted from an education perspective. The medical/social model dichotomy has been included, because although my background is education and the research applies to this discipline, it is important to acknowledge the contribution of knowledge from others.

The medical model view of autism is evident in the DSM-5 (American Psychiatric Association, 2013), which focuses on the deficits of mental disorders. The DSM-5 lists deficits and classifies a cluster of traits that provides a diagnostic label to explain the way

people are (Angulo-Jimenez & DeThorne, 2019). The medical model emphasises “fixing” or “curing” a person’s disability through diagnosis, intervention therapies and treatments (Manago et al., 2017). While the medical model views disability through a deficit lens and focuses on the need for intervention (Angula-Jimenez & DeThorne, 2019), its role in professional diagnoses of autism is undisputed, as it enables access to funding and support services, and provides individuals (and their families) with a sense of clarity and understanding.

In contrast, the social model is an alternative perspective; founded on the view that what needs adjusting is society’s inability to accommodate and accept people with a disability (Alsharif, 2019; Manago et al., 2017; Singer, 2017). It promotes positive identities for people with a wide range of disabilities, including neurological ones, in a society based on political agendas (Manago et al.). The social model reframes disability as more positive and accepted by society (Manago et al.) – also the aim of this research project in the context of the classroom. These authors pointed out that parents use both the medical and social models to address the challenges that come with their child’s disability, including the effects of stigma, and suggested that neither the medical nor social model can serve as a single overarching theory of disability. They also argued that these models do not operate in isolation or opposition. Lui et al. (2018) identified a shift in recent times from the medical model to the social model of disability.

Mediation is needed between the social and medical models to reframe how society views disability, reduce stigma and promote acceptance. One model that is emerging from this binary view is the neurodiversity paradigm, stemming from an extension of the social model (den Houting, 2019). Singer (2017) is credited with coining the term “neurodiversity” in the belief that “we need to go beyond the dichotomy of the medical model vs. social model” (p. 615).

Also aligned with advocates of the social model, the activist approach extends this viewpoint by actively seeking to improve the lives of those living with a disability through direct action; in the case of this research, girls on the autism spectrum. Several academics specialising in areas that involve human rights regard themselves as activists (Lennox & Yildez, 2020). Lennox and Yildez used the term “activist scholarship”, aimed at “furthering justice and equality in various forms” (p. 5). While activism is often politically charged (Lennox & Yildez), this is not the case in my research, which is aimed at promoting awareness, understanding and reframing our perceptions of autism. An activist approach to

research suggests that an alternative, extended perspective is appropriate, as outlined in the following section.

## **Neurodiversity**

Singer (2017) expanded on the idea of the social model via the emerging phenomenon of “neurodiversity” and described three categories of disability: Physical, Intellectual and Psychiatric. She went on to say that “high functioning autistics” often found themselves not adequately explained as having a mental illness within the psychiatric disability category and defined a new category of disability – social communication. The concept of neurodiversity was a culmination of Singer’s research and personal experiences of struggling with a “hidden disability”, eventually realising the social model did not reflect the “diverse bodies and minds” of autistic people (p. 171). Singer stridently described those with ASD as having a “neurological difference, not a personality flaw” (p. 105).

### **Reframing Autism – the Neurodiversity Paradigm**

Given the history of autism, the medical and social models, people’s lived experiences and the adoption of the term “neurodiversity” within autism discourse, Silberman’s (2015) modern view of autism as a “different operating system” is a favourable one (p. 471). The Neurodiversity Paradigm began to emerge in the late 1990s (Angulo-Jimenez & Delthorne, 2019; Silberman, 2015) to explain the concept that there is not just one type of “normal” brain.

The Neurodiversity Paradigm is a specific perspective based on a set of philosophical principles (Walker, 2014) and encompasses a number of neurological conditions, including ASD and Attention Deficit Hyperactivity Disorder (ADHD) (Singer, 2017). The Neurodiversity Paradigm should not be confused with the Neurodiversity Movement which is focused on activism, although the Neurodiversity Paradigm may provide the philosophical foundation for the activism.

The Neurodiversity Paradigm highlights the cognitive strengths of people on the autism spectrum (Silberman, 2015). It is sometimes considered an “outgrowth” of the social model and opposite to the medical model whereby autism is portrayed as a disorder rather than a neurological difference (Angulo-Jimenez & DeThorne, 2019, p. 570). As “neurodiversity” is a recent descriptor, few research projects have been conducted with a theoretical framework that contextualises this paradigm. For example, a Scopus database search on the “neurodiversity paradigm” in November 2019 returned three search results (Angulo-Jimenez & Delthorne, 2019; Fadda & Cury, 2016; Trotman & McGinley, 2018).

Due to the breadth of neurological differences and conditions it encompasses, the nomenclature surrounding neurodiversity is relatively unexplored to date. However, with growing acceptance of the neurodiversity paradigm, it is anticipated that this philosophical approach will be referenced more frequently in future research (Angula-Jiminez & DeThorne, 2019).

## **Conclusion**

Armstrong (2015, in Silberman, 2015, p. 472) suggested “more emphasis should be placed on early childhood education because their school experiences can set them up for success or failure in later life”. The implication for teachers is that they need to possess adequate knowledge to implement adjustments for students on the autism spectrum and provide support for their neurodivergent learning needs (Hyde et al., 2017). As no two children on the autism spectrum are the same, teachers need to foster communication with parents, as their knowledge of the child will advance a holistic understanding of these individuals (Hyde et al., 2017).

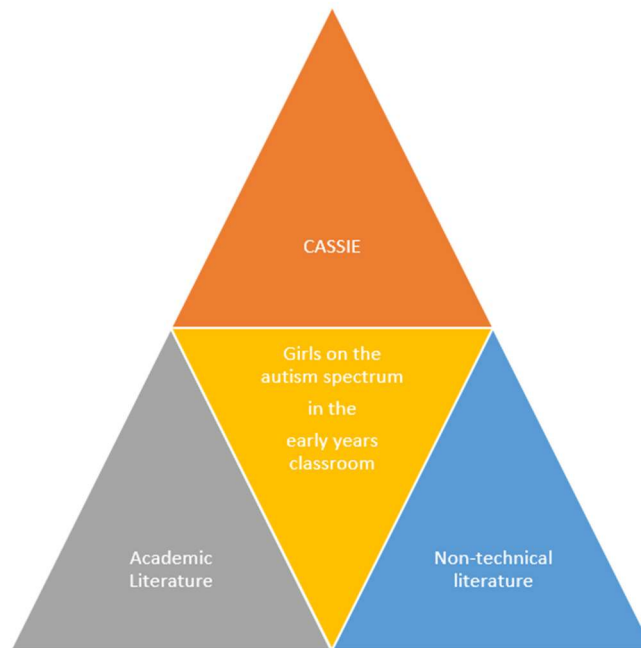
Silberman (2015) posed the question: “after seventy years of research on autism, why do we still seem to know so little about it?” (p. 15). The objective of this research project was to answer the question by identifying what is already known and extend our current knowledge of girls on the autism spectrum, specifically in early years classrooms. Further observations, through a neurodiversity lens, of girls with an ASD diagnosis in typical classroom settings will not only accelerate accommodating their diverse learning needs, but also prepare and support classroom teachers, parents and school administrators to create a favourable environment for their academic and social success (Crosland & Dunlap, 2012; Jarman & Raynor, 2015; May et al., 2016; Moyse & Porter, 2015; Sproston et al., 2017).

At the beginning of this chapter, the importance of including both peer-reviewed literature and non-technical literature was rationalised for contributing to our knowledge of girls and autism. The following chapters explore the methodology used in the two case studies and cross-case analysis that collectively formed the foundation for the development of CASSIE, a communication tool for girls on the autism spectrum in early years classrooms. CASSIE is the third piece of the triangle (Figure 2.4), formulated from evidence-based research to bring together the peer-reviewed literature and non-technical literature.



**Figure 2.4**

*Triangulation of peer-reviewed literature, non-technical literature and the CASSIE tool.*



## **Chapter 3: Methodology and Methods**

The literature review exposed the under-representation of girls on the autism spectrum and the likely repercussions on girls' experiences of schooling. This chapter describes the approach taken to explore the behaviours and characteristics of girls on the autism spectrum. It was anticipated that better understanding of this neurological condition in primary school classrooms would contribute to achievement of the second goal, i.e., how these girls can be best supported.

- 1. What are the (varied) behaviours and characteristics of girls on the autism spectrum found in early years classrooms?**
- 2. How can girls on the autism spectrum be best supported in their learning in early years classrooms?**

Establishing the research questions first enables “best fit” between the chosen research questions, and the methodology and methods (Punch, 2009; Yin, 2009) rather than a methods- first approach, which may constrain what can be studied (Punch, 2009, p.27). Therefore, the methodology and methods employed for these qualitative style research questions were those commonly used in qualitative research. An in-depth study, comprising a small number of cases and using a qualitative approach was considered most appropriate. The qualitative data collection methods involved observations, interviews and document investigation over an extended period of some eight months in one school year. Data analysis entailed traditional approaches in qualitative research studies, i.e., data condensation, data display and drawing conclusions (Miles, Huberman & Saldana, 2014). This chapter outlines in detail the methodology and methods employed in the study and the underlying ethical issues. It concludes with a discussion about the nature of the knowledge generated, namely, social constructivism based on multiple realities.

### **Methodology**

To most effectively address the principal research questions, the methodology involved a multiple case study that explored individual cases in depth and used different data-collection methods at two different points in time. Using a multiple-case design can be seen as more robust providing a triangulation of data needed for a comparative analysis (Yin, 2009). Whereas a single-case study is better suited to a research project on a unique case or a critical case testing a theory, however it can leave the research open to criticism within

empirical research (Yin, 2009). Although a disadvantage with a multiple case study is that it requires more time and resources, a two-case design, can begin to “blunt any criticism or skepticism” about the robustness of the research being conducted (Yin, 2009, p.62). More than two case studies can make the study stronger, however the difficulties of possible participants and their recruitment needed to be considered, particularly when there is a lower number of girls who are diagnosed with autism in the early years age group.

Case studies are predominantly qualitative in nature and empirically investigate phenomena using a number of methods, usually in a naturalistic setting (Punch, 2009). Punch identified four characteristics of case studies: (i) they have boundaries; (ii) they are a case of something; (iii) they represent a holistic approach to a specific focus; (iv) multiple data collection methods are used at different data points, usually longitudinal. This chapter establishes that this multiple case study met all four criteria as follows: (i) the boundaries were two specific girls with a diagnosis; (ii) the cases focused on female girls on the autism spectrum; (iii) the holistic approach used triangulation to unveil as much as possible about autistic girls’ behaviours and characteristics and; (iv) multiple observations and interviews took place over a period of a school year.

Case study is a popular research approach in social science as it allows researchers to understand “complex social phenomena” (Yin, 2009, p. 4). In this study, the complex social phenomena were the teaching, learning and socialisation experiences of girls on the autism spectrum in early years classrooms. The first research question explored the “what” (exploratory case study question) of the research inquiry; in this case, characteristic traits of autism in girls.

A case study approach also uses explanatory research questions that lead with a “how” or “why” (Yin, 2009, p. 9). The second research question sought an explanation for the “what” of currently occurring events by asking a question leading with “how” (explanatory question), signalling the need for a case study approach (Yin, 2009, p. 9). The first research question (what) needed to be answered first before the second (how) could be answered.

Case study is an empirical inquiry. In this research, data were observed directly in the classroom by the researcher and in interviews with parents and teachers. Since autism is too complex to explain with a survey or experiment, it needed to be described in a real-life context to illustrate its presentation in an education setting. This was achieved by using a methodical approach as outlined in Chapter 6, or cross-case analysis, whereby the data from

each case study were compared and contrasted. The findings of the case-study exposed the complexity of autism and demonstrated that multiple case studies can be a rigorous and valid approach to methodology by drawing on a set of “cross-case conclusions” (Yin, 2009, p. 20).

### **Data Collection Methods**

Due to the primacy of observations and interviews, this research project bears some resemblance to the methodology of ethnography (O’Leary, 2010). While ethnography was not the principal methodology used in this study, the methods are commonly associated with an ethnographic approach and allowed me to get as close to the participants as possible via multiple observations and in-depth interviews to achieve the desired depth and richness. Furthermore, all the observations were conducted over an extended period of time in the participants’ learning environment. Wolcott (2008) argued that no one can achieve an understanding of ethnography unless they are “doing” it rather than just reading or thinking about it. Ethnographic methods also give voice to people in their own local context by relying on verbatim quotations and thick descriptions of activities (Fetterman, 2010). This can be likened to the rich descriptions (Geertz, 1973) that emerged from my observations and the verbatim quotes from the interviews with teachers and parents, aimed at providing an insider perspective. Within this qualitative, two-case study, I chose to adopt the “multiple methods” associated with ethnographic approaches – observations and interviews.

### **Participants, Case-Study Sample and Ethical Issues**

In keeping with the aims of the research and the case study approach outlined above, selecting participants was a major feature of this study. The primary participants were a purposeful sample of female primary school students between the ages of 4 and 8, diagnosed with ASD level 1 under the DSM-5. The researcher adopted two initial approaches. First, as a member of a private Facebook group, focused solely on children diagnosed with autism in south-east Queensland in Australia, the administrators of the group were contacted directly to approve a study recruitment post. Although there were responses from members, recruitment did not come to fruition beyond the initial interest of potential participants, due to the daunting nature of allowing their child to participate in the research, and in all likelihood not something they had undertaken before. It is important to develop rapport with potential participants and continue to build trust in order to promote the flow of deep and open information and know how best to treat the collected data (O’Leary, 2010).

Established rapport led to success with the second approach to seeking participants. As a teacher and parent of a son on the autism spectrum and having connections with teachers and other parents of children on the autism spectrum, I was able to approach two parents of daughters on the autism spectrum, both in the desired age group of between 5 and 8 years. They were already aware that I was researching the topic of autism, so building their trust was accomplished through a positive focus on the project that would not only benefit them, but also help educators and other parents support girls on the autism spectrum at school.

The challenge was obtaining ethics approval from the university's Human Research Ethics Committee due to the age of the participants and having to observe them in their classroom environment. Concerns included whether participants would be open to questions about why they were being observed; whether other parents would have concerns about my observation of a classroom in which their child was also learning; whether my presence would make the participants feel uncomfortable; and who would provide consent for the two participating children given their age. From my experience as a teacher I was able to explain that there are always multiple assistants in the classroom in the preparatory or first year of school, ranging from parent aides to full-time teacher aides. It is also common for allied health professionals to visit students in the classroom to either observe or work directly with a child. Since I would only be observing one child and no notes would be taken about any other student, my presence did not affect other children or their parents. Furthermore, as a teacher of preparatory classes, I understood how to minimise my presence in the classroom and not disrupt the students. Sitting to the side of the classroom while observing and taking notes was not an unusual occurrence in early years classrooms, nor would it be obvious which child I was observing, thereby minimising any potential discomfort to the child participants. The consent of parents was needed on behalf of their child as their child may not know or had their diagnosis explained to them. It was left up to the parents to disclose my presence to their child or not. None of the children, participants and non-participants, showed any interest or inquired after what I was doing in the classroom. Some of them smiled and said hello while transitioning between classroom activities and that was the extent of interaction. My strategy was therefore justifiable and ensured that no harm came to either of the two participating girls or other members of their classrooms. The parents of the two girls were advised that they could withdraw their consent any time, and I was always available to answer questions about my notes and observations. After explaining this in writing to the Human Research Ethics Committee at Edith Cowan University (ECU), ethics approval was granted. My understanding of the classroom environment from multiple perspectives –

student, parent helper and teacher – enabled my presence in the participants’ classrooms as inconspicuously as possible.

Gaining consent from the parents was a complex process due to ethical issues, including possible emotional investment (O’Leary, 2010). A project information sheet (Appendix C) was provided to all potential participants who showed an interest in being a part of the research. Retrospectively, trust was the most important aspect of recruiting participants, which could only be developed over time as the parents got to know the researcher. The researcher met informally with both parents of each child several times over a period of a month to discuss the project and answer their questions before they provided consent. It was important for the researcher to ensure that the parents felt no pressure or obligation for their daughters to participate.

As outlined in the ethics application to ECU, no direct contact was ever made with the student participants, since consent was provided by their parent or guardian. How the research was conducted was up to the parents, as the autism diagnosis may not have been disclosed to the child. The child participants were only observed, as the university’s Human Research Ethics Committee agreed that the parents would sign consent on behalf of their children. Prior to obtaining the consent of the teachers, an interview was held with each school principal to obtain their approval to conduct research in their schools and request permission to speak with the teachers. Both principals were happy to cooperate as they believed their staff members had significant knowledge to share and the parents had already consented for their child to participate in the research project.

I was able to include two students in the preparatory year (first year of school). One student, Alannah (pseudonym), aged 5, attended an independent metropolitan school; and the other student, Bree (pseudonym), aged 6, attended a state metropolitan school in the Moreton Bay region in Queensland. Both participants were regularly observed in their classrooms between May and September 2018 during most weeks of the school terms for approximately one hour at a time suitable for the classroom teacher. This resulted in a total of 12 observations of Alannah and 15 observations of Bree.

The teachers and mothers of the primary participants were also included in each case study. Both parents of each child were invited to participate in the research project; however, in each case, the fathers were happy for their daughters to participate and for the mothers to be the only parent participant. It was interesting that the mothers were more willing to be interviewed, reflective of other research findings (Holmes & Willoughby, 2005) that it is the

mother who is the more “passionate advocate for their children’s rights” (Singer, 2017, p. 1460).

Each child’s teacher and mother were formally interviewed twice during the longitudinal study; once at the commencement of the classroom observations and once at the conclusion of the observations. A profile of each student was derived from informal conversations and semi-structured interviews with the parents and teachers and are further detailed in the next two chapters.

After the final interview with Alannah’s mother, she commented on what a big step it was for her and her husband to have a researcher observe their child in the classroom, particularly since the diagnosis was so recent. She acknowledged there was a lot of trust involved because she didn’t know what the study might reveal, which explained why she asked a lot of questions prior to commencing the study. While she had reservations about the unknown, she was pleased that it represented a positive step forward and had unfolded exactly as described in the information sheet. She said she had been put at ease by the researcher’s positive description and discussion about project. From the researcher’s perspective, despite the arduousness of gathering data for this study, from the ethics application right through to the final interview, the process undoubtedly resulted in the collection of quality data.

### **Ethics Considerations**

Ethics considerations were partly associated with the selection and recruitment of participants, as previously described. Nevertheless, a comprehensive description of the ethical considerations is detailed below, since a case study involving minors is necessarily complex and requires clarification to justify and consolidate the entire research process.

Following approval of the research proposal in February 2018, application for ethics approval commenced. Due to the young age of the primary participants, the process of obtaining ethics clearance to meet the requirements of Edith Cowan University’s Human Research Ethics Committee was rigorous for ensuring their protection and privacy. One question was whether permission would be required from the parents of other children in the classroom, which would involve letters informing them that a research study was taking place even though the focus was not on their child. Although their child would not be identified or directly observed, the potential risk was that their child may interact with the child being observed. A second question was whether the two case study children would themselves be required to sign a consent form. If they did not consent, this might suggest an element of

deception; and if they did consent, this may influence their behaviour when the researcher was present in the classroom.

After much deliberation at a committee meeting which my principal supervisor and I attended, the following guidelines were agreed: (i) no other children would be observed or their behaviours recorded; (ii) it was quite common in early years classrooms to have visitors and volunteers interacting and observing for other reasons; and (iii) as a researcher my presence would not impinge on the teaching and learning within the classroom. To further protect the identity of the child participants, it was agreed that I would not need to seek permission from other parents, which had a positive outcome as no questions or discussions were ever initiated by other parents or children. In addition, the researcher was to be positioned in the classroom in a way that would not cause any disruption; easy to comply with because of my experience as a qualified, registered primary and early years teacher.

In line with the principles of informed consent, all potential parent and teacher participants were given a research Information Letter and Consent Form (Appendix C) to sign, indicating that they understood the research project and were willing to participate. Official permission/authorisation to conduct research in the school was also sought from each school principal prior to approaching teachers. Both principals and teachers were supportive of the research, particularly since the parents had already consented to their child being observed in the classroom. The Information Letters outlined the nature of the research in plain language; the time demands and other commitments for participants; guarantees of confidentiality and anonymity; and the intended outcomes of the research. It reinforced that participation was voluntary, and participants could withdraw at any time without penalty. As principal researcher, my contact details, along with those of my supervisors were listed in the Information Letter, so that parents and teachers could contact any parties involved in the study for further information. Consent to be observed was obtained from the parents of the participants as they were only 5 and 6 years old respectively, and the parents had the option of deciding what they disclosed to their children about the research project. Importantly, there was no direct data collection with the children themselves; they were not interviewed, and all observations took place from a discreet distance.

Safety and privacy of data and participants were key considerations. All participants were assigned pseudonyms to ensure their anonymity and protect their privacy. No identifying information has been divulged, either in this thesis or future publications. As a registered teacher with the Queensland College of Teachers, a Working with Children Check



(Blue Card) was not needed to undertake research in schools, as my current teacher registration incorporated police checks.

All hard copy material related to the research, such as written observations and consent forms, have been stored in a locked cabinet. Paperwork not needed at the conclusion of the research project will be shredded in line with ECUs data disposal regulations – in the case of research on minors, the timeframe is 25 years. All digital data have been stored behind a secure password on the university’s cloud storage “Box”, accessible only to the research team consisting of the principal researcher and two supervisors. These will later be removed from “Box” and stored on password-protected data storage devices.

In hindsight, data collection was challenging, as I needed to build rapport with the parents of children on the autism spectrum, which takes time and patience, as well as overcoming ethics issues associated with protecting child participants in a school environment. Another prerequisite was building rapport with all the adult participants once observations began. For example, after the first month of observations and at the time of the first interview, one teacher brought up the issue of confidentiality in regard to parents having access to my observations and asked whether that would give them an advantage over other parents. The teacher was reassured that neither her teaching nor what was happening in the classroom was being discussed, and that I was only observing and making notes of the child participant which the parent and consent giver had a right to see. Within the first few weeks, the parents did informally ask the researcher about her observations of their child, and since the research was a positive experience, no further questions were raised. The teacher who questioned confidentiality was satisfied when she realised that her teaching was not discussed.

After her final interview, Alannah’s mother disclosed that it had been a big step for her and her husband to allow observation of their child in the classroom, particularly since the diagnosis was so recent. She acknowledged that there was a lot of trust involved as she did not know what the study might reveal, which was why she asked many questions before the study commenced. While she had reservations about the unknown, she was pleased that the study had been positive and unfolded exactly as described in the Information Letter. Alannah’s mother said she had been put at ease by the researcher’s positive explanation of the project and its benefits. Ultimately, the arduousness of gathering data, from the ethics application through to the final interviews resulted in high-quality data.

## **Data Collection Procedures**

The observations and interviews provided rich data and “thick descriptions” (Geertz, 1973) of the students in their classrooms, giving this qualitative research its strength and complexity. The data analysis process (Miles et al., 2014) uncovered the unobvious issues.

Observations in qualitative research are largely unstructured, especially when the participants are observed naturalistically (Punch, 2009), which was very much the approach in this research. Observations took place longitudinally, during most weeks of terms two and three in one school year. Since it was not expected for students to present the same behaviours every day, it was crucial to observe them over numerous visits. This was borne out in the data analysis, where certain behaviours were only observed on one or two occasions, but interviews revealed (and triangulated) that such behaviours were typical.

An observation template was initially devised; however, after the first observation, I found it more constructive not to look for specific evidence based on the literature and my own personal knowledge, but to simply make notes of what was being observed in the classroom (Appendix D). Observing participants while being unobtrusively present when the activities take place, as in this case design, aligns with an ethnographic approach (Punch, 2009). However, I did not extend the ethnographic approach by interpreting the culture and behaviours observed, but instead, observed the participants’ interactions and learnings occurring within the natural setting of the classroom (Appendix E). It was important to conduct at least ten observations to ensure a range of characteristics were captured that may not have been observed in one observation. This is particularly necessary as girls are inclined to mask autistic traits, and therefore a longitudinal study was pertinent for this research.

Semi-structured interviews with open-ended questions have been referred to as “ethnographic interviews”, as they are used to explore people’s interpretations of situations and their cultural significance (Punch, 2009). Both parents and teachers were interviewed using a semi-structured questionnaire to gain their perspectives of how the girls learned in the classroom (Appendix F). Two interviews were conducted with each parent and teacher; one at the beginning of the observation period and a second at completion of the observation period. The questionnaire for the second interview was adjusted according to the initial findings from the observations and first interviews. The teacher interviews were conducted after school in the teachers’ offices, and the interviews with the parents were conducted at coffee shops and at the parents’ homes according to their preference. The interviews were audio-recorded and transcribed by the researcher (Appendix G). By transcribing the

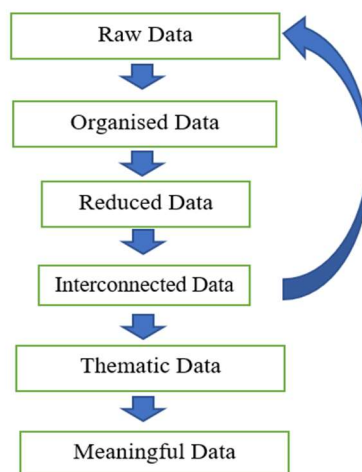
interviews herself, the researcher had a good grasp and deep understanding of the data, which made the coding process more efficient.

## Data Analysis

Data analysis followed the approach of Miles, Huberman and Saldña (2014, p. 10), who described it as “selectively comparing data, comparing and contrasting material in the quest for patterns or regularities”. Miles et al. (2014) posited a three-step approach to data analysis, similar to the ethnographic method, for analysing large chunks of data and generating thick, rich descriptions. The three-step approach, (i) data condensation; (ii) data display; and (iii) drawing conclusions is not as linear as suggested, but more of a process of cycling through the steps. Since the data were collected over an eight-month period, data analysis began early in the process and progressed in the form of a constructive spiral with increasing complexity, both in process and spiral. O’Leary (2010, p. 263) produced a diagram similar to Miles et al.’s (2014) concept of data analysis, whereby raw data are organised and reduced so that it can then be “built” into thematic data to produce theoretically meaningful understanding. Both these theorists’ concepts of data analysis were adapted and applied to analyse the data collected in this research project (Figure 3.0).

**Figure 3.0**

*Data analysis concept*



*Note:* Adaptation of O’Leary’s (2010, p. 263) visual concept and Miles, Huberman and Saldña’s (2010) concept of analysing qualitative data.

The steps depicted in Figure 3.0 commenced after the first pieces of raw data were collected (Bree's first observation). Two reasons for starting the data analysis immediately were (i) to ensure that the large amount of data collected were analysed in a timely and efficient manner; and (ii) working directly with the data familiarised the researcher with the contents and facilitated identifying emerging concepts and themes early on.

O'Leary's (2010) original model demonstrates how data, unpublishable in its raw state, is first organised and then reduced into manageable chunks. Through line-by-line exploration of interview transcripts and detailed observation notes, links were made between highlighted concepts and themes that emerged (O'Leary, 2010). As more data were collected, these steps were repeated until they filtered down into the final themes, as demonstrated by the blue arrows (Figure 3.0). The concepts grouped under each theme formed meaningful data for building theories that told a powerful story (O'Leary, 2010).

### **Condensing the Data**

The first step in the data analysis process was coding to condense the data through a process of selecting, focusing, simplifying, abstracting and/or transforming the data (Miles et al., 2014). There are many approaches to coding; each set of data and corresponding research approach draws on a specific set of coding strategies. Codes provide a label for descriptive information compiled within a qualitative study and allow for the clustering of segments relating to the research question and the discovery of themes (Miles et al., 2014).

In this research project, the focus was on words and involved categorising the data and then sorting them into meaningful themes. Coding the data into themes entailed a two-cycle process, with each cycle revisited. In the first cycle, hypothesis coding, descriptive coding, subcoding and simultaneous coding were used to begin the process of sorting the data into themes – this is further described later in the chapter (Miles et al., 2014). The second cycle grouped the first cycle summaries into a smaller number of themes (Miles et al., 2014).

First, predetermined codes were generated from an analysis of the literature using a qualitative data analysis (QDA) software program, NVivo12™, where the word “node” was synonymous with the word “code”. Miles, Huberman and Saldana (2014) referred to predetermined codes, in this case generated from the literature, as hypothesis coding. The literature on autism I had stored on referencing software, Endnote, was imported into NVivo12™ and then coded for the literature review chapter, whereby the codes formed part of the predetermined codes for the interviews and observations (refer to Figures 2.1 and 2.2 in the previous chapter). Upon completion of the data analysis, the focus was refined, and the

literature review was recoded under the main themes that emerged from the observations and interview data. The original codes remained; this shift in coding allowed for a more methodical approach to the literature review chapter and a starting point for analysing the raw data from the observations and interviews.

The use of Endnote™ to store literature and import into NVivo12™ continued as new literature was added, ensuring that current research was read and analysed at the time of publication. In addition, the search function in both Endnote™ and NVivo12™ was used at the conclusion of the data analysis to ensure that all themes in the current research were thoroughly checked against the literature. Although this exhaustive approach to the literature review was time-consuming, such a methodical approach ensured the inclusion of new literature relevant to my findings, and revisiting literature that had already been stored, imported and coded with a broader knowledge of autism to link with new literature and themes. As a researcher, using both Endnote™ and NVivo12™ was an important process for the literature review. As qualitative research is notorious for lack of clarity surrounding processes, NVivo12™ allowed for a methodical approach that strengthened the veracity of both the literature and collected data (Richards, N.D). Data from the parent and teacher interviews, and the observations were coded and assigned words that summarised the chunks of data (descriptive coding). These labels became the “emergent” codes. The parent and teacher interviews were coded separately from the observations to compare the sets of data before merging the predetermined and emergent codes with the main CASSI themes (Table 3.1).

**Table 3.1***Coding template for merging observation and interview data*

Case Alannah	
Key Themes	Data Source
Academic	Observed
	Heard
Communication	Observed
	Heard
Social/Friendships	Observed
	Heard
Identity	Observed
	Heard
Sensory	Observed
	Heard

Case Bree	
Key Themes	Data Source
Academic	Observed
	Heard
Communication	Observed
	Heard
Social/Friendships	Observed
	Heard
Identity	Observed
	Heard
Sensory	Observed
	Heard

*Note.* From the merged codes, data analysis began with the individual case studies under each of the first five themes separating the observations (observed) and interviews (heard).

After all the interviews and observations had been coded separately in the first cycle, both the predetermined codes (derived from the literature) and emergent codes (derived from the research data) were merged to find patterns. This was the second cycle of coding, from which the overarching, higher-order themes emerged: Identity, Academic, Sensory, Communication, Social/Friendships and Miscellaneous; the last of these was later renamed Encircle (Figure 3.1).

**Figure 3.1**

*Merged nodes*

Name	Files	References
Interviews	0	0
Academic	0	0
Communication	0	0
Identity	0	0
Miscellaneous	0	0
Sensory	0	0
Social and Friends	0	0
Observations	0	0
Academic	0	0
Communication	0	0
Identity	0	0
Miscellaneous	0	0
Sensory	0	0
Social Friendships	0	0

*Note.* Merged nodes folder combining the predetermined and emergent codes under the six main research themes.

The emergent codes from both the observations and interviews were merged as they were more in-depth and overlapped most of the predetermined codes. Some of the predetermined codes had no coding within them, such as “self- esteem” and “memory” and were therefore not included in the second cycle. However, it was important to first code the data with predetermined codes in order to compare what was known and what emerged, rather than trying to fit the data into predetermined codes. Where data had been coded simultaneously – raw data assigned to more than one code – a decision was made to determine where it fitted best (Miles et al., 2014).

The data from each case (Alannah and Bree) were coded separately according to this systematic process (Table 3.1) and eventually merged under the main themes (coding cycle 2) in the “merged codes” folder since NVivo12™ could run queries separating the cases.

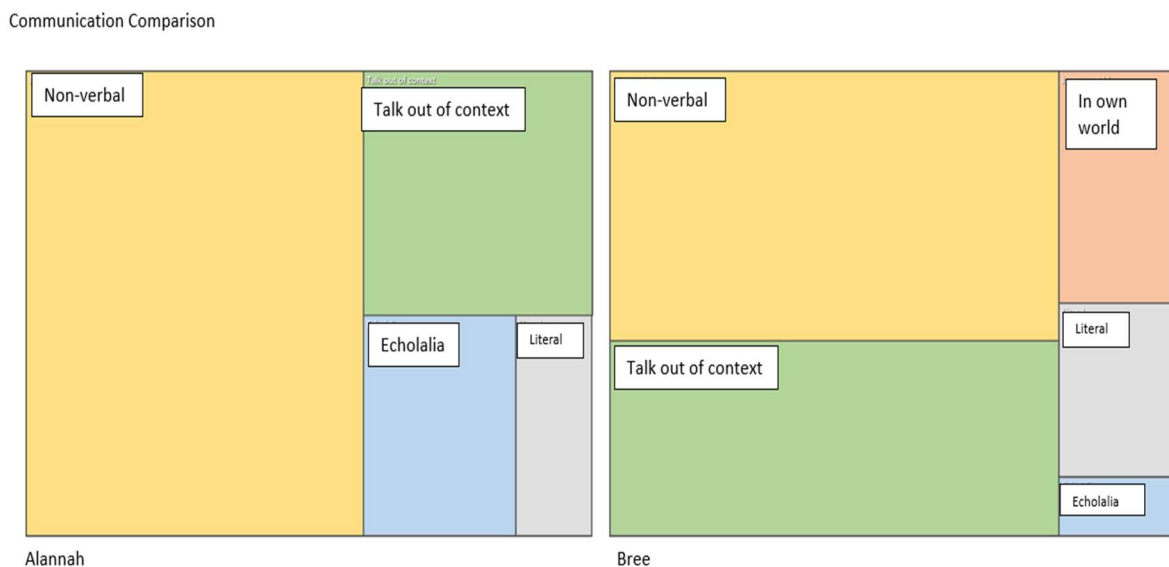
### **Displaying the Data**

The final step of the data analysis process was to display the data that were sorted and organised during the condensation process and decide whether to continue the analysis or move on to step 3, i.e., drawing conclusions. Conclusions can be drawn concurrently with the first step of data analysis when patterns start emerging, and themes are developed.

Data displays were comprised of tables and figures to make connections between the data (Miles et al., 2014). Throughout the cross-case analysis and discussion chapters, visual displays were used to show how the communication tool in this research was developed and to make comparisons with existing knowledge, draw conclusions and verify understandings of girls on the autism spectrum. “Hierarchy Charts”, a term used in NVivo 12™ for the data displays, were used to generate tables for comparing and contrasting the data for each case study (Figure 3.2).

**Figure 3.2**

*Hierarchy chart for communication theme created in NVivo 12™*



From the hierarchy charts created for each theme, a table was developed to link the key ideas in each theme (Table 3.3) and colour code them to correspond with the hierarchy charts. The tables served as an additional comparison for identifying emerging patterns between each case study. Key ideas were added to the “wheel” that was gradually being developed (Appendix H) so that conclusions could be drawn from the case study comparison. These notes on the similarities, differences and hierarchy of key ideas were the starting point for the discussion chapter.



**Table 3.3**

*Table of Key Ideas for Communication Theme*

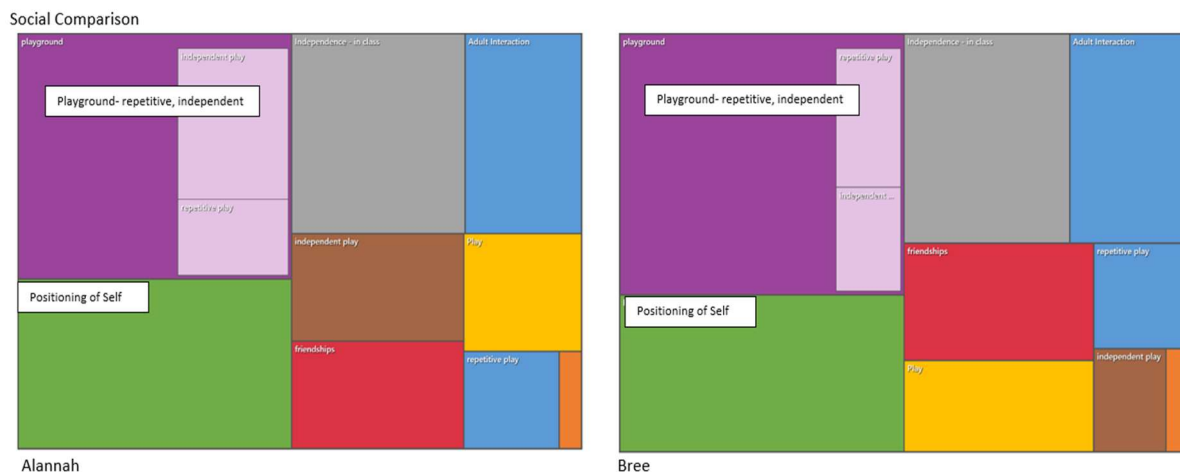
Communication	Similarities	Differences	
		Alannah	Bree
	<i>Non-verbal</i>	More <i>non-verbal</i>	More <i>quietly spoken</i>
	<i>Preference to speak with adults – tends to be out of context</i>	Will attempt to join peer conversation but it is out of context.	Tends to speak ‘to’ her peers
	<i>Echolalia – repetition of sounds or words</i>	Observed twice during one observation but a regular occurrence at home.	Observed only once and not discussed in interviews.
	Takes statements or phrases <i>literally</i>		
			Appears to be ‘ <i>in own world</i> ’

*Note.* The table of keys ideas for Communication, colour coded from the hierarchy chart.

When the data displays were created in NVivo 12™ during the cross-case analysis (described in Chapter 6), I realised that the figure for the main theme, Social (Figure 3.3), was organised in a confusing way in relation to the key ideas table.

**Figure 3.3**

*Social Hierarchy Chart*



*Note.* The duplication of “repetitive play” and “independent play” was identified during the cross-case analysis due to the duplication of a branch in NVivo 12™.

The term “playground” and its sub-branches had been duplicated – they were already included under the subtheme “playground”. I knew from this display (Figure 3.3) that I needed to go back to NVivo 12™ and recheck the coding for the theme Social.

In the cross-case analysis, I found that the subthemes in each case (Alannah and Bree) had not properly merged into CASSIE in NVivo 12™, resulting in a duplication of subcodes within the themes. This was rectified by simply removing the duplicated subthemes: “play” had already merged into “playground” and “repetitive play” was a duplicated branch. The data were not recoded or changed. To illustrate the reorganisation of codes, Figure 3.4 shows the “before and after” Social codes with the references unchanged. To ensure the codes were merged properly before deleting the duplication, I copied and pasted “play” into “playground” and “repetitive play” into “repetitive play” under “playground”. The reference number remained unchanged, indicating they were already coded there. Therefore, this slight reorganisation did not affect the cross-case analysis, other than removing the duplication and making the codes easier to read and correlate to the table.

**Figure 3.4**

*Before and after Social codes*



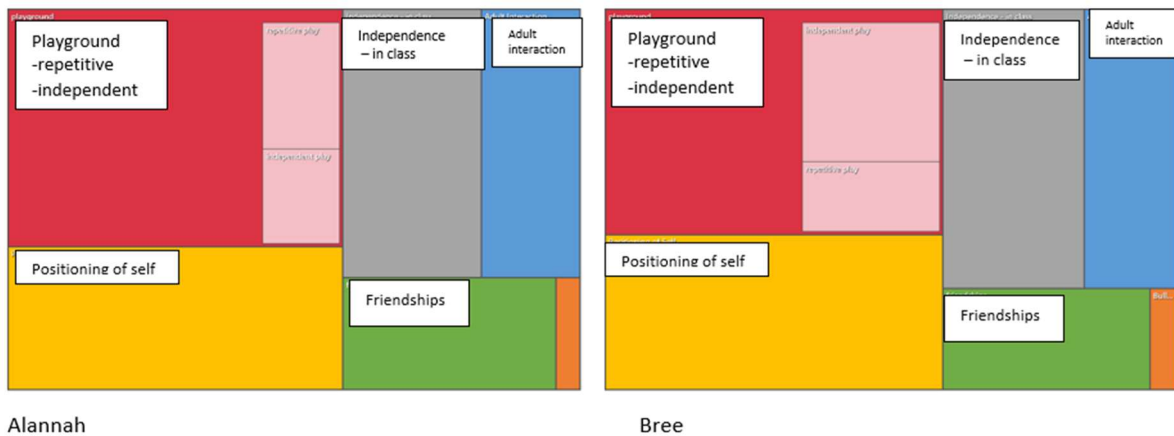
*Note.* Repetition of the subcodes that required merging under one subcode.

The merged data error was checked to ensure it had not occurred in any other themes or affected prior analyses of Alannah and Bree, since merging the themes into CASSIE occurred after the individual case analyses (Figure 3.5). This example showed how merging

errors can be picked up and easily rectified using data displays in NVivo 12™ and provides evidence of thoroughness and transparency throughout the data analysis.

**Figure 3.5**

*Social hierarchy chart*



*Note.* The correct display of the data for Social after the duplication of “repetitive play” and “independent play” was removed in NVivo 12™ did not affect prior analyses.

The four areas of the theme Miscellaneous that were later termed Encircle encompassed Challenges, Intervention, Professional Development and Classroom Strategies. These were formed during the initial coding phase when the main themes began to emerge. The interviews and observations were coded in NVivo12™ under the four areas of Encircle during the coding process – the findings are described in Chapter 4 for Alannah and Chapter 5 for Bree. A separate table of key ideas pertaining to each area of Encircle was drawn up during the individual case analyses of Alannah and Bree and augmented during the cross-case analysis. In the cross-case analysis of Encircle, the key ideas table was completed by going back through the analyses described in Chapters 4 and 5 to display similarities and differences between the two cases. The cross-case analysis played an important role in ensuring that all the key ideas from both cases were captured.

### **Drawing Conclusions**

The third phase of the comprehensive data analysis process involved analysing the comparative tables from the cross-case analysis, drawing and verifying conclusions. As described in the previous section, theory-building started to occur during the process of displaying the data, as recommended by Miles et al. (2014). The cross-case analysis imparted a deeper understanding of the similarities and differences between the two cases. The case-

oriented approach was a good choice for finding specific and concrete patterns, but unsuitable for generalisability, which requires a larger number of cases (Miles et al., 2014).

It was during the cross-case analysis (Chapter 6) that the communication tool was fully developed, by confirming the discourse in the literature and extending the existing concepts on girls and autism. While principally conceived to assist in the classroom, the communication tool also served as a visual tool in this research and enabled conclusions to be drawn from the display of the various themes and associated concepts. Appendix I shows its progressive development throughout the data analysis process.

### **Theoretical Perspective Underpinning the Study**

The results that emerged from this study require some explanation of the theoretical perspectives underpinning the research. Crotty (1998) suggested “scaffolding” social science research (p. 1) and considering epistemology, theoretical perspective, methodology and methods. The latter two have already been described in considerable detail in this chapter. This final section explains the first two dimensions and their influence on the research.

Candappa (2017) argued that “the reality being researched is a reality defined by the participants, and that there are multiple realities” (p. 177). Multiple realities stem from participants who are constructing meaning at different places and times; in this case, related to autism in the classroom. A constructionist view balances objective and subjective stances to construct meaning from an interaction of the two (Crotty, 1998). The meanings constructed from the case studies in this research represent the final understandings from multiple realities.

Understanding the strengths and limitations of each method enabled the generation of quality data. Through methodical coding, meaning was extracted from the interviews and observations to construct knowledge from my interpretations of the participants’ meanings. Reliability of the coding process allowed for the most faithful possible interpretations. This involved being faithful to the stated and implied perspectives and realities of the participants and my own interpretations of the data, both observational and spoken. It is acknowledged that there is not one “true and valid interpretation” (Crotty, 1998, p. 46) of the meanings constructed, but a useful interpretation that promotes growth in an often-invisible area of autism and makes sense of the world of autism.

In this research, the constructivist view was used concurrently with an interpretivist position, rather than the two being independent or interchangeable with one another (Gibson, 2017). To interpret the meaning assigned by the participants, it was necessary for me to

understand the culture of the autism community as well as the classroom culture. Being a teacher made for a smoother transition to researcher and facilitated understanding the classroom culture, including the parents and teachers. This approach is similar to ethnography, where insights into a community is required to achieve an insider's view of the research problem (Gibson, 2017). However, it is the reflective nature of the cross-case analysis and discussion chapters that makes sense of the meanings constructed. These reflections and interpretations of the constructed meanings represent an amalgamation of previous and current findings, encapsulated in a valuable tool for identifying girls on the autism spectrum to support their learning in early years classrooms.

### **Summary**

This chapter described in detail the research methodology and methods used to understand how girls on the autism spectrum learn in the classroom environment, concluding with the theoretical perspective that underpinned the study, an essential part of research (Gibson, 2017). The theoretical perspective supported the methodical approach to constructing empirical evidence. Additionally, the procedures used to collect and analyse the data were outlined and attest to the trustworthiness of the findings. The following two chapters describe the findings from the case analysis of Alannah and Bree respectively.

## Chapter 4: Alannah - Case study 1

This chapter presents the findings from the first case study of Alannah; the findings from the second case study of Bree is presented in the subsequent chapter. Each chapter reports in detail the respective findings of the two cases; separately devoted to each girl in honour of the information they unwittingly provided.

As previously outlined, the data were collected from two sources: observations of the girls in their respective classrooms and interviews with the girls' mothers and teachers. The first data set in each chapter relates to descriptions of what the girls were doing in class; while the second set comprises the perspectives of others on the girls actions and behaviours, either in class (teacher interviews) or in and out of class (parent interviews). The first set of data, the observation data, is shown as "ON" and followed by the date (ON for Observational Notes) e.g., ON31/07/18. The second set of data, the interview data, is shown as "I" (Interview Transcript) followed by "P" (Parent) or "T" (Teacher) and "A" (Alannah) in front of the date. For example, an excerpt from an interview with Alannah's teacher would be shown as ITA10/10/18. The observations were conducted on different days; however, at times, interviews with a parent and teacher were conducted on the same day.

The presentation of the findings begins with a brief background of Alannah and the two significant adults that contributed information about her. Following this, the remainder of the chapter is organised according to the five main themes identified in the previous chapter: Communication, Academic, Social, Sensory and Identity (CASSI). The theme, Encircle, encompasses the five main themes and forms a circle around them, reflecting the findings in this case. Encircle includes four areas: Challenges, Intervention, Professional Development and Classroom Strategies, each overlapping one another and impacting the key themes for each student. As it transpired, Challenges was only identified in the observations, while all four domains were identified in the interviews. Twelve observations of Alannah were conducted in her classroom between May and September 2018. A few weeks were missed due to illness, a teacher request and additional school holidays at the independent school.

### Alannah

#### Background

Alannah was a five-year-old girl in the preparatory year of primary (elementary) school at an independently funded, metropolitan school in Queensland, Australia. She lived with her mother (who is a teacher) and father in the same house since birth and had no other

siblings. She was diagnosed with autism spectrum disorder level 1 under DSM-5 when she was four years old. Alannah's parents sought a diagnosis when she was 3, as she was *“playing by herself and hiding from other children, lining things up, could do puzzles quickly, and too many words said to her would end in a meltdown”* (IT29/5/18). Alannah's mother described her as *“adorably cute”* yet *“stubborn in her ways at the same time”* (IT29/5/18) and said that her daughter communicated better with adults than children. She reported that Alannah's struggles with other children and her intense interests were other reasons why she and her husband sought a diagnosis for their daughter. Alannah was seeing a speech pathologist and an occupational therapist, both in and outside school.

### **Interview Participants Providing Information about Alannah**

Alannah's teacher had been teaching for over five years in a variety of private/independent lower primary (elementary) school settings in Australia and had also taught in a low socioeconomic school overseas for twelve months to expand her teaching experience. She had previously taught students on the autism spectrum who she described as all being very different. Alannah's teacher was interviewed twice; once at the beginning of the series of observations and once at the end.

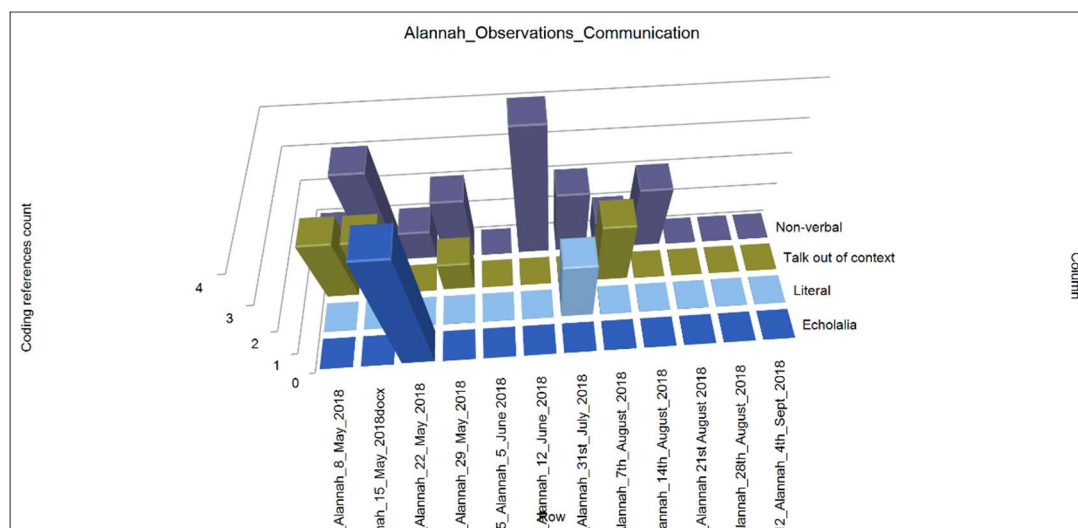
Similarly, Alannah's mother was interviewed twice for the research; once at the start of the observations and once at the end. Alannah's father, who was married to Alannah's mother, agreed to his daughter being observed for the research project. He was unable to participate in the interviews due to work commitments but was happy for Alannah's mother to be interviewed. In both interviews, Alannah's mother indicated that the father supported everything she was doing in her management of Alannah, and she was viewing it as a joint “work in progress”.

### **Communication - Findings from the Observations**

Communication is the medium used by students to exchange information with others. From the observations of Alannah, four subcodes were identified under the key theme of Communication: (i) Non-Verbal; (ii) Talking Out of Context (Theory of Mind); (iii) Echolalia; and (iv) Literal. Their frequency and timings are presented in Figure 4.0. The wording used for the subcodes were derived from analysis of the observational data. When referring to a code in this chapter, the word/wording assigned to the subcode is capitalised while general references are not.

**Figure 4.0**

*Alannah's observation subcodes for Communication*



Non-Verbal could also be referred to as “selectively mute”, whereby a child can talk but is unable to communicate verbally due to one of these behaviours. Talking Out of Context can also be related to Theory of Mind, which, in the context of autistic children refers to thinking that others have the same beliefs/understandings/prior knowledge/values, and the consequent difficulty understanding the minds of other people. Echolalia describes a child verbally repeating words or phrases made by another person, either immediately after hearing them or unexpectedly at a later time. Literal refers to a person on the autism spectrum who interprets a phrase as the stated words, and not in colloquial, idiomatic or metaphorical terms.

Figure 4.0 shows most references were to Non-Verbal and Talking Out of Context in four observations. There was one reference to Literal in one observation, while Echolalia occurred frequently in just one observation. Four observations, one in the first half of the observation series and the others in the final three, did not record any data under the theme Communication. Most of the observations under Communication consisted of Alannah being observed as Non-Verbal.

### **Communication – Non-Verbal**

In many of the observations where Alannah was non-verbal, she spoke softly compared to other students when responding to the teacher. For example, when it was her turn to read in literary groups, *Alannah was very quiet when reading. Other students could be*



*heard easily* (ON15/06/18). She was also reluctant to chat to peers when other students were chatting. On one occasion, when she was waiting in line, it was noted that *Alannah did not chat to the other students while she waited for her turn like many other kids* (ON 31/07/18).

A special Under 8s Day was an initiative of Early Childhood Australia, Queensland Branch, where learning activities were held outside with students from Prep to Grade 2 in celebration of early childhood. On this day, Alannah did not respond to either her teacher aide or her mother: *When the teacher aide came over to take a photo of Alannah, she did not respond when asked to look up at the camera. A was still trying to sort out her costume. She did not respond to her Mum for a photo either* (ON29/5/18). Another example was when a peer talked to Alannah: *A student moved around to face and talk to Alannah. At first, Alannah did not respond; then she briefly spoke quietly* (ON12/6/18).

### **Communication – Talking Out of Context**

The next most frequently coded aspect was Talking Out of Context, which could also be viewed as social faux pas. Talking out of context was noted in four observations with both peers and adults. For example, when all students were in literacy groups, Alannah stated without elaboration: *I'm having doughnuts this afternoon*. The other students tried to work out what she meant: *One child responded with "you don't have doughnuts in your lunchbox". Another student said: "maybe her mummy is buying them". Alannah didn't say anymore and returned to her work* (Both from ON 15/5/18).

During the Under 8s Day, a parent was speaking to Alannah's mother. Alannah interrupted and stated without elaboration: *"Guess what? I have 3 unicorns"*. *Mum said to the other parent that Alannah slept in her own bed and the parent high fived Alannah. Alannah then said: "I have a clock"* (ON29/5/18). Another example of talking out of context was with her teacher during literacy groups – I wrote side notes connecting it to Theory of Mind (ToM): *Alannah shared a story about a jumping castle after teacher talked about chocolate cake from the book (Theory of Mind? Maybe talked about jumping castle which is at a party like chocolate cake?)* (ON7/8/18).

### **Communication - Echolalia**

Echolalia refers to mimicking a phrase or word and was only observed in one observation session of Alannah in the middle of the series of observations. It was observed four times during that one-hour observation, suggesting that there may have been an antecedent that triggered the echolalia. Two examples were observed: (i) *Alannah took her time to write her name but did not begin the task. One child said to another "I'm going to*

*copy you” for colour the “o” task. A repeated the phrase 3 times (ON22/06/18). And (ii) When a student asked the teacher if they could ring the bell, A began to repeat the same words to the teacher (ON22/06/18).*

During the same observation I noted: *Echolalia seemed to be present with repeating of peer’s words. This may be Alannah’s way of joining in or engaging with peers. On reflection, Alannah may have been experiencing a heightened state of anxiety triggered by something earlier in the day and echolalia was used as a coping mechanism for relating to peers.*

### **Communication – Literal**

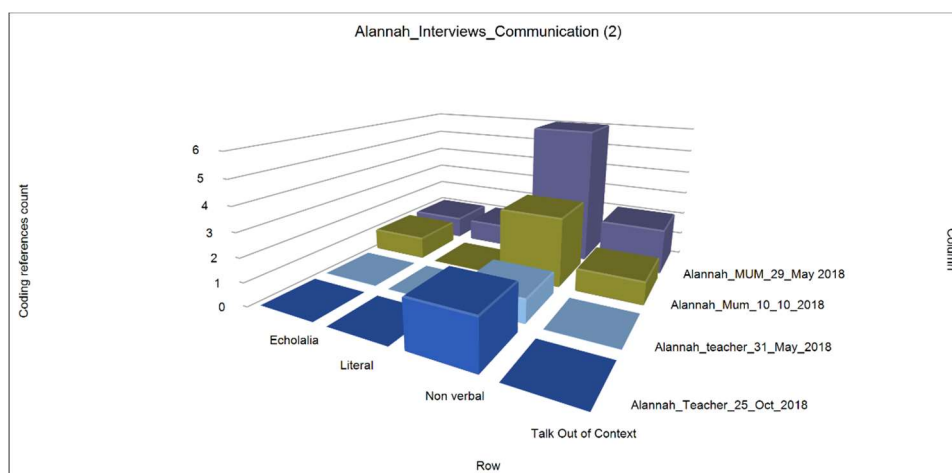
Observing a student being literal would have a lower probability of occurring in a learning environment compared to a social situation as it is more likely to be evident during interactions with others. It was only evident in one session when Alannah was interacting with a teacher in a small group: *When students returned, the teacher said if we do wonderful reading, she will give them a smelly sticker. Alannah responded with “ew” (literal) and the teacher explained that the stickers were scented (ON31/7/18).* Coincidentally, it was evident again during the same observation: *When asked to look at the pictures, Alannah held the book close to her face.* It should be noted that I was aware from informal conversations with Alannah’s mother that Alannah did not require reading glasses as her eyes had been tested as part of her autism diagnosis.

### **Communication - Findings from the Interviews**

Four subthemes of Communication were noted in the interviews: Echolalia, Literal, Non-Verbal and Talking Out of Context. Non-verbal communication was the most frequently referenced subtheme by both Alannah’s mother and teacher (Figure 4.1).

**Figure 4.1**

*Alannah’s subcodes from Parent and Teacher Interviews for the Communication theme*



### **Communication – Echolalia**

Echolalia was only reported by Alannah’s mother. When Alannah was tired after school and wanted something, she repeated words to communicate. Alannah’s mother said she had been repeating words to communicate since she was very young, and it was one of the reasons a diagnosis was sought:

*Again, she would repeat words when she wanted something so if she was thirsty, instead of saying “Mum, can I have a drink of water” or “Mum, can I have a drink please”, she would look at me and say “thirsty” (IPA29/5/18).*

Such communication was frustrating for Alannah’s mother and caused anxiety for Alannah:

*Coming home, it’s quite difficult to communicate to her, so she could be tired or could be hungry or thirsty, she still has that breakdown, and the repetitive words “hungry, hungry, hungry” even though I say we’re getting food or getting food shortly. She still has that moment of falling back into repetitive single use words where we can’t talk it through. That’s still the biggest frustration, is talking it through with her. I don’t have that option or that opportunity to alleviate some of her anxieties (IPA10/10/18).*

### **Communication – Literal**

Alannah’s mother reported that Alannah took questions literally. One example was when they were at the paediatrician’s office during the diagnostic process:

*Like humans have names, they come with names, so why are you introducing this new thing to me if you don’t know its name? She also said to the paediatrician, the paediatrician had a photo of a boy with a kite and she said to Alannah “who’s flying*

*the kite?” And Alannah replied, “I don’t know his name”, so she is very literal.*

(IPA29/5/18)

Alannah’s teacher also reported that Alannah took things literally at school, which I observed in one of my observation sessions.

### **Communication – Non-Verbal**

Alannah’s mother reported that Alannah had been regularly communicating with her non-verbally or with limited words since she was a toddler:

*As a toddler she was a little delayed in speaking in terms that I as her mother would consider normal or the depth of talking and amount of words and would often go, often frustrated from the lack of being able to say what she wanted (IPA29/5/18).*

Furthermore: *“She did not talk very much because she is not interested in talking”* (IPA29/5/18).

Alannah’s limited verbal communication was accompanied by echolalia and meltdowns when she was overwhelmed:

*And then I would communicate, I will get you something in a minute or we would be in the car and I could not get something to her straight away and I would say that to her, as soon as possible, and she would still just say “thirsty, thirsty, thirsty” and ramp up and get frustrated by it. Even though, I said “yes, I will get you water in a minute” or “we’re just about home”. Once she gets worked up, she can’t take anything in and doesn’t hear what I’m saying because she’s so focused on just what she needs. Words upset her more. So, if I say too many words, she just melts down (IPA29/5/18).*

Alannah’s mother had difficulty finding out about Alannah’s school day due to her inclination to be non-verbal: *To be honest, one of the challenges is finding out what she does during the day because she doesn’t talk about it. If you ask, “what did you do?” she can’t give me a response (IPA29/5/18).* Alannah’s mother was aware of her daughter’s preference for non-verbal communication and used strategies at home to manage this: *She responds better non-verbally. So, to help manage her again with the words, so instead of counting down I use my hand and count down from five fingers and she responds better to that than talking (IPA29/5/18).*

Her mother spoke about Alannah’s struggle to communicate verbally and how her tendency to be non-verbal interfered with her ability to form friendships:

*It's sometimes refreshing and nice to watch her, because although I see how she struggles talking to others and participating in conversation with other children and playing with other children, and yes, some children down the track or even might start thinking she's a bit boring because she doesn't talk much or she talks about some random things at times (ITP29/5/18).*

Alannah's teacher identified early on in the year that Alannah preferred to communicate non-verbally: *Not using words. She tries to get away with being non-verbal as much as she can until prompted. That's a big one (ITA31/5/18).* Throughout her first year of schooling, her teacher noticed that she preferred to speak as little as possible: *Just to relate Alannah to me, she tries to get away with not talking as much as she could (ITA25/10/18).*

Alannah's teacher was pleased when she started to initiate a conversation with her later in the school year: *But now she will instigate conversations with me and things like that now, which is really good. Whereas before it was quite non-verbal. We had our conversation without her talking at all (ITA25/10/18).*

Alannah preferred to communicate with gestures and minimal use of words. Her preference to communicate this way interfered with her ability to form friendships with peers. With teacher and parent support, Alannah's conversations with adults improved.

### **Communication – Talking Out of Context**

Talking out of context could be viewed as a social faux pas and was discussed in both interviews with Alannah's mother, who talked about her daughter's recollection of events:

*Two weeks later it would come out in words. We would see a delay there. We went to the local show and she had a great time with her friend and saw her cousin there, went on all the ride. And another friend came over that night and asked her what she did that day, but A couldn't tell her one thing about the show. Just said "movie, shops". Two weeks later, when her Aunt came over, she had just been to a birthday party and had a lovely time there and her aunt asked her what she did today, and she said I went "round and round and round" and gestured like the merry go round at the show. She couldn't recall going to the party that was that morning but was recalling that two weeks ago she went on the merry go round (ITP29/5/18).*

During the second interview, Alannah's mother shared her concerns about Alannah talking out of context with other children:

*I do worry that when it's children at school, she does want them all to herself and if she's at them constantly just wanting to communicate with just that child in some form*

*and it might not always...with me she will just talk all of a sudden about something and she does that to other children (IPA10/10/18).*

Alannah had difficulty connecting with her peers as she struggled to join in with current conversations. Instead, she attempted to interact with others by talking about an interest of her choice, unrelated to the topic of conversation or the context.

### Academic – Findings from the Observations

Three subthemes were formed under the key theme Academic: (i) Distraction; ii) Hyperfocus; and iii) Perfectionist. Distraction refers to situations where the student is no longer able to focus on the task at hand. Hyperfocus describes intense mental concentration on a subject or activity of interest which a student is unable to stop or has difficulty stopping. In a classroom context, Perfectionist refers to a student who has high expectations of themselves and their work.

**Figure 4.2**

*Alannah’s subcodes for observations under the theme Academic*

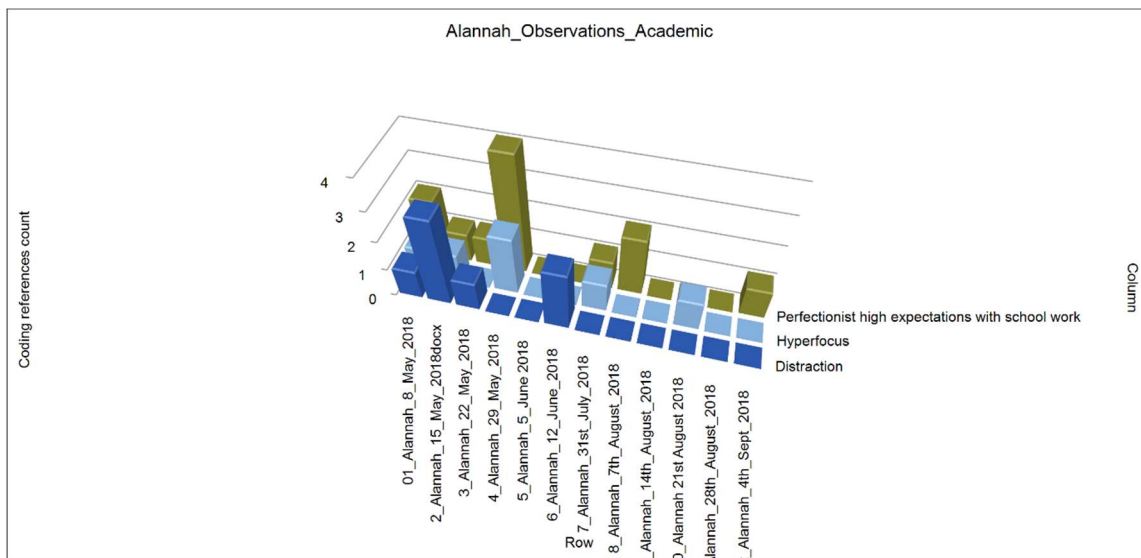


Figure 4.2 shows three out of twelve observations recorded no data for the theme Academic, while the subcodes Perfectionist, Hyperfocus and Distraction were regularly noted in the 12 observations.

## **Academic – Perfectionist**

Perfectionist behaviour was most frequently observed, with a total of 12 references in seven observations. For example, Alannah was regularly observed being particular with cutting and colouring: *A carefully chose the coloured pencils she used and would choose one at a time, taking care with her work before returning the pencil and deciding on the next pencil to use (ON 8/5/18)*. Additionally: *Alannah was particular about the crayon she used and very careful with her colouring (ON15/5/18)*; and *Alannah is very particular and detailed when drawing her “scared’ picture” (ON7/8/18)*.

It was apparent in early observations that Alannah’s pursuit for perfection in her work meant that she did not always begin tasks straight away and would frequently be completing tasks after her peers had finished. This was observed twice: *Alannah took her time to choose texters and was the last person at the table to begin. Alannah is not in a rush to complete her activities as she is particular about painting/colouring/cutting (ON29/5/18)*. And *Alannah very particular about gluing. She was concerned that not all the paper was glued down. Alannah was the last student to go to lunch because of this (ON7/8/18)*.

Alannah sought reassurance from an adult or another child’s work: *A needed prompting and kept looking at the teacher for reassurance. She also looked to her peers frequently to check that what she was doing was correct (page turning, pointing to words) even though she was mostly correct (ON8/5/18)*.

Alannah not only had high expectations of neatness in her own work, but also her peers’ work: *Alannah kept stopping her colouring to observe others’ work. Alannah said to the child next to her to “stop scribbling”. Alannah’s work was very neat (ON22/5/18)*.

Alannah carefully perused activities before getting started, which meant she often ran out of time to complete them. *A new task at first is overwhelming –Alannah needs to take in activity before starting. This is the same as in class (ON29/5/18)*.

## **Academic – Distraction**

Alannah was distracted by her peers chattering during literacy groups. While they could chat and work simultaneously, Alannah had to stop doing her work to listen *Alannah cannot talk and do her work concurrently, whereas the other children could hold a conversation and colour at the same time (ON8/5/18)*. Distraction was evident in four observations over the 12-week period. I particularly noticed around the midpoint of the observation period, if Alannah had an interest in the topic of conversation, she would stop work: *When chatter was louder and all students were talking, Alannah would stop task. It*

was noticeable the only times Alannah stopped task completely was when student conversations were about the crayons (ON 15/5/18). I then noted: *Alannah has difficulty completing task as she needs to stop working to engage with other students, whereas the other students can talk and work concurrently (ON15/5/18); and Being so quiet, it is easy to miss subtleties like unable to multitask, distractions that interfere with completing tasks, and she continually works, focuses and is quiet (ON15/5/18).*

Distraction or Hyperfocus (or both) were consistently evident in literacy groups during the period of observations (Figure 4.2). Although the focus of the observation was not on her academic level, the observations highlighted that Alannah was capable but may not have been demonstrating her true ability due to the challenges identified.

### **Academic – Hyperfocus**

When Alannah was hyperfocused she was doing something that interested her and it was difficult to break her concentration: *Alannah went over to her and tapped her writing hand with paper. Alannah ignored, and the boy walked away; and Alannah very focused on her drawing (Both ON21/8/18).*

Colouring was one of Alannah's interests and Hyperfocus was often observed during this activity: *Alannah focused on her colouring – hyperfocus? (ON29/5/18).* I also noted: *Alannah was calm and relaxed when in hyperfocus mode (ON29/5/18).*

Another example of Hyperfocus was when Alannah had been intensely focussing on something and the teacher's assistance was required to transition her:

*Alannah was the last one to get her hat from the drawer and go outside as there was a piece of string hanging over her drawer. It was broken and she couldn't get it to sit where it should. She found it difficult to leave without fixing the string. Her teacher came over and said she would fix it later and guided Alannah outside (ON31/7/18).*

Although hyperfocus wasn't observed in every session, it was regularly observed in five sessions over the course of 12 weeks.

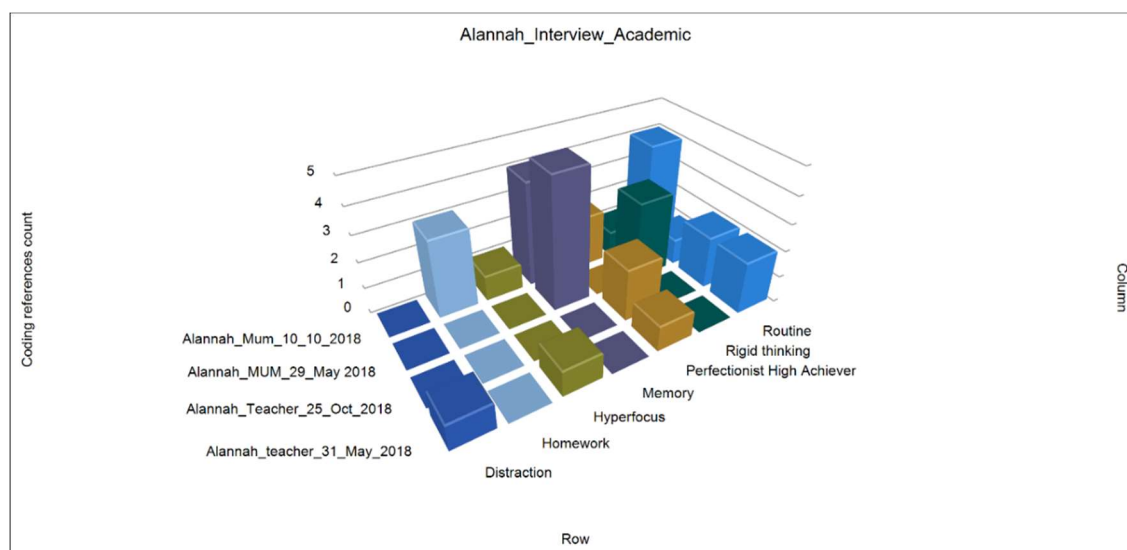
### **Academic – Findings from the Interviews**

The theme Academic emerged from the interviews with both parents and teachers. Unlike the observations, where only three subthemes were identified, seven subthemes emerged from the interviews: (i) Distraction; (ii) Homework; (iii) Hyperfocus; (iv) Memory; (v) Perfectionist/High Achiever; (vi) Rigid Thinking; and (vii) Routine (see Figure 4.3).



**Figure 4.3**

*Alannah's subcodes from Parent and Teacher interviews for the theme Academic*



More subthemes were identified for Academic as Alannah's parent and teacher had a broader understanding of specific learning areas and spent more time with her outside the literacy group and in the playground.

### **Academic – Distraction**

In the first interview, Alannah's teacher acknowledged that peer distraction was an issue for her starting to work: *I think she doesn't start straight away because the other children perhaps may know what to do and she's forgotten or something or gets side-tracked so I think she doesn't start on time sometimes* (ITA31/5/18). Alannah's mother did not report distraction in her interview. This was probably due to her not seeing Alannah in the classroom and few distractions at home as she was an only child.

### **Academic – Homework**

In the second interview with Alannah's mother, she noted that fatigue hindered her ability to do her homework in the afternoons:

*She has been tired after school and then that affects homework. Although we can do it on the weekends, but we still try to do a little bit every day, like her reading.*

*Sometimes she's into reading and other times she's not interested in reading so you take it when you can get it in getting the homework done while she is motivated* (IPA10/10/18).

Alannah was happy to do her homework, although writing was a struggle in the afternoon:

*Although we have seen into end of term 3 with the homework that she was quite okay to do it even the writing part was difficult. So, I would write it out for her. We would talk about it and I would write it out for her and that made it a bit easier for her to have a go at doing it (IPA10/10/18).*

Due to Alannah's fatigue in the afternoons, her mother recognised the challenge that homework presented for her: *Mainly homework after school has been troubling for us (IPA10/10/18).* Alannah's teacher didn't report on homework, likely due to her focus on academics in the classroom environment.

### **Academic – Hyperfocus**

Alannah's mother was the first to identify hyperfocus, explaining in the interview how Alannah could fixate on something, and provided an example:

*She's very obsessed about the little toy the Deputy Principal has, and he said she had to learn the national anthem for assembly, so she's focused on doing that. She wants to get this toy for a day. So, she constantly talks about that as a focus as well as that one child. So that one child, that she plays with a lot, hyper focus on that and hyper focused on the toy by learning the national anthem because that's what the Deputy Principal said that he wants her to focus so she takes that she doesn't forget about it the next week, she focuses on it for a whole term she's been focusing on just that (IPA10/10/18).*

Alannah's teacher also identified hyperfocus and described her strategy when she needed to transition to the next task:

*I'll actually give her a little warning and say, because she loves her colouring in, I'll say, "you have a little bit of time left. If you don't get it finished, you'll be able to have a little bit of time this afternoon to get it finished" and that's really helped as she found it difficult to transition in reading groups but she's doing a lot better now. She couldn't just leave her work unfinished even though there's time later on (ITA31/5/18).*

### **Academic – Memory**

Alannah's mother reported that Alannah had very good long-term memory since a young age. Her ability to recall, in detail, roads and places she had been may be due to an eidetic memory, also known as a photographic memory, whereby memories are viewed as photographs:

*Alannah would just come out with things that were like, how can you remember that? When she was younger between the ages of two and three, we would drive to my parents' house and she would remember the roads we take to get there. So, the minute we started in the car, she would get excited about three or four streets down and knew where we were going. She could talk at that stage and she would get excited. She would be with her nanny/babysitter and could tell her exactly the way to kindy and that was a five to ten-minute walk away. That was from the age of four but she was doing that before then. She would tell me off if I was going the wrong way in the car somewhere. She would just remember (IPA29/5/18).*

Alannah recalled letters as symbols and attached them to names on the phone, but had difficulty associating the individual sounds:

*So, she could recognise, I don't know if it is true reading in the sense, recognising the letters. My mum starts with M, my sister starts with an E, so she would remember what the letter looked like but not necessarily what the sound of the letters were to be able to properly read, but knew everyone in my phone on Facetime, which was about six to eight people, and she could dial them for me not a problem (IPA29/5/18).*

Her mother noticed Alannah was not able to recall events that had just occurred, and put this down to a language barrier and not being able to find the words: *...which was another thing, another red flag for me when she couldn't recall events she'd just done. Her recall on things, her language wasn't able. I think she could remember but couldn't get it out in words (IPA29/5/18).*

Alannah had the ability to remember events but wasn't able to recall them on request. There appeared to be a delay between her ability to recall an event and its occurrence in real time. Alannah's mother cited an example that also came up earlier under Communication:

*... Two weeks later, when her aunt came over, she had just been to a birthday party and had a lovely time there and her aunt asked her what she did today, and she said I went "round and round and round" and gestured like the merry go round at the show. She couldn't recall going to the party that was that morning, but was recalling that two weeks ago she went on the merry go round (IPA29/5/18).*

Alannah's mother believed that although the memory was there, she was unable to recall information on request if she didn't want to talk about it:

*And if she's not prepared to talk about it, she's not prepared to give you that. So, if she doesn't want to talk about it at the time, she just won't give you anything. I don't*

*know if it is short term memory. Her short-term memory is good when we're playing "memory" and she's really good at them (IPA29/5/18).*

Later in the school year, Alannah's mother said Alannah was still struggling with her working memory:

*She still struggles with and we picked this up in speech. It comes up a lot in speech because we're specifically looking at how she's going there but remembering. She can't remember 4 numbers, but she can remember 3 numbers. Three numbers are easy, but add a 4<sup>th</sup> number in there and she can't say it back to you (IPA10/10/18).*

Alannah's mother used exercises to work on Alannah's working memory:

*She still struggles in that area of remembering so that working memory we are finding is possibly affected, which then links up with if she's talking about her day and she's not ready that working memory so that's where we're questioning and how do we build that up. How do we give her exercises and activities around that working memory function because with her, unless it's a subject area very specific it doesn't always go into that working memory? It doesn't make it through to the working memory for her to think "I've thought about it" and connect the building block. Unless she's already got those building blocks of interest areas she may or may not respond very well to that topic (IPA10/10/18).*

Alannah's recollection of details from her long-term memory was usually triggered by an event or topic of interest:

*She's always looking at what's around her. That gives her the confidence to talk about something. She feels like she can converse with someone about something even if it's not anything to do with what we're talking about at the time, she'll pick that thing and bring it back, even months later. It's funny the other day, she picked up something out of a toy chest and I couldn't remember where she got it from but she could clearly remember from her birthday straw from her teacher and it was the little "happy birthday" laminated piece of paper that was attached to the straw and her birthday was in April. She could clearly remember where that came from. Laminated card out of her toy box. She's done that a few times in the last few weeks where she can clearly remember an event that's happened and tell me all about it. Especially with America. She can remember it for years after even from a very young age she can still clearly remember it (IPA10/10/18).*

## **Academic – Perfectionist**

Although, according to her mother, Alannah had low energy levels, she still strived to do her best at school: *The energy levels due to the low iron, a little bit tougher. But I think Alannah still gives it her best in the classroom* (IPA10/10/18). Alannah was keen to finish her work, particularly her drawing, which was of special interest to her: *Definitely with her drawing and finishing those. She definitely goes to the nth degree to finish things* (IPA10/10/18).

Compared to her peers, Alannah was very particular with her colouring and cutting in the classroom:

*Other times, she's very particular and loves colouring things in very well whereas a lot of the other kids are "I'm finished". And also, she takes a lot of care with her cutting, so a lot of her things not finished are her cutting and she's good at cutting but takes her some time* (ITA31/5/18).

At the same time, her teacher stated that Alannah had learnt not everything had to be perfect or complete and was beginning to focus on the purpose of the activity:

*I have seen a big improvement. Yeah, particularly with colouring and things don't need to be finished as well, completely finished anymore. Because if we're doing a sounds sheet, the goal is to do the learning of the sounds for writing not the colouring, so Alannah has learnt that if she gets one done that's fine. She's a lot better at it now than she was in term 1 when it would cause problems* (ITA25/10/18).

Unquestionably, Alannah liked to do things correctly. For example:

*She likes to, needs to, bring it in on the right day and things, and I think last term I had a conversation with mum and she said "it's not the right thing but we're bringing it in for Show and Tell" because she needed to bring something in* (ITA25/10/18).

## **Academic – Rigid Thinking**

Rigid Thinking has similarities with the Perfectionist subtheme identified in the observations. However, in the interviews it was described more as an inflexible thinking style and needing to do things in a certain way. Rigid thinking also overlaps with hyperfocus, where the child can't move on from a task or activity because it needs to be completed in a certain way. At home, Alannah was fixated on doing things a certain way, without any flexibility: *Very stuck in her ways. At the same time, she knows what she wants and when she wants it. So that sometimes gives us challenges* (IPA29/5/18). Alannah's rigid thinking could be viewed as a positive attribute, as she appeared to be quite independent: *A lot of things are*

*on her terms. She's very independent and knows what she wants and has to be a certain way otherwise she doesn't let it slide (IPA29/5/18).*

The example below was reported by both Alannah's mother and teacher but was coded under hyperfocus. Alannah's hyperfocus made it difficult for her to move on to the next task, also a sign of rigid thinking. Her teacher put a strategy in place:

*So, they had a spot to put her work so she can finish it anytime when she had spare time, or she can bring it home to finish it. So that has definitely helped to close that down in her mind and move onto the next thing. She was really struggling moving onto the next activity. Didn't want to, she wasn't finished so she couldn't start a new thing even though it was bringing all the kids to the carpet or moving onto the next piece (IPA29/5/18).*

At home, Alannah liked things done a certain way. Alannah's mother cited this example: *We like to finish a game if we're playing it. With her writing she does get a bit frustrated if it doesn't look the way it should. She does try to get it correct and can get frustrated (IPA10/10/18).*

### **Academic – Routine**

Alannah's mother talked about how important routine was for avoiding meltdowns:

*If I say to her to go for a bath or shower earlier, she in her head, it's going to bed straight after that process. So, if I try to pull it earlier it's a meltdown because she knows she doesn't want to go to bed. She's not ready. She's not ready to go to bed. I try to explain she doesn't have to go to bed straight after, we're just having an early however or an early bath, she really struggles. She even picks me up if I haven't done something right if I've shown her a certain way. That's always interesting (IPA29/5/18).*

Routines could change, but only if directed by Alannah:

*You can encourage that, but then the next afternoon you can try for the same routine and she doesn't want a bar of it, so you just have to say okay, we're not doing that today. So sometimes she can be into reading one day and the next day, not want a bar of it (IPA10/10/18).*

At bedtime, it was a struggle for Alannah to "shut off":

*Then she hates the bedtime routine as she knows she has to shut off and she still has that difficulty shutting off, shutting down. And so, it's a big negative thing for her once she has to go for a bath or a shower. She knows then that's that routine and*

*she's against that routine as it means she has to go to sleep and so getting her to sleep to then having the energy levels for the next day of school and she's still waking up once a night too at a minimum (IPA10/10/18).*

Alannah thrived on routine in the classroom:

*She's brilliant with routine in the classroom though. I think she likes to achieve those little things when the teacher dings the bell, she's always one of the first to respond. She knows that she can be good at that. She takes pride in being able to nail that (IPA10/10/18).*

Alannah's mother adjusted her language to help transition Alannah in her routines:

*Whether I've just got better at adjusting my language and behaviour around transitioning in and out of different things has helped her and she's been getting better at it. She's been getting stuff ready in the morning. It still requires a lot of get up and do this and "after the next ad", "after this show", we're still programming when to do it. There's always negotiation but she has, there's still bribery, the iPad, but those little motivators get used (IPA10/10/18).*

Her teacher also recognised the value of routine for Alannah and used visual cues to assist with classroom routines:

*With the obvious daily routines like getting your hat and water bottle, she can do without the visual cues now. I still use them sometimes for some of the other students as well, but some of the other things, not during rotations when you come, I have the cues there as well, just to help her, so that way she can come back and have a look (ITA31/5/18).*

Alannah's teacher confirmed that routine worked well for Alannah: *I think routine is good for her (ITA31/5/18)*, but it took trial and error to get classroom routines right: *I think teaching Alannah, there's been a lot of trial and error and that kind of processing in regards to OT things and routines and what works best for Alannah (ITA25/10/18).*

Finally, there was no doubt that Alannah needed routine and displayed signs of anxiety without it:

*She likes to need to bring it in on the right day and things, and I think last term I had a conversation with mum and she said "it's not the right thing but we're bringing it in for Show and Tell" because she needed to bring something in (ITA25/10/18).*

## Social – Findings from the Observations

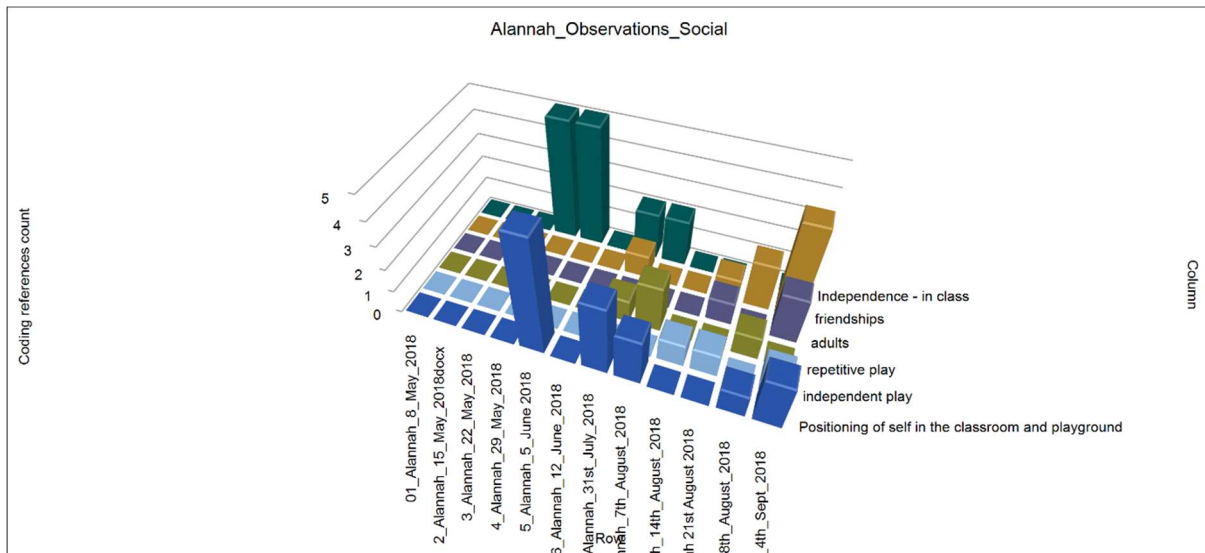
Social refers to interaction with others, including friendships, and is divided into three areas: Playground (Independent and Repetitive Play), Positioning of Self and Relationships (adults, children, independence).

Originally this theme was labelled “Friendships”, but Social extends beyond friendships with peers and includes how a student interacts with adults and other children in the classroom and playground. The findings for Social are displayed in Figure 4.4. Both the classroom and the playground are learning environments and part of the school day. Observations in the playground took place from the 31<sup>st</sup> July (the last six sessions of the observation period), which explains the reduced data for Social in sessions prior to that date. The second half of each of the six observations from the 31<sup>st</sup> July onwards included observations in the playground, where this subtheme branched out into Repetitive Play and Independent Play, as displayed in Figure 4.5.

More social aspects were observed from the fourth observation onwards for two reasons. In term 3, Alannah was still navigating the classroom socially, and the last six observations included playtime, where more social interactions occurred naturally.

**Figure 4.4**

*Alannah’s subcodes from observations of the theme, Social*



### Social – Playground – Independent and Repetitive Play

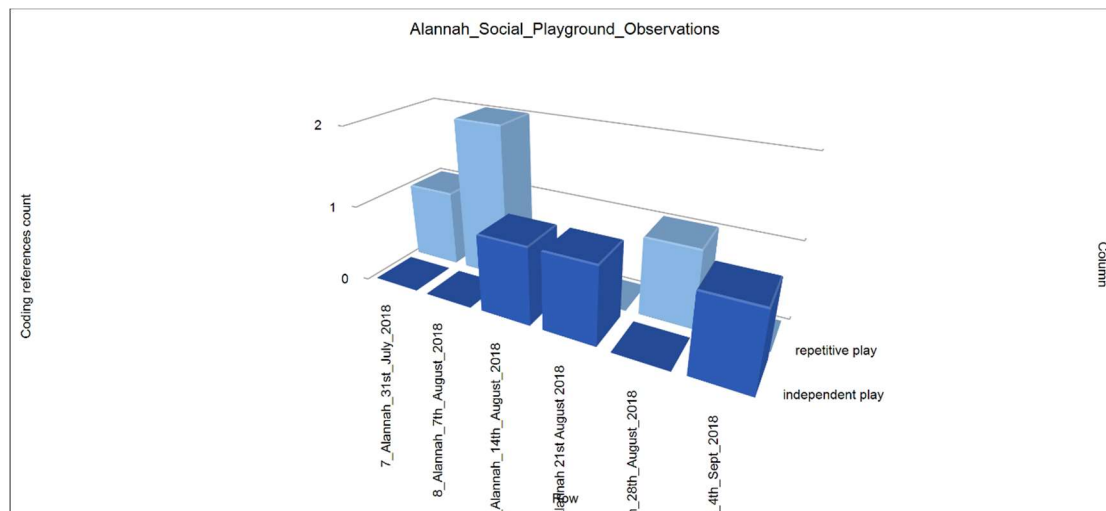
The subtheme, Play, comprised two aspects: Independent Play and Repetitive Play. Independent Play refers to a child playing alone and being content with their own company,



while Repetitive Play refers to routinely playing the same game or activity. During the six observations of Alannah in the playground, either repetitive play or independent play were observed in each session. These are displayed in Figure 4.5 below.

**Figure 4.5**

*Alannah’s subcodes from observations of the subtheme, Playground (Social theme)*



While the two types of play were usually distinguishable, the observations could have applied to both independent play and repetitive play, as they recorded Alannah engaged in a repetitive playing activity on the dolphin mound as well as playing contentedly on the mound alone. The note below was only added to independent play and not repetitive play at the time of coding, even though the same type of play was observed on other days: *Alannah returned to the dolphin mound and played by herself* (ON14/8/18). Alannah’s preference for playing alone was observed again the following week: *Alannah didn’t “play” with anyone. She did her own thing* (ON21/8/18). During playtime, I also observed Alannah seeking out one preferred friendship: *Alannah prefers either to play alone or with one child – will seek out preferred child* (ON4/9/18). Seeking out one child to play with was observed at the end of term three. The teacher reported during the interview that Alannah’s friendship with a particular child had occurred later in the school year. This is further discussed in the interview data analysis.

There were two things that Alannah did repeatedly during play. One was crawling or animal walks around the playground, and the other was observing students from the same spot: *Alannah animal walked over to the sandpit where she laid down and observed other students but didn’t interact* (ON7/8/18); and *When Alannah finished packing her lunch away,*

*she went straight into crawling like last week (ON28/8/18).*

Alannah was content observing other students while sitting on animal-shaped mounds for most of the ten-minute play: *Alannah put her lunchbox away and wandered into the playground and sat on a dinosaur-shaped mound and watched the other children play. Alannah then lay down in the sun (ON31/7/18).* And: *Alannah observed students, then went over to the dinosaur mound and sat on it (ON7/8/18).* Alannah observed other students during playtime that may not necessarily be classified as “play” but was content to observe others while regularly sitting in her usual spot.

### **Social - Positioning of Self**

Positioning of self refers to a child’s preferred physical positioning of themselves in relation to others. Alannah’s positioning of herself was first noticed in the fifth observation. This is further discussed in the interview data analysis. She preferred to sit on the outer edge of the group. I observed her making a conscious decision to position herself away from the other children, both in the classroom and at eating time

In the classroom, Alannah positioned herself in her own space away from her peers where she could see and hear what the teacher was doing and saying. For example: *Alannah stood on the outside (of the group) but could still see (ON5/6/18);* and *At each table, Alannah kept her space from the other children while the teacher explained the activity. Alannah sat on the outer of the group. Alannah didn’t chat to other students when other students do, nor did she ask any questions (ON31/7/18).* Further: *Alannah chose to sit away from her class. The teacher invited her to join the class group, but she shook her head and said no (ON28/8/18).*

I also noted Alannah preferred her own space during her lunch break: *Alannah chose a spot away from the other students and put her back to them. Alannah still prefers her own space to each her lunch (ON4/9/18);* and *Alannah prefers to eat in her own space (ON7/8/18).* Alannah observed her surroundings before she made a decision about where to sit, preferring to sit with an adult if she had the choice. She was observed doing this on three occasions. First in an early observation: *Alannah prefers to be seated next to an adult and Alannah chose to sit next to the parent helper (ON5/6/18).* Again, thinking about where to sit: *Alannah will observe her surroundings before making a decision (ON7/8/18);* and once more at the end of the observation period: *Alannah chose a spot away from the other students and put her back to them. Alannah still turned around and observed other children (ON4/9/18).* Alannah’s preference to communicate with adults rather than peers is discussed further in the

next section.

## **Social - Relationships - (Adults and Children)**

Relationships refers to interactions with other children and adults, such as the teacher and teacher aides. Independence is also discussed where a relationship with others is not established, as it signals a preference to work and play alone and not interact. When Alannah interacted with adults in the classroom, she liked to please by doing the right thing: *Alannah likes to please adults and do the right thing* (ON21/8/18). The notion of “wanting to please” is further explored under Identity.

Despite being quiet, Alannah preferred to talk to adults. Her tendency to engage in little verbal communication was discussed earlier in this chapter: *She was talkative – directed at the parent helper* (ON4/9/18); and in the same observation: *Alannah happy to talk to adults but no conversation with peers in class* (ON4/9/18).

Alannah had difficulties forming friendships – I first observed this during playtime: *Two girls came over and she chatted with them but then they left. Alannah followed them to the fort but didn't interact* (ON31/7/2018). I continued to observe Alannah not interacting with peers the following month: *Alannah continued crawling after (playing on) the trike. A girl went up to Alannah's face while she was crawling and said something to her, but Alannah didn't respond and kept crawling.* I reflected that: *Alannah struggles to break into friendship groups or form her own* (Both ON21/8/2018). A week later, the lack of interaction was observed again: *Alannah moved further down the seat closer to another girl, but she didn't talk to her* (ON28/8/2018). Alannah appeared content in her solitary play and disinterest in interacting with other children.

During the final observation of the series, the teacher advised me that Alannah had made friends with a boy in another class. In an earlier conversation with Alannah's mother, she disclosed that Alannah had singled out one boy in kindergarten and was quite possessive of him. Alannah's mother mentioned it was the same with her current relationship with the boy at school: *Alannah went straight away to find her new friend and she spoke to him. They ran to the playground together.* Alannah would follow her friend around: *Alannah followed the boy around the playground. They chatted but the boy led the way.* Alannah was possessive of her friend: *Another girl started chasing the boy and Alannah chased her saying repeatedly “don't touch (boy's name)”.* Alannah wanted to be the only person the boy played with: *Alannah was happy when the other girl left* (all four references ON4/9/18).

This friendship is further discussed in the section on interviews with the teacher later in this chapter. Alannah's low level of interaction helps to explain why friendships with peers were not being developed.

### **Social - Independence in Class**

Independence refers to a child's preference to engage in activities on their own, even when surrounded by peers. Interaction with others is limited and opportunities are not taken to form friendships.

In an early observation in term 2, on an Under 8s Day, four references were made to Alannah's independence and not interacting with others. She was content to be "in her own world" and do her own thing: *Alannah decided she didn't want to do activity and went to sandpit by herself. Alannah placed her bag down and began to play by herself, ignoring the other children* (ON29/5/18). I also noticed that: *she (Alannah) did not engage with other children, even fellow prep students* (ON29/5/18). Alannah's lack of interest in interacting with other children was consistently observed: *Alannah wandered off to play-doh and teacher followed. Alannah didn't talk to the other children and there were many at the [activity] station* (ON29/5/18).

This observation indicated a sensory issue (shoulder shrugging) around lots of other students overlapping with Alannah being quiet and not interacting with others: *When in line, Alannah began to do the shoulder shrug as face painting was busy with lots of students. Alannah waited silently with her mother, not taking notice of the other children* (ON29/5/18). When hyperfocused, Alannah worked independently, which meant interaction was unlikely: *Alannah was calm and relaxed when in hyperfocus mode* (ON29/5/18).

The following observation was coded under Positioning of Self, but also illustrated Alannah acting independently and learning in a way that worked for her. She positioned herself away from her peers, but could still see and interact with her teacher:

*When asked to go over to the tables so the teacher could go through each new activity, Alannah stood on the outside but could still see. A didn't put her hand up to answer any questions but she watched the teacher. At each table, A kept her space from the other children while the teacher explained the activity* (ON5/6/18).

During literacy groups: *Alannah chose to sit next to the parent helper. Parent helper asked Alannah her name. Alannah responded quietly without hesitation* (ON5/6/18).

In most primary schools, a short fruit break during the first session of learning in the morning is offered to sustain students' energy levels until morning tea. Alannah remained independent during fruit break and did not use the opportunity to interact with others: *Alannah didn't join in with the boys' chatter. Alannah ate her food and looked at the drawer* (ON5/6/18). After the fruit break, the rotation moved to working on computers. Alannah did not respond to a peer:

*A boy who was sitting at the computer next to her tapped Alannah on the shoulder to show her something on his screen. A looked over then went back to her work. Teacher then checked in and asked Alannah if she was okay and Alannah nodded* (ON5/6/19).

The Social subtheme of Independence was noted to overlap with Positioning of Self in the classroom, as Alannah preferred to be independent and made a conscious choice to position herself around her peers. The lack of interaction with her peers inhibited her ability to form friendships: *Alannah likes her own space and prefers to be on the outer of a circle or at the end of a line* (ON5/6/18). *[Alannah] Prefers to sit on the outer of a group* (ON31/7/18).

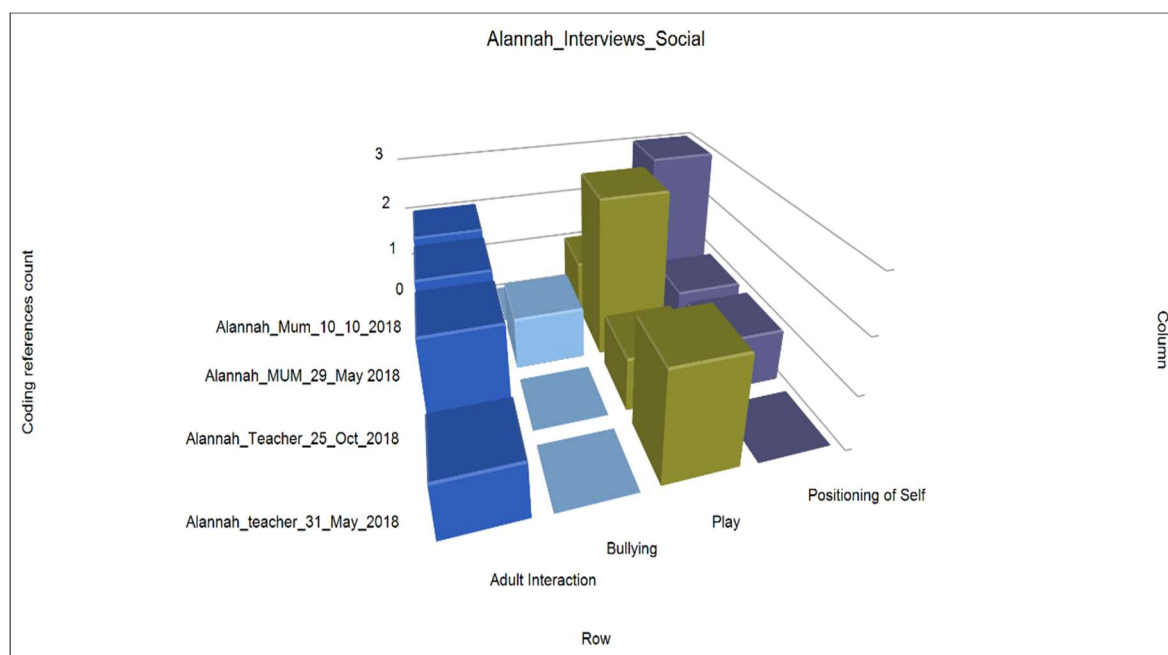
Alannah made a conscious decision about where to position herself, observing her surroundings before deciding where to place herself: *[Alannah] Prefers to observe surroundings* (ON31/7/18); and *Alannah will observe her surroundings before making a decision* (ON1/8/18).

### **Social – Findings from the Interviews**

The Social subthemes of Adult Interaction and Play were the most frequently discussed, as they were explored by the parent and teacher in all four interviews (Figure 4.6). Bullying was only discussed by Alannah's mother during the first interview and Positioning of Self was raised in both parent interviews and the second teacher interview. Independence emerged as a subtheme from the observations but not from the interviews, but overlaps with the subtheme, Play, derived from the interviews.

**Figure 4.6**

*Alannah's subcodes from the interviews for the Social theme*



### **Social – Adult Interaction**

Alannah's mother noticed that Alannah preferred to interact with adults and did so both verbally and non-verbally:

*Around adults I've noticed at school she absolutely adores the staff and the teachers and will often run up and want to give them huge hugs and so I see her more comfortable around adults. She will still want to engage them and again it's charismatically in a non-verbal way. She'll engage with them. She'll quite often talk to them a lot (10/10/18).*

Alannah's mother recognised that her daughter struggled to interact with children:

*She's very good with adults so adults respond very well with her because she's always positive around them usually. However, other children, that's where she struggles (IPA29/5/18). She also recognised that Alannah found it easier to meet her needs by asking adults: She'll eventually get what she wants through adults but she's not assertive to ask for it. I don't know if she asks for her needs to be met because of her language issues (IPA29/5/18). Alannah preferred to ask an adult because she could communicate more easily in a non-verbal way with adults than peers. Her teacher had to remind Alannah to use words:*

*I think that she's more inclined to go to the adult in the room to ask for help rather than to just say "can I have the glue please?" So, we've been giving her lots of prompts. "Well, what could you say to get that glue" so I agree (ITA31/5/18).*

Alannah's teacher reported that Alannah liked a particular teacher because he had something Alannah was interested in:

*I can tell you why she's in love with Mr Richardson. It's because he has a monkey called Dave and now Alannah has a little mini Dave on her bag, and she's obsessed with Dave and that's why she likes seeing Mr Richardson all the time (ITA25/10/18).*

Later in the year, Alannah still attempted to fulfil her needs non-verbally:

*In the classroom situation and we have talked about it before. If she needs a glue, and there's not a glue, she will go up and ask an adult to get a glue rather than just ask a child for a glue, so I do agree with that (ITA25/10/18).*

Alannah asked for the glue using non-verbal gestures and avoided talking to a child by asking the teacher. The teacher reminded Alannah to use her words, so she had to talk anyway.

### **Social – Bullying**

Only Alannah's mother discussed bullying, and while she didn't perceive it to be a problem at the time, she was concerned that it could become an issue as Alannah became older and more aware of relationships. Despite this single reference to bullying, it is an important consideration, particularly as research shows children diagnosed with autism are more vulnerable to bullying:

*I would say right now it's actually a nice little world she lives in because she doesn't get caught up in all the nonsense, or girls you know being mean to each other just in the playground, coz she is happy and content to be by herself. She doesn't have to have anyone else around her to be happy or worried about friendships. I don't know how long that is going to last for (IPA29/5/18).*

### **Social – Positioning of Self**

Alannah's mother was aware of where Alannah positioned herself in relation to her peers: *She tends to stand back a bit and isn't assertive like a lot of other children (IPA29/5/18).* Throughout the year, she noticed that Alannah consistently positioned herself on the outer of groups, making a conscious choice to do this:

*Going back to personal space, I've noticed she will sit herself on the outer of a circle... I noticed when they were in a group, Alannah was toward the front within a group of people but then everyone sat down and she chose to sit down last and she*

*walked herself all the way to the back of the group and then chose to sit down. So, she won't sit down until everyone else has sat down and then she knows where she needs to sit (IPA10/10/18).*

Alannah's mother noticed Alannah was more comfortable sitting at the edge of a group of children, but needed less personal space when interacting with adults:

*It's quite funny to watch as she just stood there and waited 'til everyone else sat down. I was thinking what is she doing but it was because she wanted to walk around the back and sit on the edge and was comfortable...Around adults I've noticed at school she absolutely adores the staff and the teachers and will often run up and want to give them huge hugs and so I see her more comfortable around adults (IPA10/10/18).*

The teacher noticed Alannah preferred her own company and liked a lot of personal space, which was not always an option in the classroom:

*I think I've noticed particularly some morning teas and some lunch times; she does have that down time by herself. That time to be by herself, but it could be because she doesn't want to enter in socially. In the classroom, I haven't been looking for this, so she's stuck next to children all day long and I don't feel like she gets a lot of personal space in the classroom environment. Even during play she's often playing in the classroom, often with other children exploring and investigating, so it's something I haven't actually picked up on myself (ITA25/10/10).*

## **Social – Play**

Alannah's mother noticed her disinterest in interacting with other children before she started school:

*It was around other children. Not really wanting to play with them. Quite often taking herself off to play by herself. When she met new children, she would often hide under the table or hide behind me or climb up on me to get away from them. It was like a fright or flight response to get away from other kids (IPA29/5/18).*

In kindergarten, the year before compulsory schooling started, Alannah preferred to play alone or with only one boy: *When she was at kindy she quite often played alone or with another boy on the spectrum. She loves dinosaurs. She plays more with the boys than the girls. Challenges at school, she again is held up with that communication issue. (IPA29/5/18)*

Her mother recognised that Alannah preferred to play alone or parallel play with other children:



*And usually either playing by herself or playing beside other children. She very rarely, that I could see, would solidly play with them. She does play with her cousin who she knows very, very well but it's more what she would do at home, like she would role play with her little characters, brushing hair, "now it's time to have dinner, and now you need to brush your teeth". Very little imagination (IPA29/5/18).*

Alannah enjoyed playing by herself at home even when other children were visiting: *She still enjoys playing by herself very much so, and will often ask when we have other kids over if she can play by herself in her room (IPA10/10/18).*

Alannah's teacher also noticed this aspect of her behaviour. In response, she encouraged Alannah to sit with other children during eating time to get her used to interacting in the playground:

*Alannah was sitting by herself at munch and crunch time, and we slowly got her sitting with her friends and things like that, so identifying social situations with the kids, which I think is hard if you're not in the playground with them as well (ITA31/5/18).*

She was aware that Alannah found it difficult to eat and socialise with children at the same time: *The big interactions I've seen with the kids is outside and I've noticed she stops eating when they're having a good old chat (ITA31/5/18).*

Alannah preferred to play with one boy at lunchtime, similar to the situation her mother described when Alannah was in kindergarten. This scenario is elaborated in the observation notes, where Alannah did not want other children playing with her friend:

*Alannah would go up to him at lunch and she was standing there and just wait. So, we've taught Alannah that if the boy is still eating, what could she do in the meantime? Go and play with somebody else. And she does have a lot of other friends from the classroom (ITA25/10/18).*

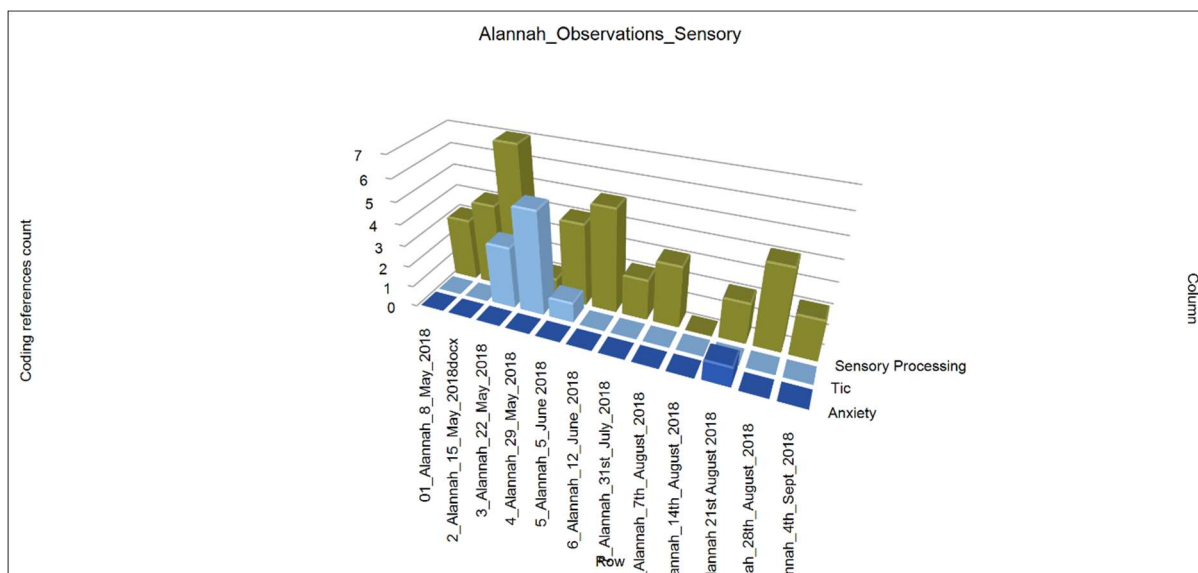
Alannah appeared not to use words to talk to other children. Although she was able to speak and received speech therapy, she chose not to express herself verbally.

### **Sensory – Findings from the Observations**

The main theme, Sensory, encompassed three subthemes; Anxiety, Sensory Processing and Tics, which included stimming (Figure 4.7). The term Sensory refers to Alannah's observable responses to sensations or physical senses.

#### **Figure 4.7**

*Alannah's subcodes for observations of the theme Sensory*



The first subtheme, Anxiety, is a feeling of worry or nervousness, or a strong desire to do something. In the context of this research, it was usually associated with a trigger. Sensory Processing is the body’s response to sensations, such as touch, sound and movement. When the body misinterprets this information, coping mechanisms like stimming are used. Tics are short, repetitive movements that can either be motor or vocal.

### Sensory – Anxiety

Anxiety is a response to worry or fear of something that has already happened or could recur. Although I didn’t observe Alannah experiencing anxiety, it may have presented itself as stimming or a tic, discussed later in this chapter. Anxiety was discussed in the interviews and is further explored in the section analysing the interviews with parents and teachers.

On one particular day, I had an informal conversation with Alannah’s mother about an occurrence at school the previous day that triggered anxiety in Alannah:

*Mum said Alannah didn’t have a good morning and forgot her violin. Yesterday she vomited from anxiety over a misunderstanding with an After-School Care toy. Alannah didn’t tell them the toy wasn’t hers and just followed their instructions to put it in her bag. She told her mum and didn’t want to get into trouble (ON21/8/19).*

Tics and sensory processing issues are commonly linked to anxiety. It is possible that Alannah’s parent and teacher did not recognise her anxiety in some instances where sensory processing and tics were present.

## Sensory - Sensory Processing

Sensory Processing refers to the body's response to sensations such as touch, sound and movement. Alannah used different movements and parts of her body to counteract and stabilise sensations in her body, known to be correlated to the vestibular system. During the observation period, I observed Alannah in different movements and positions, including rocking, resting her head on her elbows, sitting in the "w" position, moving on her chair or floor, feeling items with hands/fingers, and whole-body movement. Some of these repetitive movements, like rocking, may be considered stimming.

Alannah was observed rocking herself to calm her body: *Alannah rocked in her chair briefly* (ON18/5/18); and: *Closer to the end of the reading, Alannah rocked in her chair* (ON5/6/18); and *Throughout reading, Alannah intermittently rocked her body* (ON7/8/18).

Alannah also combined rocking with twirling her hair, also a stim: *Rocked intermittently in her chair. When Alannah was asked to read a page, A twirled her hair and "ummed"* (ON18/5/18); and: *Alannah was asked by the teacher aide what her favourite page was, Alannah responded and twirled her hair* (ON5/6/18). Alannah rocked her body when surrounded by peers on the carpet: *She sat on the carpet facing the front, silent, rocking slightly while other children chatted, waiting for everyone to come to the floor* (ON8/5/18); *When A sat down, A continually rocked back and forth.* (ON12/6/18). Alannah commenced rocking when interacting with a peer: *When another student joined the group, A stopped her work and rocked her chair saying "you're in our group* (ON15/5/18). Alannah also rocked during eating time with peers: *A gently rocked back and forth the whole time she ate* (ON12/6/18).

On another occasion, Alannah looked relaxed moving her whole body on the floor along with her peers: *"Brain Break" at the Interactive White board. The students do a singing/dance. Alannah followed action and signing standing in the middle of the group. Alannah really enjoyed the movement* (ON21/8/18). More whole-body movements were observed when Alannah did big jumps up and down in the classroom: *Alannah jumped up and down excitedly and said to the teacher "I want to do the letter G" which is her next group* (ON15/5/18). The teacher noticed her overexcitement the second time and used a distraction to calm her: *When task was finished, A jumped up and down excitedly like she did earlier and the teacher gave her a job before returning to the carpet that calmed her through distraction* (ON15/5/18).

Alannah's joy was visible on her face when she ran her fingers through rice and

kneaded play-doh during literacy groups: *Alannah was at the table with play-doh activity. She is one girl in a group with five boys. Alannah is enjoying playing with the play-doh, smiling and talked to the boy next to her about the play-doh* (ON28/8/18). Also: *Alannah was very involved with kneading her play-doh. She really enjoys the sensory side* (ON28/8/18).

Alannah enjoyed moving her whole body, standing up and sitting down during the activity: *She didn't stop manipulating the play-doh and she could stand up and sit down* (ON28/8/18).

When Alannah moved to the next activity with rice, she began work immediately: *Alannah sat down straightaway and began moving rice through her fingers* (ON28/8/18). During the same observation I noted: *Alannah is much more focused if her hands are busy – sensory – such as playing with play-doh or rice* (ON4/9/18).

During the Under 8s Day, Alannah's mother mentioned her sensory-seeking when she went over to the sandpit: *Mum said Alannah loves the sandpit for the textures* (ON29/8/18). I noted that Alannah was more focused when her arms were moving. *Alannah did well at this activity – counting syllables and stretching words (had arm actions) – Alannah more focused on activities with sensory appeal or movement involved* (ON4/9/18).

In one lesson, Alannah was observed repeatedly resting her head on her hands with her elbows on the table: *Alannah would rest her head on her hands with her elbows on the table during literacy groups* (ON22/5/18); *Alannah had her elbows on table and hands on cheeks* (ON5/6/18). Alannah rested on her elbows during reading groups: *When it came to reading as a group, A rested her head in one hand, leaning on her elbow* (ON12/6/19).

Alannah also combined resting on her elbows with body movement, including moving her cheeks to her shoulders, a tic, discussed in the next section:

*Alannah continued to move her body a lot and she rested her chin on her hands and leaned on her elbows. Alannah was distracted by a child behind her who was on a computer. Alannah putting her cheeks on her shoulders became more noticeable* (ON22/5/18).

In different observations, Alannah appeared to be more focused when she could stimulate using movement, mostly her legs: *Alannah continued to move her legs. Alannah had to read her page out loud, Alannah's cheeks to shoulders were more marked at this time then she leaned on her elbows again* (ON22/5/18); *Alannah continually moved in her seat* (ON7/8/18). Alannah also liked to have one leg up on the chair while standing and working: *Alannah continued to do her task with one knee on the chair and only spoke to the parent helper* (ON5/6/18). Also: *Alannah knelt on the floor to do her work at one stage, then sat back up in her chair* (ON7/8/18); *For hands-on work, Alannah prefers to stand or have one foot on the*

chair. For reading work, she tends to have elbows on desk, resting her head on her hands (ON5/6/18).

Alannah tended to sit on the carpet in the “w” position, which involved sitting with her knees to the front and her ankles on either side of her hips making a “w” shape, related to weakened core muscles: *Alannah sat in the “W” position* (ON12/6/18).

*Floor activities, Alannah sits in “w” position, consistent with what mum says she does at home. Alannah then stood up and watched another student. Parent redirected her and they looked through a magazine together again for another picture. A sat in “w” position to cut out picture they found together. She then changed her legs to sit with one crossed and one leg out* (12/6/18).

To counteract the “w” position, a support chair was introduced the following month during floor time: *Alannah now has a “hug” chair to sit in on the floor. It is floor level but provides back support* (ON31/7/18). *Difficulty sitting long periods. Hug a chair helps greatly when on the floor* (ON31/7/18).

## **Sensory - Tics**

Tics are repetitive movements that are difficult to control. They were noticed during observations of Alannah and also identified in her autism diagnosis. Her mother explained that Alannah had both types of tics – motor (eye blinking and shoulder shrugging) and vocal (throat clearing). Two tics were observed: shoulder shrugging and blinking/widening of the eyes. Shoulder shrugging was more prominent when attention was on her: *At this table, Alannah kept shrugging her shoulders. I noticed this movement when she first began this rotation, and the movement continued sporadically. And: Alannah moved to her new table (guided reading with the relief teacher) and kept touching her cheeks to her shoulder, which I previously thought was shrugging. Also: Alannah had to read her page out loud, her cheeks to shoulders (movement) were more marked at this time; then she leaned on her elbows again* (all three references ON22/5/19).

At the end of this observation, I noted that Alannah’s tic (cheek-to-shoulder movement) was accompanied by stimming (moving her feet) and increased when attention was focused on her: *Stimming was present by way of cheek-to-shoulder movement and moving of the feet. Increased stimming as time went on or when attention on her, for example reading to group or answering a question* (ON22/5/18).

Alannah’s tics were especially noticeable on the Under 8s Day, when she was surrounded by more children than usual. Her mother attended Under 8s Day to assist Alannah

in the morning. Throughout the under 8s activities, I observed Alannah's tics:

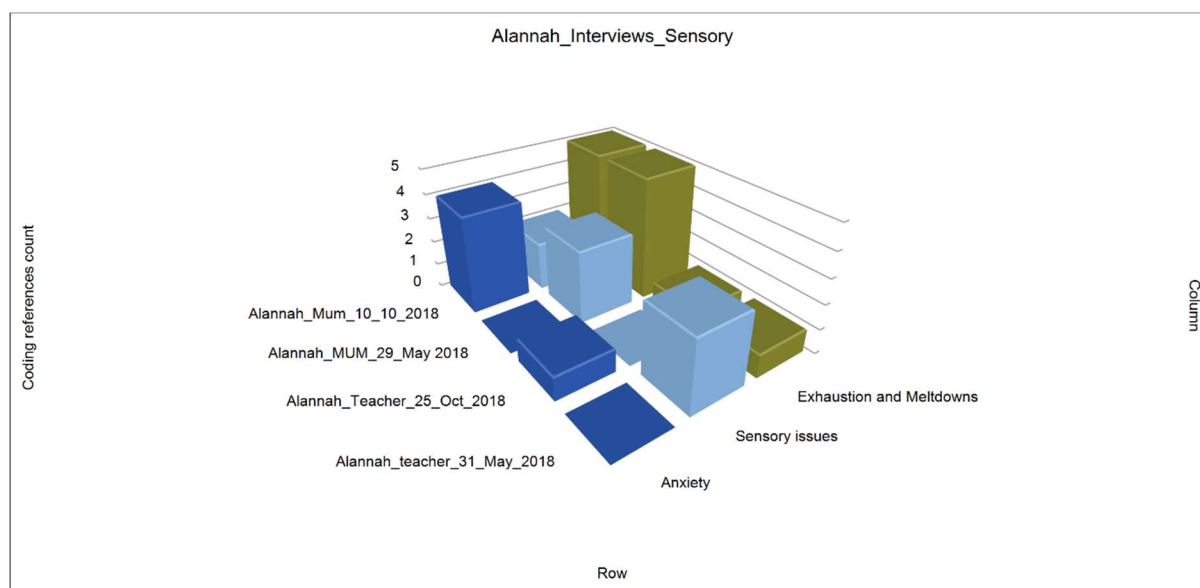
- i) *She did one "shoulder shrug" (check to either side of shoulders). Alannah was seen doing this more than ten times over the two-hour period.*
- ii) *Alannah shoulder shrugged at puppet station. She chose her own space and was completely focused on cutting. Alannah's eyes widened, like the mum mentioned, when paint was placed in front of Alannah.*
- iii) *Alannah was particular with her painting, like she is with her crayons in the classroom.*
- iv) *Alannah wandered off to play-doh and teacher followed. Alannah didn't talk to the other children and there were many at the station. Alannah did her eye widening/blinking when she started to play with the play-doh.*
- v) *Mum says she's very quick at puzzles and has been since a young age and can do hard ones. Alannah shoulder shrugged three times. (All five references ON28/5/18).*

### **Sensory - Findings from the Interviews**

Three subthemes were identified from the interviews under the theme Sensory: Exhaustion and Meltdowns, Sensory Issues and Anxiety (Figure 4.8). Exhaustion and meltdowns were most prevalent in all four interviews but were not observed during any of my observations. In the interviews, both Alannah's parent and teacher mentioned that Alannah internalised her feelings and released them at home, which explains why I did not observe any meltdowns, only signs of anxiety. Sensory issues were discussed in both parent interviews and the first teacher interview. Anxiety was discussed in the second interview with Alannah's teacher and parent.

**Figure 4.8**

*Alannah's subcodes from the interviews for the Sensory theme*



### **Sensory – Anxiety**

Alannah experienced anxiety separating from her mother at the start of the school day:

*The first couple of weeks she was fine separating at the start of the day. However, then in term 2 and term 3 it did get worse. However, once I had left, she was fine after that. It was just letting go and she would chase me out of the classroom. I'd have to engage the teacher or the teacher aide in to having her hand, giving her a job so I could leave without causing too much anxiety (IPA10/10/18).*

Alannah's mother associated her daughter's body language with anxiety: *I think it was more anxiety because of the body language that would ensue along with that and the look on her face (IPA10/10/18).* Alannah's mother felt her anxiety reduced around familiar people:

*Although I haven't actually seen too many outside of her cousin and close friends, which I think there's no anxiety around those people, she can communicate quite easily. But it's when new kids, she possibly doesn't always. There's that little bit of anxiety that creeps in. Doesn't always have that level of sentences always rolling off her tongue. A little disjointed still (IPA10/10/18).*

At times, Alannah's mother struggled to alleviate Alannah's anxiety:

*She still has that moment of falling back into repetitive single use words where we can't talk it through. That's still the biggest frustration is talking it through with her. I*

*don't have that option or that opportunity to alleviate some of her anxieties (IPA10/10/18).*

Alannah's teacher believed that Alannah's anxiety was more noticeable at home, although she had noticed signs of anxiety at school when she wasn't getting things right, such as the day of the Show-and-Tell activity:

*I think mum gets the brunt of it at home. I think Alannah bottles it up at school. There was an incident the other day where she forgot her Show-and-Tell and I said: "I'm going to write it in your diary, so you remember to bring it tomorrow". And she just started crying so I had to pull her aside and explain what I was going to do (ITA25/10/18).*

### **Sensory – Exhaustion and Meltdowns**

Alannah's mother spoke at length about Alannah's often-seen after-school meltdowns, referring to a lack of control and inability to take anything in, including her surroundings. Exhaustion and fatigue were usually the reasons for her meltdowns. She typically had difficulty communicating and her mother found that using too many words escalated the situation:

*And then I would communicate I will get you something in a minute or we'd be in the car and I couldn't get something to her straightaway and I'd say that to her, as soon as possible, and she would still just say "thirsty, thirsty, thirsty" and ramp up and get frustrated by it. Even though, I said "yes, I will get you water in a minute or we're just about home", once she gets worked up, she can't take anything in and doesn't hear what I'm saying because she's so focused on just what she needs. Words upset her more. So, if I say too many words, she just meltdowns (IPA29/5/18).*

Alannah's mother struggled to distract Alannah during a meltdown. She had to support her daughter emotionally and wait it out:

*We were trying to distract her from her initial meltdown just to work out if it was a tantrum or not. It was really hard to distract her. Again, trying to understand how to stop the meltdown or try and cut it off before it happened was a big learning curve for us and once I worked out that the more I tried to talk to her and more words I throw at her the worse it gets. She still has a meltdown, but I couldn't talk to her. I'd simply say to her "I'll be over here, I'm here for you, I'll be over here when you're ready to come to me". Had to be her terms (IPA29/5/18).*

Alannah's mother referred to "too many words" triggering an adverse reaction when



Alannah was already frustrated: *So, when I'm giving her suggestions, I'm then throwing words at her and she starts to get frustrated and starts an onset of a meltdown because she can't get what she wants, and I can't work out what she wants (IPA29/5/18).*

Her mother acknowledged that although Alannah appeared calm at school, she vented her frustrations and exhaustion at home:

*Then at school, they say she is good at sitting on the carpet. Quite often it's at home she has the meltdowns. She holds it together at school a lot, can get tired easily but will hold it together at school a lot (IPA29/5/18).*

Alannah's mother acknowledged that Alannah's exhaustion was exacerbated by her low energy levels, caused by dietary issues:

*Some other challenges have been around energy levels because there is the low iron. Probably due to lack of interest in different foods like red meat. Having to chew that. She only likes limited things (IPA10/10/18).*

Alannah's exhaustion affected her ability to do homework after school:

*She has been tired after school and then that affects homework... Mainly homework after school has been troubling for us. Getting anything done after school with the timeframes just with her energy levels (IPA10/10/18).*

Not getting enough sleep also contributed to Alannah's exhaustion:

*And so, it's a big negative thing for her once she has to go for a bath or a shower. She knows then that's that routine and she's against that routine as it means she has to go to sleep and so getting her to sleep to then having the energy levels for the next day of school and she's still waking up once a night too at a minimum (IPA10/10/18).*

Her parents encouraged Alannah to learn the piano, but because it triggered meltdowns they decided not to continue: *So, she just shut down. Wouldn't even have another go. Couldn't get her in the door. It was a meltdown, so we obviously didn't continue with that. We're still going with dance (IPA10/10/18).*

Alannah knew her routine for bedtime but did not want to sleep, so this also tended to cause a meltdown. Alannah's mother attributed her reluctance to sleep to not being able to shut down her thinking at night, and the transition triggered a meltdown:

*If I say to her to go for a bath or shower earlier, she in her head, it's going to bed straight after that process. So, if try to pull it earlier it's a meltdown because she knows she doesn't want to go to bed. She's not ready. She's not ready to go to bed. I try to explain she doesn't have to go to bed straight after, we're just having an early however or an early bath, she really struggles. She even picks me up if I haven't done*

*something right if I've shown her a certain way. That's always interesting (IPA29/5/18).*

Alannah's teacher catered for Alannah's exhaustion at school:

*Some challenges I think is Alannah has been quite tired during the day because it's so much work for her to do what she's doing. So that's been an ongoing challenge and sometimes she might have a little nap in the tent and you just kind of go with it (ITA25/10/18).*

Her teacher also connected Alannah's trouble sleeping with her low energy levels at school:

*So, a few weeks ago or two months ago, I was talking to Alannah's mum and she wasn't sleeping well because I had said she was quite tired recently and she said yeah the fan's keeping her awake but she won't sleep without the fan etc. So, I think she's sleeping better now as I spoke to her the other day. It's full on for her to sit there and listen and keep up with everything but she holds it together at school (ITA31/5/18).*

### **Sensory – Sensory Processing**

When she was at home, her mother described Alannah requiring a lot of sensory input through movement:

*Working with OT, she does sensory seeking quite a lot, the movement, will jump around, bounce around a lot and needs to feel the ground so heavy on her feet, will sometimes drop to the ground, watching TV she'll bounce around on the couch, can't sit still a lot of the time (IPA29/5/18).*

Alannah enjoyed sensory experiences with her hands, as reported in the observations of her playing with play-doh and rice:

*We have a crusher dust driveway and ever since she was little, she would run out, instead of playing with toys, she'd just go and play on the driveway. We had to tell her not to play on the driveway as it was dangerous. She would be running her hand through the crusher dust and scooping it up and letting it fall out of her hands and just watching it (IPA29/5/18).*

Her mother reported that Alannah's need for sensory input was evident at kindergarten: *And at kindy last year and she as always in the dirt pit with the dinosaurs or in the sandpit (IPA29/5/18).* Alannah struggled to eat certain foods because of their texture, which her mother believed contributed to her low iron levels and exhaustion: *Some other challenges have been around energy levels because there is the low iron. Probably due to*

*lack of interest in different foods like red meat. Having to chew that (IPA29/5/18).*

On the advice of the occupational therapist, Alannah's parents provided a wobble chair for her to use in the classroom and help with the need for sensory input:

*The wobble chair she's got helps her dispel that energy. Coz if she's in a firm chair, she still wants to bounce on it. Then the big elastic, big band around the bottom of the chair just relieves her feet as she still has to have that output of movement, that feeling up against her body of that bouncing to something either when she's doing quiet work or even in a group she's still wanting that bounce motion of some sort so those bands just help her and the wobble chair helps her focus that bit better (ITA10/10/18)*

As suggested by the occupational therapist, Alannah's teacher implemented strategies with the whole class to augment Alannah's sensory input in an inclusive approach for all students who may benefit:

*Yeah and I try to a lot of it whole class as well even just the animal walks and stuff because I have a few children that need it like they do the snake walks to their desk or whatever. I have all the cards over there. Alannah's then not doing it in just isolation (ITA31/5/18).*

Alannah changed her body position as a coping mechanism to help focus on her work:

*The other thing she likes to do is stand and write at the writing table. I give her a choice to stand or sit and she often likes to stand so I take a little caddy over there for her. One of things Alannah's mum wants to try is the hug-a-chair and so she's trying to get one through her funding to get one for the classroom and see if that helps her (ITA31/5/18).*

She required sensory input in different forms to help her focus in class:

*She likes to stand up but I'm not actually sure why she likes to stand up but she does so I just go with that. On the carpet she finds it difficult and I know Alannah's mum will say she sits in the 'W' but she doesn't do that in the classroom but she's often moving around like this, side to side. At the tables, she can sometimes have one leg up on the chair, which is why the thera-band was good to get her bouncing her legs, and they would kind of not up on the chair (ITA31/5/18).*

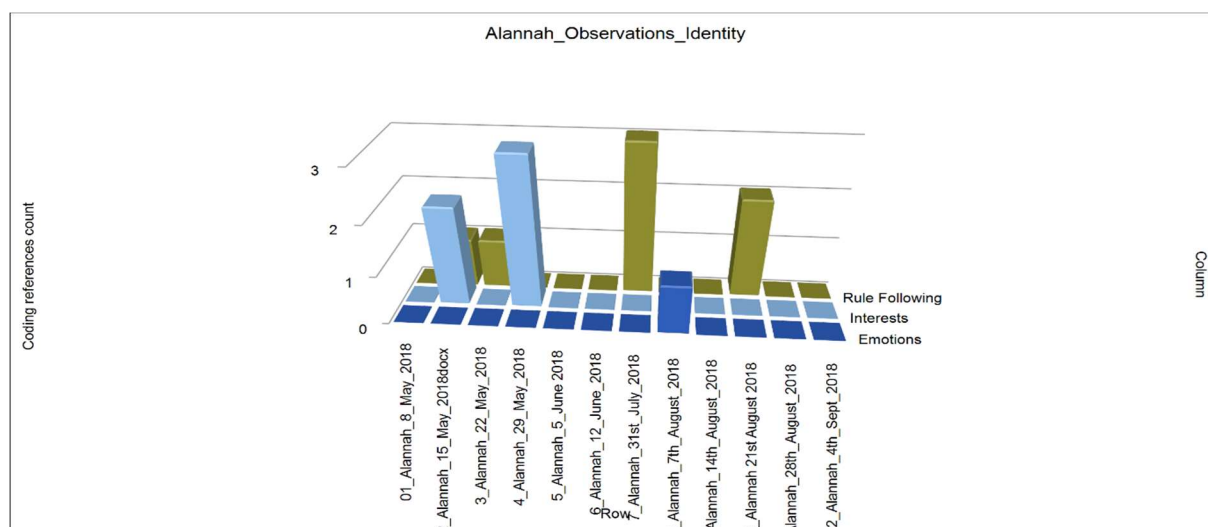
## Identity – Findings from the Observations

Identity is the final CASSI theme and refers to self-expression and how it is viewed by others, specifically in a classroom context. Identity included three subthemes: Interests, Rule Following and Intense Emotions (Figure 4.9).

Identity was refined to include traits beyond communication and sensory, recognising that the emotional response of a student may include empathy or intense emotional reactions and manifest as appealing or apologising too much; being highly sensitive; crying or becoming frustrated; looking serious and not matching the situation; or appearing to be “off with the fairies”. Interests are often intense and persist for extended periods of time. Rule following included pleasing others, in this case an adult and usually the teacher, and was most prevalent in the 12 observations, as shown in Figure 4.9.

**Figure 4.9**

*Alannah’s subcodes from observations for the theme Identity*



### Identity – Narrow Interests

Alannah preferred to listen to conversations rather than participate, but would interact when the topic was of interest:

*When chatter was louder and all students were talking, A would stop task. It was noticeable the only times Alannah stopped task completely was when student conversations were about the crayons. On the same day: Alannah would listen and sometimes engage in conversation if it was about crayons. It seems it needs to be a*

*topic of interest for Alannah to engage in conversation with other students (both ON15/5/19).*

Hyperfocus was evident in activities of particular interest to Alannah: *Alannah chose her own space and was completely focused on cutting; and: Alannah still focused on her painting. Many other students had been and gone from the station (both ON29/5/18).*

A puzzle station on the Under 8s Day was of special interest to Alannah who was doing more advanced puzzles for her age: *Mum says she's very quick at puzzles and has been since a young age and can do hard ones. A shoulder shrugged three times (ON29/5/18).*

### **Identity – Rule Follower**

Rule following is accompanied by high expectations of others to also follow the rules. In this study, wanting to please the teacher was also categorised as rule following. Early on, Alannah was observed regularly following rules and instructions in class: *Alannah started task as instructed by teacher (ON15/5/18); Alannah will follow teacher direction. Very attentive to teacher and watches her a lot (ON31/7/18); The teacher asked students to go to their learning spot. Alannah walked quietly to her spot and listened to her teacher's instructions, not taking her eyes off her. And again, closer to the end of the observation period: Alannah likes to please adults and do the right thing (Both ON21/8/18). Alannah also liked to please her teacher by following directions, completing her work and checking in with her and other adults:*

*Alannah easily followed directions and was praised for sitting properly and listening. Alannah immediately went to her teacher to show her, then went and showed the teacher aide. Alannah will follow teacher direction. Very attentive to teacher and watches her a lot (ON31/7/18).*

Alannah also wanted her peers to do the right thing in class and had high expectations of herself and others: *Alannah kept stopping her colouring to observe the work of others. A said to the child next to her to "stop scribbling". Alannah's work was very neat (ON22/5/18).*

### **Identity – Emotions**

An emotional response was only observed once during lunchtime. This was not surprising, as Alannah coped well during class time. Emotional responses are further documented in the interviews with Alannah's parent and teacher. At the end of one lunchtime, Alannah dropped her lunch. I noticed that she didn't become upset, but was panicky as she repeatedly tried to get her lunch back in the lunchbox:

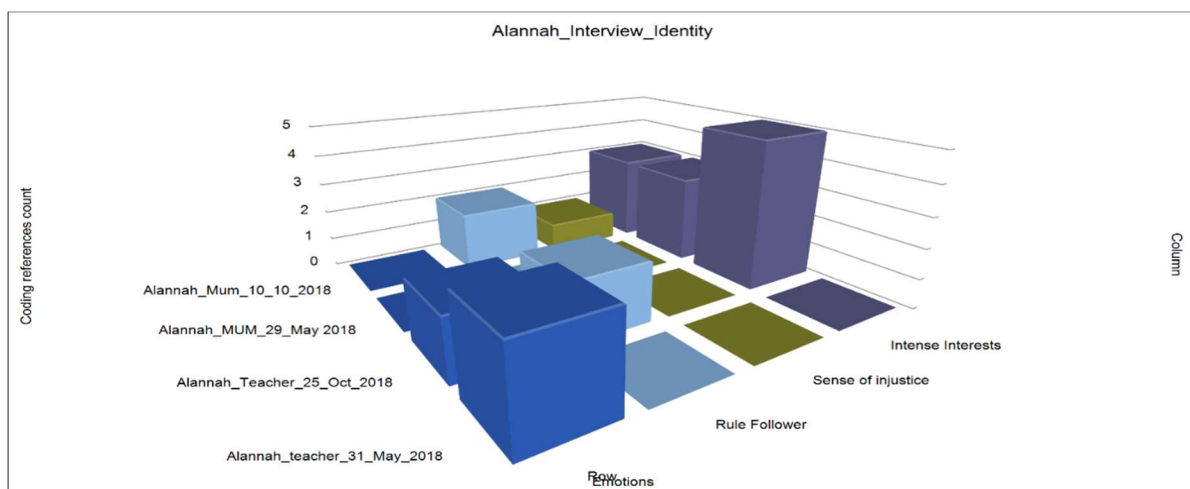
*Alannah dropped her food everywhere out of her lunch box moving to the side as play bell had rung. She wasn't upset but struggled to get her food back into the lunch box and the ice packs to close it. This went on for a few minutes (ON7/8/18).*

### Identity – Findings from the Interviews

In coding the interviews, four subthemes emerged for Identity. Three were the same as the observations: Intense interests, Rule follower and Intense emotions, while a fourth subtheme, Sense of Injustice, emerged from the parent interview (Figure 4.10).

**Figure 4.10**

*Alannah's subcodes from the interviews for the theme Identity*



### Identity – Emotions

Alannah was quite affectionate towards her teacher, something that wasn't observed with her peers: *When I first met Alannah, she's actually quite affectionate. She loves coming up to you and giving me hugs and she's quite smiley. I try to get her attention a little bit, I give her a little facial expression that gets her (ITA31/5/18).*

Alannah's teacher worked on associating emotions with feelings: *The other thing we're working on is emotional – identifying emotions, things like that as well. When she feels happy, when she feels sad. That type of thing (ITA31/5/18).* Alannah showed empathy towards her peers if she saw someone was visibly upset: *I think she's quite compassionate. So, if she sees someone upset, she'll actually go up to them and give them a hug and check they're okay (ITA31/5/18).*

Alannah's teacher knew that Alannah suppressed her emotions at school, but noticed that she got upset when she was unable to do her Show-and-Tell:

*I think mum gets the brunt of it at home. I think Alannah bottles it up at school. There was an incident the other day where she forgot her Show-and-Tell and I said I'm going to write it in your diary, so you remember to bring it tomorrow. And she just started crying so I had to pull her aside and explain what I was going to do (ITA25/10/18).*

Alannah had an intense reaction when she didn't bring her Show-and-Tell to school on her nominated day and it took a while for the teacher to calm her down: *She wasn't in trouble and I just needed to remind at home because we wanted to hear what she had to say. And she took a little while to calm down, but we got there (ITA25/10/18).*

### **Identity- Narrow Interests**

Alannah had few, narrow interests – puzzles, the television cartoon “Paw Patrol” and dinosaurs. At school, her interest was colouring in. Alannah was very good at complex puzzles:

*She was quite good at puzzles; I could give her puzzles for an older age group and she could still do them quite quickly as long as they were her interests. If it wasn't her interest, she didn't want to know about it. And that was about a lot of things (IPA29/5/18).*

Alannah's special interest in dinosaurs began in kindergarten: *And at kindy last year and she as always in the dirt pit with the dinosaurs or in the sandpit (IPA29/5/18).* She also had an intense interest in a children's television cartoon series: *She loves all of her, obsessed about Paw Patrol (IPA29/5/18).* Alannah wrote about Paw Patrol at school and talked about it with confidence:

*She confidently told me all about what she did in her journal writing, which was about the school holidays and it was going to the movies to see Paw Patrol. Again, very interesting subject for her. It's one of her subject areas that she focuses on, but she was confident in telling me about that, her day and what they did and used the term journal writing (IPA10/10/18).*

Alannah's interest in Paw Patrol and dinosaurs had extended over a long period of time: *Still interested in Paw Patrol, still interested in dinosaurs (IPA10/10/18).* Her mother stated that Alannah connected her experiences back to her special interests: *She hasn't changed her interests. She's probably just added one or two more on and she's always making connections in our experiences or every day. She will make a connection back to them (IPA10/10/18).*

At school, her teacher noted that Alannah had an intense interest in colouring: *Obviously, she enjoys colouring and there's opportunities during play to do other colouring. The colouring during learning time, she mightn't necessarily finish that during lesson time, but she will colour something else because that's more her interest (ITA25/10/18).*

Alannah preferred to talk to her teacher about her interests: *She's still into Paw Patrol. She saw the movie on the holidays, and she told me about it, and it was the first thing she said to me. She loves Paw Patrol (ITA25/10/18).*

At school, Alannah also showed an interest in animals and liked to role play as a cat: *I think she quite likes animals. I have noticed that she likes to play cats outside. I don't know if that's still happening (ITA25/10/18).*

Alannah was intensely focused on one friendship with a boy, which, her mother reported, was similar to a situation in kindergarten: *At the moment she has a very strong friendship with a boy. It has become, I feel, and the mum feels as well, a little obsessive in the sense that, I think you saw him at the beginning of it happening (ITA25/10/18).*

As also previously mentioned, Alannah was preoccupied with a particular teacher at school and his toy monkey:

*I can tell you why she's in love with Mr Richardson. It's because he has a monkey called Dave and now Alannah has a little mini Dave on her bag, and she's obsessed with Dave and that's why she likes seeing Mr Richardson all the time (ITA25/10/18).*

## **Identity – Rule Follower**

Alannah liked to please her teacher by following the rules:

*She's brilliant with routine in the classroom though. I think she likes to achieve those little things when the teacher dings the bell, she's always one of the first to respond. She knows that she can be good at that. She takes pride in being able to nail that (IPA10/10/18).*

Her mother believed that Alannah followed the rules because that was something she was good at, particularly as she liked routine: *To her that is something she can easily do and be at the front of the pack and feel good about that. She can be confident in that routine and that area (IPA10/10/18).*

Alannah's teacher also noticed that Alannah was very good at following the rules. The one time that her name was moved on the behaviour ladder, Alannah didn't cope well:

*Alannah does follow the rules very well. I think there may have been a couple of times where she called out and the behaviour system, we have at school is that they have a*



*reminder and they have to move their owl. I actually had to explain it to her dad because she was so impacted that her owl had moved down even though it got to move back to “I can self-manage” but I had to go through the processes of that. She really does follow the rules and often her owl doesn’t move down the steps. I don’t think she’d be one to come up and say that wasn’t me or I didn’t do that or something like that but then again, I don’t think she would’ve been in the wrong as well... Yes, she is a rule follower (ITA25/10/18).*

### **Identity - Sense of Injustice**

Alannah was acutely aware of fairness. Her mother mentioned that Alannah couldn’t understand why, if she had been allowed to do something before, she couldn’t do it again: *Not the injustice so much, but she will remember. No, she’s not like the policeman of everyone. Sometimes if she’s been allowed to do something before, she’ll hold an injustice there and “why can’t I do it now?” (IPA10/10/18).*

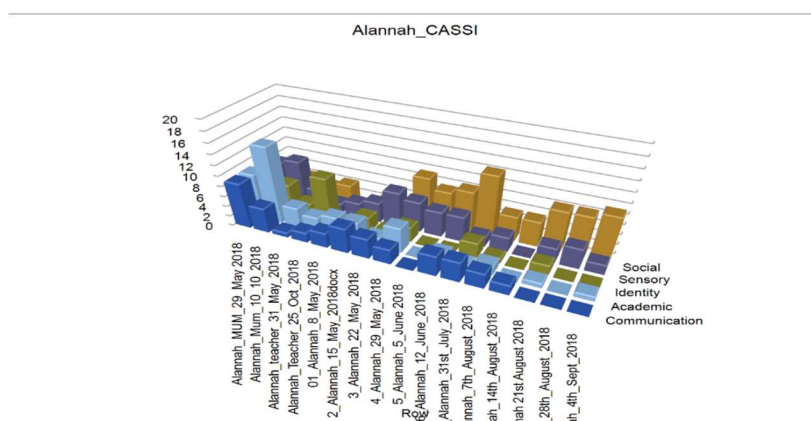
While Alannah was reported in the interviews as being emotional at school, it wasn’t reported by her mother as intense emotions. This may have been because by the time Alannah arrived home her sensory system was already overwhelmed, since she reportedly suffered from anxiety and had meltdowns at home. Anxiety and meltdowns were reported under Sensory.

### **Encircle**

The previous part of this chapter explored the case of Alannah from both the heard and observed evidence under the five key themes (Figure 4.11) identified as consistent data from the interviews and observations. The next section explores an additional layer, Encircle, and the broader theoretical model now termed CASSIE. Encircle encompassed four areas: Intervention, Professional Development, Classroom Strategies and Challenges, surrounding the five key CASSIE themes and adding another layer of complexity.

**Figure 4.11**

*Alannah's coding for the first five yhemes of CASSI*



While all four areas were identified in the parent and teacher interviews, Challenges was only identified in the observations.

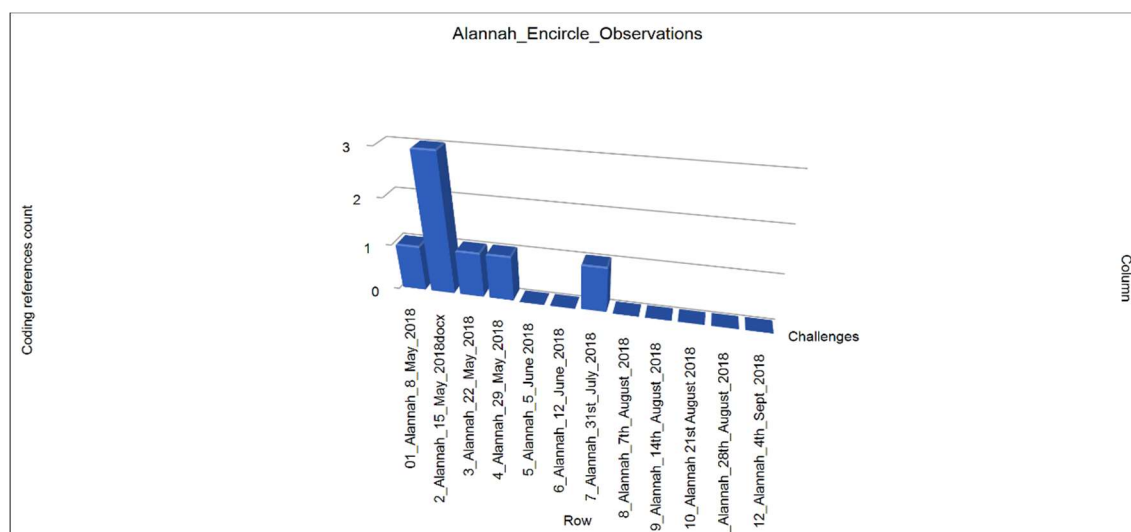
The first area, Intervention, refers to internal and external support therapies, including teacher aides, speech therapists and occupational therapists. Professional Development refers to further study and resources, both formal and informal, that improve the teaching practices of teaching and support staff. Classroom strategies are the actions taken by school staff, allied health support services and parents to assist students in the classroom with their learning and overcome any social, sensory, communication and academic challenges. Finally, Challenges, only identified in the observations, refers to something that requires mental or physical exertion to be overcome and be successful, from the perspectives of adults.

### **Encircle – Findings from the Observations**

A subtheme of Encircle, Challenges, was only identified in the observations. The three other subthemes; Intervention, Professional Development and Classroom Strategies; were identified in the interviews and are discussed in the next section under Findings from the Interviews (Figure 4.12).

**Figure 4.12**

*Alannah's coding from the observations for Encircle*



### **Encircle – Observation - Challenges**

As can be seen in Figure 4.12, I noticed from the outset that Alannah had difficulty completing tasks when she needed to engage in social interaction: *Alannah has difficulty completing task as she needs to stop working to engage with other students, whereas the other students can talk and work concurrently (ON15/5/18)*. However, a glance around the classroom would have missed Alannah's challenges, because she was focused on her work, quiet and well behaved. In that same first observation, I noted: *Alannah being so quiet, it is easy to miss subtleties like unable to multitask, distractions that interfere with completing task, and she continually works, focuses and is quiet (ON15/5/18)*.

Communicating with her peers in the classroom was an ongoing challenge for Alannah: *Alannah has difficulty asking for what she wants e.g., the black crayon (ON15/5/18)*. She was easily distracted from her work by other students: *Alannah was distracted by a child behind her who was on a computer. Alannah putting her cheeks on her shoulders became more noticeable. Alannah continued to be distracted and not following her book with everyone (ON22/5/18)*.

Starting a new task was also a challenge for Alannah. She took time to get started, which in turn, impacted on completion: *A new task at first is overwhelming – A needs to take in activity before starting. This is the same as in class (ON29/5/18)*. Taking more time to complete tasks than others undoubtedly affected judgments about her capabilities. The other notable area in my observations of Alannah was her need to move all or parts of her body. Alannah required regular kinaesthetic movement in class: *Difficulty sitting long periods. Hug*

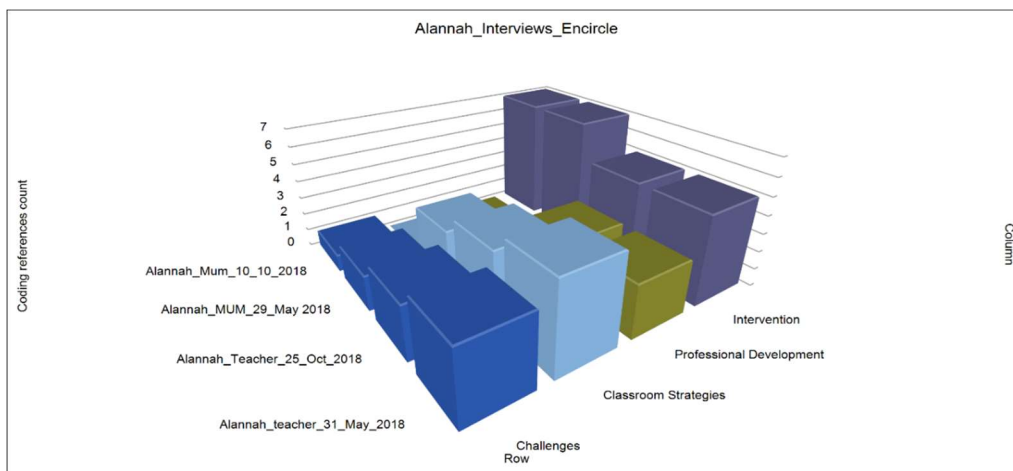
*a chair helps greatly when on the floor (ON29/5/18).*

## Encircle – Findings from the Interviews

Four areas emerged from the interviews with parents and teachers to compose Encircle (Figure 4.13): Challenges, Intervention, Classroom Strategies and Professional Development. Challenges extended the subtheme that emerged from the observations, as outlined above.

**Figure 4.13**

*Alannah’s coding from the interviews for the Encircle*



### Encircle – Interviews - Challenges

The challenges faced by Alannah’s mother were not the same for Alannah: *The challenges I see her have; I don’t know if she sees them as a challenge (IPA29/5/18)*. Verbal communication was a difficulty for Alannah and for her mother in finding out about her day: *To be honest, one of the challenges is finding out what she does during the day because she doesn’t talk about it. If you ask “what did you do” she can’t give me a response (IPA29/5/18)*. Alannah’s mother questioned her adjustments depending on Alannah’s behaviour: *Walking that fine line of, is that a part of her being on the spectrum and we have to make an allowance, or is it defiance? (IPA10/10/18)*.

Alannah also posed a number of challenges for her teacher. Her exhaustion had been an issue: *So that’s been an ongoing challenge and sometimes she might have a little nap in the tent and you just kind of go with it (ITA25/10/18)*. Encouraging Alannah to interact socially was another:

*Alannah was sitting by herself at “munch and crunch” time, and we slowly got her sitting with her friends and things like that so identifying social situations with the kids, which I think is hard if you’re not in the playground with them as well* (ITA31/5/18).

Alannah’s teacher echoed the literature on girls with autism: *She could easily be missed and go under the radar if she hadn’t been previously diagnosed. Particularly at such a young age. Because in prep, they are more hesitant to give diagnoses so early in the school* (ITA31/5/18). Identifying a child on the autism spectrum could be difficult for teachers:

*Not every child needs them, but they still have access to them. I think that’s important. Identifying a child is very tricky because they come from so many different kindergarten environments, they’ve come from so many different abilities prior to prep, some come with nothing. So, I think particularly early in prep, it’s quite tricky because I have personally identified a few students that I’m keeping an eye on* (ITA31/5/18).

Alannah’s teacher identified a lack of professional development on autism as an issue: *Challenges are probably not having enough training - not having enough PDs* (ITA25/10/18).

Alannah’s teacher acknowledged that children on the autism spectrum are all different: *...because they’re so different as well, each child is different, what you learn with one child with autism is going to be different for another child so you kind of just have to, well I feel you have to get to know the child to then see what works for them* (ITA31/5/18).

She reiterated this in her second interview:

*I’m going to come from the perspective that all of the children with ASD are different so it’s going to be an open-ended answer. I think, and a I’ve said it before I think starting the year off already having met the parents and the child, starting those routines off well, meeting the child before school even starts, having them in your classroom and just getting to know the child herself because what works for Alannah isn’t going to necessarily work for other children* (ITA25/10/18).

## **Encircle – Intervention**

Alannah received regular support from an occupational therapist (OT) and speech therapist (referred to as a “speechie” by her mother):

*She sees the OT fortnightly and sees the speechie, she spent a bit of time on the school holidays with her for intensive work and now we can to break it down to every two*

*weeks, so she still sits chronically in that 'w' position. It's hard to undo her habits because she's so habitual and has to do it a certain way and now she's just doing it that way and can't reverse out of it (IPA29/5/18).*

Alannah's mother had sought private speech therapy for Alannah through government funding:

*Having access to that speech therapy through the government funding has been invaluable. We've found a fantastic speechie who is able to tap into Alannah's thought processes and pull out an element of creativity so she's not just focusing on speech and language but that creativity in a child on the spectrum, which is quite rigid (IPA10/10/18).*

The speech therapist had helped improve Alannah's communication with adults and children:

*And also, for Alannah to come up with the ideas around giving instructions so the speechie works very closely on the speech and modelling it and then Alannah having a go at giving instructions back to the speechie so it's listening and speaking because we're finding with her actual spoken language her sentence structure still isn't fantastic. She gets the point across, but she gets quite disjointed. Whereas an adult can understand but you question whether another child can fill in the gaps and she might struggle with conversations with other children (IPA10/10/18).*

Alannah's mother noticed the benefits of early intervention by the speech therapist:

*I can see the speechie able to tap into parts of her brain to access information quicker than I have ever seen respond to it just on simple things that even I have seen her not respond well to but recalling things and it was a glimmer. I saw glimmers in areas that I thought she really struggled in but somehow she could tap in to that through the work she was doing so it was nice to see the intervention and that therapy really harnessing a part of A and A's brain and accessing it that I was struggling to find (IPA29/5/18).*

Alannah also received support from an occupational therapist:

*OT – definitely. In terms of understanding her body and she will say to me when she wants some time out or something or hop in her chair, which is another resource we have. I've noticed a lot more self-monitoring. At such a young age that's really positive and the OT has really helped with that. It's definitely helped with us with her readiness in the morning to go in and learn. And just something to help at night like*

*shutting off and settling her down and also switching from activity to activity so that's definitely helped (IPA10/10/18).*

Alannah's school provided support in the classroom and the playground: *She also gets great classroom support in the class and she also gets lunchtime support one day a week that has continued (IPA10/10/18).* One example was access for Alannah to a teacher aide in the playground to support social interaction: *I was talking to that teacher aide the other day. At the start of the year she would help Alannah to reach out to make those connections with other children (IPA10/10/18).*

Alannah's mother was aware of balancing Alannah's support to strengthen and encourage her independence:

*She's supported enough to also allow her to grow that independence... You don't want too much support. Too much support could be a really bad thing. And also, just knowing there's not going to be someone there the whole time to make the decision for you (IPA10/10/18).*

Alannah had access to a government initiative in schools for speech and language assessment:

*As far as I was aware it was just to assess children with speech and language. I really don't know much else on it. It's a free service and they work with the child. What I think from what I can tell is they link the curriculum, links to the child and where they might struggle. To help the child access the curriculum easier. To help provide those links to the curriculum for the child (IPA29/5/18).*

The school's learning support department provided support for Alannah's social skills: *She works with learning support and has time with them and works on social concepts as part of her IEP (IPA29/5/18).* A teacher aide was assigned to assist Alannah's teacher, who received regular OT reports: *Well we have our class teacher aide, so I use her in different ways to support Alannah. Sometimes there are other needs in my class as well and Alannah goes to OT, so I get fortnightly reports from the OT (ITA31/5/18).*

Alannah's teacher found open communication about the Individual Education Plan (IEP) with Alannah's parents beneficial, including appropriate intervention strategies: *I think having an open conversation about the IEPs is really important because she's made a lot of progress since we did this (ITA31/5/18).*

Alannah's teacher used the strategies recommended by the occupational therapist in her classroom:

*I think teaching Alannah there's been a lot of trial and error and that kind of*

*processing in regard to OT things and routines and what works best for Alannah. We have the Howda Hug chair but that doesn't work for Alannah as it distracts her more than benefits her. The wobble chair works well sometimes. The slant board works well but it's been a lot of trial and error and communicating with the parents what's working. The stool and the slant board work really well for Alannah's writing time and things like that at her table. What's worked well has been having her near me on the carpet, right at my feet because then I can keep an eye on her and know what's going on (IPA25/10/18).*

Finally, Alannah's teacher supported Alannah's sessions with the teacher aide for developing her social skills:

*She's still going out for her sessions with the Learning Support T/A to do her zones of regulation, which would help her understand how she's feeling to do with friends as well. They also role play about what you can do in friendship situations and I also feedback to that teacher aide...Yes, it is something I would strongly suggest. I think she's learnt skills that perhaps she wouldn't have learnt without that time and a lot quicker too (ITA25/10/18).*

### **Encircle - Classroom Strategies**

Although classroom strategies demand the conscious effort of teachers, it is important to note that some strategies can also be used at home. For example, Alannah's mother used visual cues at home for giving instructions, also used as a strategy in the classroom: *She responds better non-verbally. So, to help manage her again with the words, so instead of counting down I use my hand and count down from five fingers and she responds better to that than talking (IPA29/5/18).* Alannah's teacher used visual cues as they were helpful for getting Alannah into routine in the classroom:

*With the obvious daily routines like getting your hat and water bottle, she can do without the visual cues now. I still use them sometimes for some of the other students as well but some of the other things, not during rotations when you come, I have the cues there as well, just to help her so that way she can come back and have a look (ITA31/5/18).*

In addition to visual cues, Alannah's teacher implemented strategies recommended by the occupational therapist, which she viewed as beneficial for all students: *I think what I try and do is implement all these things so every child is getting them anyway, so all of the OT stuff and all the visual cues (ITA31/5/18).*



Alannah preferred her Paw Patrol clothes and costumes; and wearing a uniform to school was initially a concern:

*The school was very good in helping set that up and we talked about that. She likes to keep people happy to a certain extent like school. I think because she sees other kids in uniform that was a bit easier for her to transition too and we did work with her on wearing it at kindy. They had a kindy day where they wore their uniform. She saw all the other kids wear their uniform, so I think that just helps (IPA29/5/18).*

Alannah had visited her new school prior to the start of the school year, and seeing other students in uniform was helpful: *We went and saw her school and saw all the other kids in uniform before she was in prep so that definitely helped. So, she knew that's what she had to wear there (IPA25/10/18).*

Alannah's teacher met Alannah and her mother prior to the start of her first year at school:

*They actually came the week before school to meet me and I actually met Alannah's mum as well. I think that was the Wednesday before school started or something and then we had the launch day on the Friday, so she came in again. We got her to pick her tidy tray and things like that just to help her because obviously I wasn't here last year (ITA31/5/18).*

Alannah's teacher emphasised the importance of communication with Alannah's parents for a smooth transition: *I think to start off this year, it was important to chat with Alannah's mum and dad (ITA31/5/18).* Transition days were a key to success:

*I think we're going to have a few transition days just like we did before Prep and hopefully we will know sooner rather than later who her teacher is going to be. We can send her to do little jobs with that teacher and things like that. So, she becomes familiar with that person (ITA25/10/18).*

Alannah's teacher used strategies recommended by Alannah's occupational therapist with the whole class to promote inclusivity:

*Yeah and I try to a lot of it whole class as well even just the animal walks and stuff because I have a few children that need it like they do the snake walks to their desk or whatever. I have all the cards over there. A's then not doing it in just isolation. I have a few other children that need to do it (ITA31/5/18).*

Positioning Alannah near the teacher helped her keep a close eye on her: *What's worked well has been having her near me on the carpet, right at my feet, because then I can keep an eye on her and know what's going on (ITA25/10/18).*

Alannah's teacher articulated that she was more inclined to "go with the flow" with regard to Alannah's learning: *I think that something I have learnt more with having her in my class is to gauge where she's at and go with the flow* (ITA25/10/18). Alannah's teacher allowed students more time to finish their tasks if Alannah needed to continue an activity:

*I'm still explicit that we have 5 minutes left so if you only get one picture done that's completely fine because no one has finished the work, some have but not everyone and they can finish it later if they want to at playtime but they're never going to, they want to play. There's no place for it to go anymore. She's coping without it* (ITA25/10/18).

### **Encircle – Professional Development**

In the context of this research, Professional Development only applied to teachers of ASD students, as it is not only a requirement for teacher registration but also beneficial for expanding skill sets. This explains why Professional Development (PD) was only identified in the interviews with the teachers.

Alannah's teacher reported that much of her learning about autism came from conversations she had with colleagues:

*I haven't actually done any PD on autism, which is, I'd really like to and is something I would like to do this year. At university, I don't think they covered it very well at all. So, I think over the years I have had lots of conversations, which have been my learning point* (ITA31/5/18).

Reading literature on the topic also contributed to her knowledge:

*So, going to the learning support teachers at last local school and having conversations with them and getting readings from them to read up on and talking to other teachers is how I learnt I think, which is a real shame because I have taught a few children with ASD* (ITA31/5/18).

Alannah's teacher was of the view that professional conversations about autism with experienced colleagues was often the most important way of gaining knowledge:

*But I think talking to colleagues, I think is such a big one. I think I've always leaned on getting information from more knowledgeable colleagues, like people in the field. Even Learning Support teacher who comes down who works in those areas and know more than me about this kind of thing* (ITA31/5/18).

Alannah's teacher believed that colleagues and parents were the two primary sources of learning about autism:

*I still think its knowledge from colleagues, working with colleagues, and communicating with the parents. I think because they are all going to be so different that I don't feel like I can answer the question without knowing the next child (ITA25/10/18).*

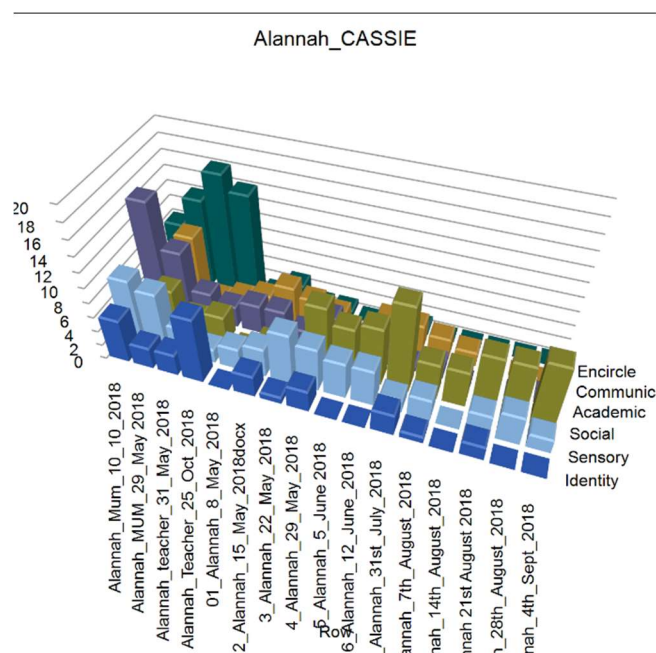
Feedback from experienced staff had furthered Alannah's professional development in the area of autism: *Talking to the learning enrichment staff. Getting them in observing and giving you tips and things like that (ITA25/10/18).*

## Summary

This chapter presented the findings from the data pertaining to the first case of Alannah. A number of major themes emerged from the observations and interview data after systematic and thorough analysis, categorised under five areas: Communication, Academic, Sensory, Social and Identity (CASSI). Social and Sensory were the key themes consistently raised throughout the observations and interviews, an overview of which is in Figure 4.14.

**Figure 4.14**

*Alannah's coding for all the CASSIE themes*



With the exception of Identity, which had the fewest references but was nevertheless identified as an important theme in its own right, all the key themes were frequently observed and discussed. Encircle was the sixth theme, with key ideas categorised under four areas, derived mainly from the interviews with Alannah and Bree's teachers.

The next chapter follows the same format in presenting the findings from observations of Bree and interviews with her teacher and mother.

## Chapter 5: Bree – Case Study 2

This chapter presents the findings from the second of the two cases in the research, a young girl named Bree (pseudonym) and is structured in the same way as the previous chapter. It commences with a brief introduction of Bree, followed by the findings related to Communication, Academic, Social, Sensory, Identity and Encircle. While the structure is the same, the findings vary. There are clearly similarities in the CASSIE themes, but also marked differences between the girls' patterns of behaviour – the cross-case analysis in Chapter 6 makes sense of the similarities and differences.

Each key theme is explored from the researcher's observations in the classroom and interviews with Bree's teacher and mother. Fifteen observations of Bree were conducted in the classroom between May and September 2018, as well as two interviews with her teacher and parent respectively. One interview was held at the beginning of the series of observations, and the other, at the conclusion.

The first set of data analysed under each CASSIE theme for Bree is the observation data, shown as "ON" followed by the date (ON is short for Observational Notes). The second set of data analysed is the interview data, represented by "I" (Interview Transcript) and either a "P" (Parent) or "T" (Teacher) and "B" (Bree) in front of the date. While the observations were conducted on different days, interviews with participants were sometimes conducted on the same day, hence the need to differentiate between interview transcripts. For example, an excerpt from an interview with Bree's teacher reads as ITB31/05/18.

The presentation of the findings begin with a brief background of Bree and the two significant adults that contributed information about her. Following this, the remainder of the chapter is organised according to the five main themes identified in the previous chapter: Communication, Academic, Social, Sensory and Identity (CASSI). The theme, Encircle, encompasses the five main themes and forms a circle around them, reflecting the findings in this case. Encircle includes four areas: Challenges, Intervention, Professional Development and Classroom Strategies, each overlapping one another and impacting the key themes for each student. As it transpired, Challenges was only identified in the observations, while all four domains were identified in the interviews.

## Bree

### Background

Bree was six years old at the time of this research and was repeating Preparatory year at a state primary (elementary) school in a metropolitan area in Queensland, Australia. She lived with her mother, father and a younger sister aged four. Bree was born in South Africa and had moved to Australia before she started her first year of formal schooling. She was originally diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) before she was given the diagnosis of autism spectrum disorder level 1 using the DSM-5 when she was five years old.

### Interview Participants Providing Information about Bree

Bree's teacher was an experienced practitioner with over 15 years teaching experience in the state (public/government) school system. She had previously taught both male and female students on the autism spectrum. Bree's teacher and mother were each interviewed twice, at the beginning of the series of observations and at the conclusion.

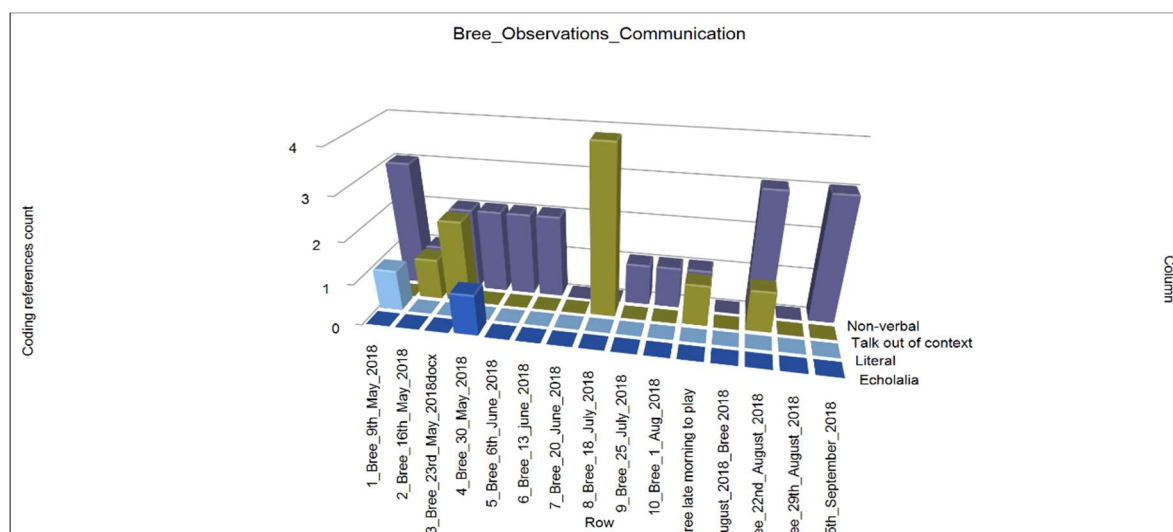
Bree's father, who was married to Bree's mother, agreed to having their child observed for the research, but was unable to commit to the interviews due to time constraints and was happy for just Bree's mother to participate. Bree's mother described her daughter as "extremely sweet and loving" but added that her displays of affection were sometimes inappropriate. Bree's mother reported that her daughter was an early talker, speaking in full sentences but then regressed at around the age of two when she also became aggressive. She was able to figure things out beyond her years, such as mathematics at the age of four, which is what prompted her parents to seek a diagnosis.

### Communication – Findings from the Observations

Four subcodes were identified during the observations: Non-Verbal; ii) Talking Out of Context; iii) Echolalia; and iv) Literal (Figure 5.0). The labels used to name these subcodes were derived from the descriptions in the observations.

**Figure 5.0**

*Sub-coding from the observations of Bree for the theme Communication*



### **Communication – Non-Verbal**

Non-verbal communication included the times when Bree appeared quiet or spoke softly. One example was when she was asked to read in literacy groups and spoke softly: *Bree read softly to the teacher and no stimming was present. Bree was completely still* (ON9/5/18). During another literacy session when she was required to read aloud: *At Bree’s turn to read, she spoke very quietly* (ON22/8/18).

Bree often appeared quiet as she didn’t interact with anyone around her but was still able to undertake tasks at the group table: *Bree walked to table and sat down. Bree waited quietly while booklets handed out with her activity sheets* (ON13/6/18). During the literacy session, Bree continued not to interact with her peers and instead looked around for the teacher: *Bree chose a book and lined back up but didn’t talk to other students. When she re-joined the line, she was looking around for the learning support teacher, however she was standing further away* (ON13/6/18). Bree was inclined to use gestures if it meant she didn’t have to speak: *Bree observed where she was going to sit and then patted next to her for the girl who sits next to her during literacy groups. But didn’t talk to anyone when the girl sat down* (ON5/9/18).

Throughout the series of observations, it was noted that Bree sat and ate near other children but didn’t interact with her peers who would chat to one another: *For the remainder of munch and crunch time (approx. ten minutes) she did not talk to anyone and remained silent* (ON9/5/18). Bree seemed to just want the proximity of her peers as she sat near them but talked to the teacher: *Bree asked her teacher if she could go and get her hat and she*

*returned and sat near children but did not talk to them (ON9/5/18). The following month, Bree was focused on organising her fruit rather than interacting with peers at break time: Bree organised the food in her lunch box before eating her fruit. She didn't talk to the other children (ON6/6/18). She preferred her own space and positioned herself away from her peers to eat: She was the last from her group to munch and crunch outside. She chose a space away from others and didn't speak to anyone. She returned to the classroom as soon as she finished her fruit (ON30/5/18).*

Bree preferred to ask a teacher for help rather than a peer:

*Another child leaned over her work when Bree was stuck on a word. She called out to the teacher aide who helped her. Bree didn't say anything to the child that looked at her work. Bree sounded out her words and counted them out loud. (ON16/5/18).*

A week later, it was again noted that Bree preferred to chat about her work with an adult rather than a peer: *Bree took no notice of the other students chatting. Bree continue to stop to talk to the parent helper. The parent helper encouraged Bree to continue her task (ON23/5/18).*

On two other occasions, Bree demonstrated her reluctance to talk to her peers. The first time, Bree did not talk to any students within the first hour of school starting: *Bree hadn't talked to any of the other kids yet. When the other children had finished, the parent came over to help Bree (ON30/5/18). The second time, a peer was right up in Bree's face and she did not respond. There was no reaction: Another student turned around and got up into Bree's face. Bree didn't respond and then the teacher redirected the student in Bree's face (ON25/7/18).*

In one observation, Bree appeared to be “in her own world”. The connection between being “in her own world” and being non-verbal was made after this observation and resulted in coding it as its own subtheme after the first interviews: *Bree sat in her own space to eat and didn't talk to the other children. Bree mostly stared into space, deep in thought (ON23/5/18).* The subtheme In Own World is acknowledged later in the interviews but mentioned here as an example of overlapping traits.

### **Communication – Talking Out of Context**

Bree often said what she was thinking out loud during class in unrelated utterances to the current context: *During the Jolly Phonics song, Bree called out to the teacher randomly “I'm starving” ON18/7/18; and again a few weeks later: Bree sneezed and said to the teacher “my tummy say it's starving” (Different way of thinking!) (ON8/8/18).* Talking out of context



with a teacher was observed on another occasions: (*Bree stopped what she was doing and pointed out to the parent helper they had the same hairstyle.*

During a whole-class activity Bree asked a question unrelated to the context. This is something that young children do, but Bree was observed doing this more regularly and speaking in an adult tone: (i) *When Jolly Phonics song finished, Bree asked teacher about whether she had sons. Then told her that her mum and dad were going to teach her to drive when she is 17. She spoke with an intonation like a “proper” voice (ON18/7/18); and (ii) Bree was the last of three students eating their fruit and struck up a random conversation about her dad with the teacher when the teacher checked on them (ON22/8/18).*

During roll call, when Bree’s name was called, she took the opportunity to tell the class about her tooth fairy visit, like she was teaching the class: *Bree told the class at roll call about meeting the tooth fairy as her tooth fell out yesterday (ON16/5/18).* Bree talked at the children, telling them what she was thinking and stopped work to do so: *Bree is easily distracted. Bree showed the child next to her, her lip balm. To do so, she stopped her task. The other child continued colouring at the same time as engaging with Bree (ON23/5/18).* My comment as the time of observation was that Bree’s verbal interactions with her peers were more instructional than conversational.

### **Communication – Echolalia**

Echolalia was only observed once in Bree’s case. However, it was difficult to hear everything at the time because I wasn’t sitting close to her, so it may have been a one-off occurrence or a learning strategy for Bree. At the time it appeared to be echolalia because Bree was focused on the word and repeated it more than once: *Bree was the last to get started with the cut and paste task. Bree pointed to the diagraph “AP” and repeated it out loud (ON30/5/18).*

### **Communication – Literal**

Bree displayed a tendency to be literal during the observations, which the teacher later confirmed:

*Bree read softly to the teacher and no stimming was present. Bree was completely still. Bree was reading at a high level for her age group and answered the comprehension questions correctly. The teacher later informed me that when sounding out the word “likes”, the teacher asked her to cover “s” to make it easier to recognise the word “like” and she did. The next word was “said” so Bree covered the “s”. The teacher explained that everything is taken literally (ON9/5/18).*

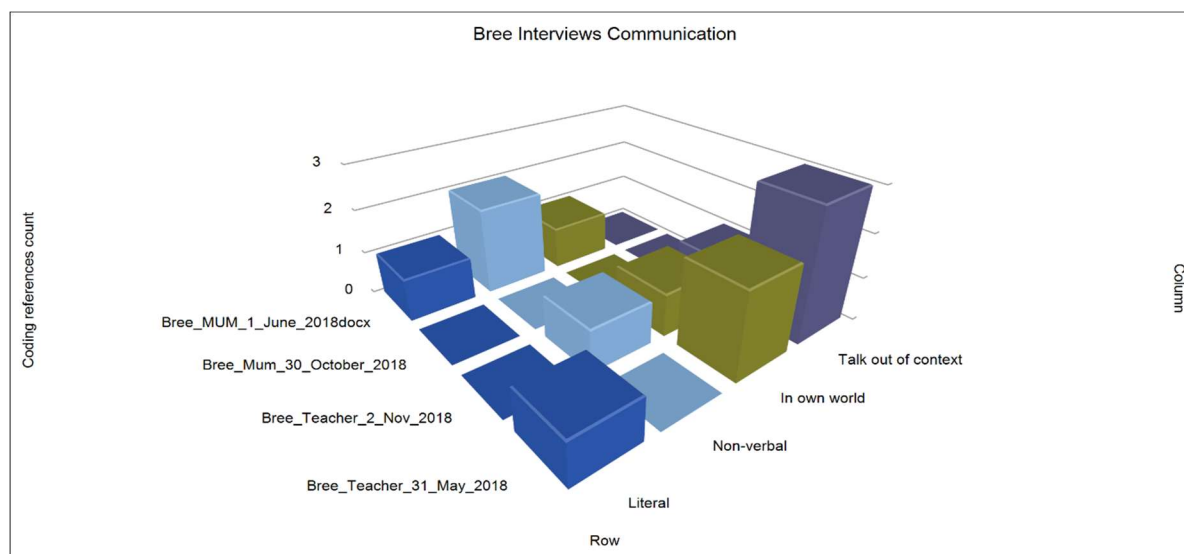
This is further discussed in the teacher interview.

## Communication – Findings from the Interviews

Four of the five subthemes of Communication were identified in the interviews by either or both the parent and teacher (Figure 5.1).

**Figure 5.1**

*Bree's subcodes identified from the interviews for Communication*



In Own World was frequently referenced by both parent and teacher. Literal and Non-verbal were identified in one parent and one teacher interview, while Talking Out of Context was referenced in both teacher interviews. Neither Bree's parent nor her teacher mentioned echolalia.

### Communication – In Own World

Bree's mother noticed that Bree was not communicating well with other children: *She's still not communicating with friends very well* (IPB1/6/18). Bree's teacher also mentioned in both interviews that Bree was in her own world: *So, as I said to you before it was as though Bree had three worlds. So, there was English, there was Afrikaans and then there was autistic. She would switch between the three and you had to keep up* (ITB31/5/18). Bree's teacher described her as being in her own world, unaware of what was happening around her:

*So, cleaning up, she has taken on that she's going to clean those things in the morning even though she's asked repeatedly to sit on the carpet and she's not even listening*

*and go stop and she's like "oh" and it's this whole wake up. There it is. But that is a lot recently. She's in very much in her own world and I'm going to do this task, or it can even be she has to say something (ITB2/11/18).*

Bree's teacher believed it was difficult for Bree to make connections when she was in her own world: *No, and you can kind of see why because she does head back into her own world (ITB31/5/18).* It was from these interviews that some observations were coded under the subthemes In Own World as well as Non-Verbal, because Bree was deep in thought and being non-verbal.

### **Communication – Literal**

Bree's teacher noticed early in the school year that Bree struggled to understand some types of humour, especially sarcasm, and it affected her understanding when reading books. She also questioned her ability to understand teasing:

*When it comes to someone's feelings or sarcasm or anything like that it's going to get her caught up. And they are unfortunately in those PM books where they actually have to look at people teasing other people. I don't think she will get that (ITB31/5/18).*

In her first interview, Bree's mother reported that Bree did not understand sarcasm: *She doesn't get humour so she's very straight forward. She doesn't get sarcasm at all (IPB1/6/18).*

### **Communication – Non-Verbal**

Bree's speech regressed when she was younger and her mother was pregnant with their second daughter. She replaced speech with screaming or being non-verbal:

*Then just before her little sister was born, I was pregnant, she stopped talking completely. Nothing. From a full sentence to nothing. Completely quiet. Having these temper tantrums, screaming. We ask her "Tell me what's wrong?" And she'll just scream, no words (IPB1/6/18).*

Bree's mother described her daughter when she was non-verbal:

*The thing is Bree never, if you ever see Autism, Asperger's or whatever, today she will tick all the boxes then you say Bree is autistic then tomorrow Bree, there will be small ticks but she will be fine, then no she's not autistic and then tonight we'll do something else and she won't tick the boxes then. And then next week she's autistic, unable to talk, temper tantrums. So, with her, it's this rollercoaster (IPB1/6/18).*

Bree's teacher noticed Bree would talk when she was ready, but added that this may have hindered her learning:

*She's not even identifying with or asking for clarification why. She'll just keep that inside so automatically you need to be ready with you need to share that because... she needs that clarification even though she's not asking for it. I see problems for her later on if she doesn't talk things through (IBT2/11/18).*

### **Communication – Talking Out of Context**

Bree's teacher reported in both interviews that Bree talked out of context. However, Bree's mother didn't mention it. One example was on Bree's first day of school: *Her first day here she literally walked into the classroom, the kids were sitting on the carpet, she's walked in, gone straight into the middle of the room and she's gone "My name is..." (ITB31/5/18). But it was very rehearsed. It was all, here's my introduction about myself. (ITB31/5/18).*

Bree would converse, but it had to be about something she was interested in. Sometimes it wasn't even connected with the other person's conversation:

*It's here, whether or not you're talking, you're still engaged in that conversation, well, if someone else was talking, she really doesn't care about what they're saying. Unless you're actually making books with me or drawing with me, it's still very much that parallel play (ITB31/5/18).*

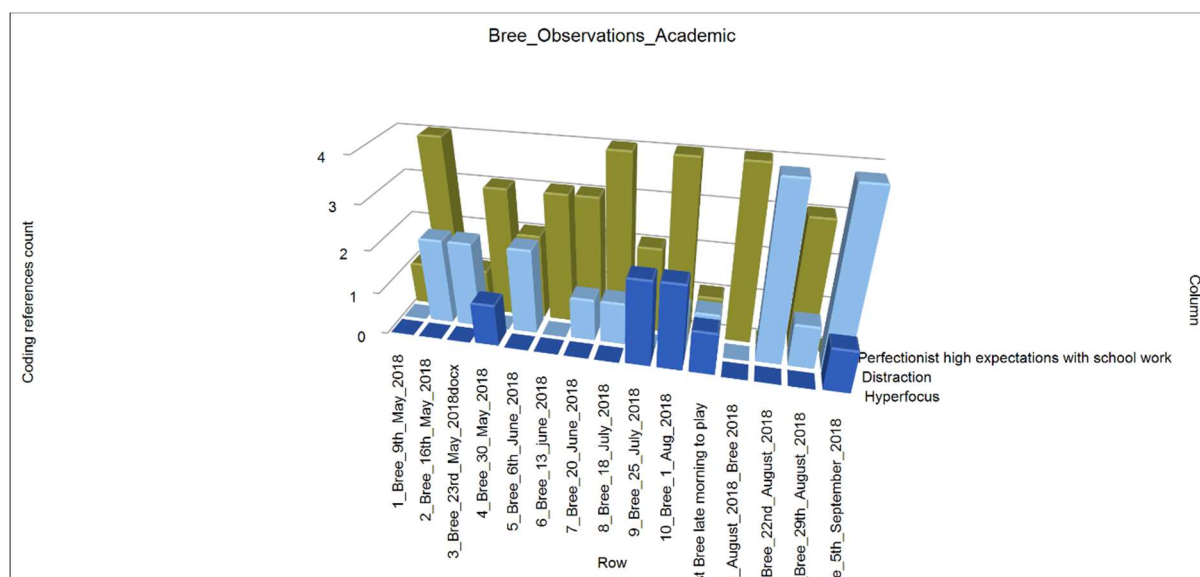
While Bree's story may have related in some way to the general thrust of the conversation, it was usually one-sided: *But there may be a slight [sic] there that relates but it's really her story. I've got a story to tell you (ITB2/11/18).* She clearly preferred conversations about her own interests.

### **Academic – Findings from the Observations**

The three subthemes under the key theme Academic were: (i) Distraction; (ii) Hyperfocus; and (iii) Perfectionist. Perfection was observed in ten out of the twelve observations, followed closely by Distraction. Hyperfocus was observed in four sessions (Figure 5.2). Distraction refers to situations when the student is no longer able to focus on the task at hand. Hyperfocus describes someone's intense mental concentration on a subject or activity of interest and an inability or difficulty to stop. In a classroom context, Perfectionist refers to students' high expectations of themselves and their work.

**Figure 5.2**

*Subcodes for observations of Bree for the theme Academic*



### Academic – Perfectionist

Bree was very particular about her special interest, colouring, as observed multiple times over the observation period: *Bree showed her teacher she had finished but said she wanted to finish colouring. Bree was particular about her colouring and detail. Bree filled all the white space* (ON16/5/18). She also paid attention to detail when drawing: *For the drawing activity, Bree had to draw a face and she did with great attention to detail* (ON18/7/18). Bree’s attention to detail when an activity involved colouring and drawing meant she was noticeably more focused on the task: *Students were asked to complete a new task for sound “e” around a picture they drew of a tree. Bree very particular about her tree drawing then went straight to work* (ON1/8/18). Focusing intensely on tasks that involved colouring and drawing was again noted in the same month: *Bree very particular about her drawing and colouring of the sea creature. Completely focused on her work* (ON15/8/18). Bree’s special interest in colouring was evident inside and outside the classroom. She was always very careful with her choice of colours and how she coloured: *Bree is still a perfectionist with her drawing in and outside of the classroom* (ON15/8/18).

Bree also liked to write neatly: *She was careful with her writing* (ON20/5/18). She would erase letters and words, often the same ones, and rewrite them again and again: *Bree finished writing her sentence then rubbed out half of it and rewrote it. She was particular about making each letter very neat* (ON15/8/18). This was observed twice more that month in separate observations: (i) *Bree was particular about writing her name and rubbed it out and*

rewrote it (ON8/8/18); and (ii) *Bree particular about her writing and rubbed out some to rewrite, which she has previously done* (ON29/8/18). Bree also paid careful attention to her writing on the mini whiteboard and made sure the board was clean, with no markings visible. *Bree very careful with writing on her mini whiteboard and would rub out and redo if she thought it wasn't neat enough* (ON18/7/18). This was observed again the following week: *When activity is finished Bree ensures her whiteboard was very clean* (ON25/7/18).

Bree liked all her cutting to be extremely neat and took her time ensuring this: *Bree is particular about her cutting and pasting, ensuring it was neat* (ON23/5/18). This was observed early in the observation period: *Bree is particular with her cutting* (ON30/5/18), as well as later on: *Bree very particular about her cutting and placement of letters... Bree still very particular about her cutting* (ON1/8/18).

Bree also liked to make sure that everything was glued down properly: *Bree spent two minutes ensuring her first word was completely glued down* (ON1/8/18). Since she did not communicate with another student that she needed the glue, she waited for a teacher, which meant she didn't begin working straight away. Ensuring that her words were perfectly glued to the page also took extra time:

*The learning support teacher went over to the teacher and Bree said "hello" to her. Teacher said Bree could glue her words in and Bree said she didn't have glue and waited until another student gave her glue. But she didn't ask for it. Bree very particular about "bits" on glue stick. Bree glued in the words perfectly straight on the page* (ON13/6/18).

Due to hyperfocus and perfectionism, Bree had difficulty moving on from a task before it was properly finished: *The teacher prompted Bree to move onto the next circle as she was particular about her drawing and colouring on the first circle. She tried to begin drawing the second scene but returned to the first to finish before continuing on* (ON29/8/18).

Because Bree wanted her work to be neat and accurate, particularly her colouring and writing, she was often the last student to finish the task. This was evident in a series of observations: i) *Bree observed the letters the other student received for their task and carefully looked at her own task before starting. The other students had started* ON16/5/18); ii) *Bree finished her colouring and was the last one at her table to go to fruit break* (ON16/5/18); iii) *Bree has been in her seat the whole time to do her work. Bree last to finish cut and paste activity because she took her time with cutting and pasting. She was capable of*

completing task (ON6/6/18); and iv) *Bree was last to finish because she takes so much care with her gluing and cutting (ON13/6/18).*

In one observation, Bree's attempts to be accurate meant she was slower at completing her tasks. Even though she was capable of doing the work herself she needed adult assistance:

*Bree stopped cutting to draw crosses and ticks on her page (cross for pictures that don't rhyme and ticks for the page of pictures that do). She did this very carefully and neatly. Parent had to encourage Bree to continue cutting and pasting. Bree didn't begin and instead started at a piece of paper she had cut. Parent came over to help Bree and cut her pictures for her as the other students were up to writing. Bree finished her gluing and easily started the writing. The teacher came back to check on Bree. Bree took a lot of care when writing, which meant she was slower at completing her task (ON30/5/18).*

Another example of Bree's perfectionism was: *Bree made sure all paper waste buckets were organised properly (all the same way) before returning to the table (ON20/6/18).* Her preoccupation with perfectionism was observed numerous times while colouring, writing, cutting and gluing. Bree was inclined to hyperfocus on tasks of interest, which affected her ability to finish a task on time. Noticeably, her perfectionism also extended to her peers' work: *Bree focused on her booklet and tried to correct another child about the page to do. Bree then turned to the correct page and started drawing ticks and crosses for the correct words (ticks) and for the other words (crosses) (ON20/6/18).*

### **Academic – Distraction**

Bree's peers continued working while they talked at her table, but Bree had to stop what she was doing to listen to them: *Bree was distracted by a child who had finished and was talking, which meant Bree needed to stop what she was doing to listen (ON16/5/18).* This was again observed in a later session: *Another student talked about their glue. Bree stopped work to listen (ON1/8/18).* As Bree could not talk and do her work at the same time, she had difficulty completing tasks on time even though she was capable: *Bree is slower to complete tasks because she can't talk and work concurrently (ON23/5/18).* Again, the following month: *As soon as the other children talked about getting the books, Bree stopped her task completely. Bree then asked her peer what the last picture answer was even though she appeared to know the answer (ON6/6/18).* Bree's teacher moved Bree as she noticed she was distracted by peers.

Bree would regularly stop and stare into space. This could have been included under the subtheme In Own World, but at the time of analysis it was coded as Distraction. Bree appeared to be deep in thought: *When the books were handed out Bree stared away. She eventually opened the book* (ON6/6/18). This was observed three more times: (i) *Bree stopped work and “stared” off into the distance for a minute* (ON8/8/18); (ii) *Bree stared “into space”. Completely stopped work for a minute, (Bree stopped work to) briefly “stare into space”* (ON22/8/18); and (iii) *Bree was distracted and re-wrote the same words. She “stared” into space for a moment before returning to her writing* (ON29/8/18).

In another observation, Bree was also stimming while she was staring into space: *Bree stared into space, moving right foot fast* (ON5/9/18). A similar pattern had been noticed earlier: *Bree began cutting but stopped and stared into space. She was distracted by touching her hair, then she started the activity again* (ON18/7/18). Repetitive movements also distracted Bree: *Bree distracted by folding paper over the scissors during literacy task* (ON5/9/18).

Bree’s fixation on her teacher distracted and inhibited completion of her activities:

*Bree distracted by watching her teacher at the next table. Teacher asked her to finish and read with the group. Bree said she hadn’t finished and the teacher replied it was nearly lunch time. Bree put her work away and began reading* (ON22/8/18).

There appeared to be a number of reasons for Bree’s distractions: (i) an inability to work and talk/listen to peers at the same time; (ii) an interest in her teacher and what she was doing; (iii) her quest for perfectionism; and (iv) being deep in her own thoughts.

### **Academic – Hyperfocus**

Bree was regularly observed in a state of hyperfocus, unable to be distracted or having difficulty transitioning to the next task. In this state, even students’ chatter didn’t distract her: *Bree completely focused on her whiteboard work (hyperfocus?) just like last week and wasn’t distracted by any student that chatted or looked at her work* (ON1/8/18). She required help from an adult to transition to the next task: *Parent came over to help Bree. Bree didn’t have time to colour but started anyway. Bree was originally reluctant to stop when the parent asked but the parent explained that she could continue tomorrow* (ON30/5/18).

Bree regularly hyperfocused on familiar tasks and activities of interest, as described in three separate observations: (i) *Bree demonstrated hyperfocus with a familiar task* (ON1/8/18); (ii) *Bree demonstrates hyperfocus on interest – this time drawing and colouring* (ON8/8/18); and (iii) *Bree has hyperfocus particularly if it’s work she’s familiar with or*



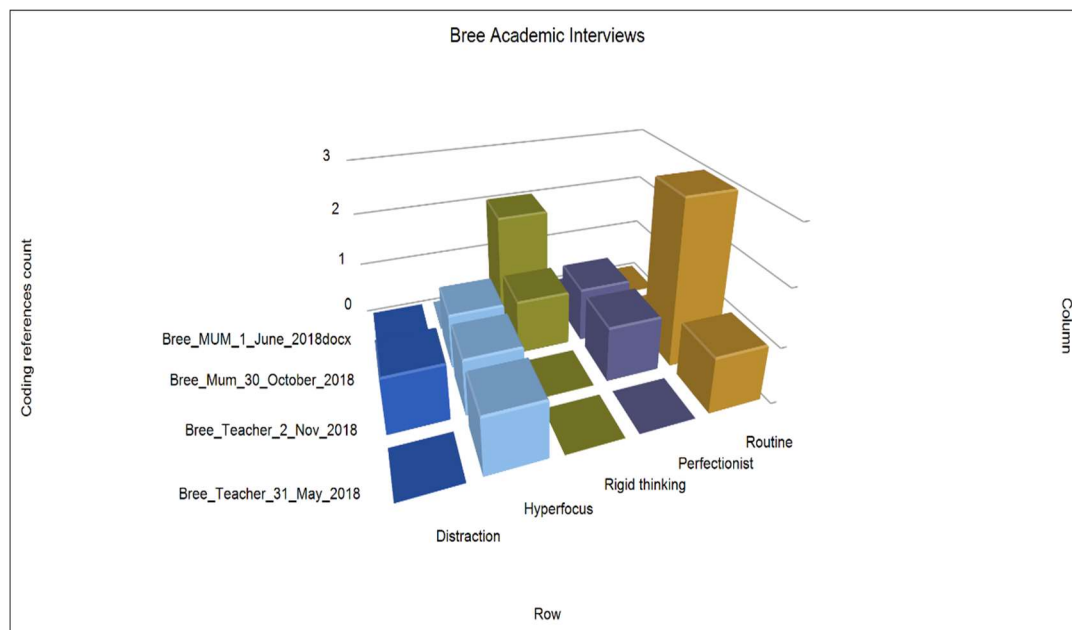
enjoys doing, such as cutting and colouring (ON5/9/18). Her tendency to hyperfocus on tasks of interest to her meant she had difficulty transitioning to other tasks.

### Academic - Findings from the Interviews

The theme Academic had five subthemes, Distraction; Hyperfocus; Perfectionist; Rigid Thinking; and Routine (Figure 5.3). Routine and Hyperfocus were the referenced most frequently.

**Figure 5.3**

*Subcodes of Bree’s case study interviews for the theme Academic*



#### Academic – Distraction

Bree’s teacher referred to her being prone to distractions, recognising that it affected her ability to do her school work: *She’s doing okay. I can see problems later on, especially with her writing because that requires attention span and sometimes it’s a struggle to get through that with her* (ITB2/11/18).

#### Academic – Hyperfocus

Bree’s mother noticed that Bree regularly hyperfocused and fixated on things of interest to her, to the point where she couldn’t be persuaded to do something else. This also fits into the subtheme, Rigid Thinking, referred to in a separate section below:

*Hyperfocused, fixates, very, very, very hard headed. If she has decided this is the way it’s going to be, you will not persuade her any different. She’s gotten worse in that*

way. She will, can't say if cheeky describes her, it doesn't really. It's worse now (IPB20/10/18).

Bree's teacher described Bree's hyperfocus as being in her own world:

*So, cleaning up she has taken on that she's going to clean those things in the morning even though she's asked repeatedly to sit on the carpet and she's not even listening and go stop and she's like "oh" and it's this whole wake up. There it is. But that is a lot recently. She's in very much in her own world and I'm going to do this task or it can even be she has to say something (ITB2/11/18).*

Her teacher also noticed that Bree's hyperfocus occurred with things of interest to her: *Her focus on drawing is something that other kids normally go and get but it's her particular go-to activity during that time. Nothing to do with the other kids (ITB31/5/18).*

### **Academic – Perfectionist**

Bree's mother likened her perfectionism to Obsessive Compulsive Disorder (OCD): *I think it got even worse now. There's this little joke about CDO, it's like OCD but I've placed it in the correct order (IPB30/10/18).* Bree's teacher also recognised Bree's preoccupation with perfectionism when she was doing something particularly important to her:

*Because you can get a writing task and here you go and it's like whatever. If she wants something done quickly and wants to be out the door, again it will be scribbled on or whatever. If it's something she likes, it's very much I will take my time with it and what do you mean it's pack up time, I'm not done. You'll get that. If she doesn't care, she won't care (ITB2/11/18).*

### **Academic – Rigid Thinking**

As described under Hyperfocus, Bree liked things done a certain way and would not entertain the idea of doing them a different way:

*She's very alone. She thinks they're dumb so her teacher describes it as she's mothering the kids. She wants to be the leader, the grown up and the whatever, so kids don't like that. She thinks she's superior. She thinks she knows better. She even does it with me at home. So, she'll say "no, I want to do it this way. Why do I have to do it that way?" (IPB1/6/18).*

Her mother explained that Bree's rigid thinking meant she would do what she wanted to anyway: *If she wants to do something, she'll find a way to do it. Very head strong (IPB1/6/18).* Surprisingly, Bree's teacher did not mention this trait in either of her interviews.

## Academic – Routine

Bree’s teacher mentioned Bree’s demand for routine in both interviews, recognising that Bree’s need for routine could affect her day: *Her challenges are fairly much the same but she goes in waves. We can be travelling very smoothly and then all her traits come to the forefront all in one time, so in saying that, she is also very susceptible to change* (ITB2/11/18).

Bree’s teacher recognised Bree’s need for routine: *She obviously likes the familiar* (ITB2/11/18). She cited the example of a relief teacher replacing her one day:

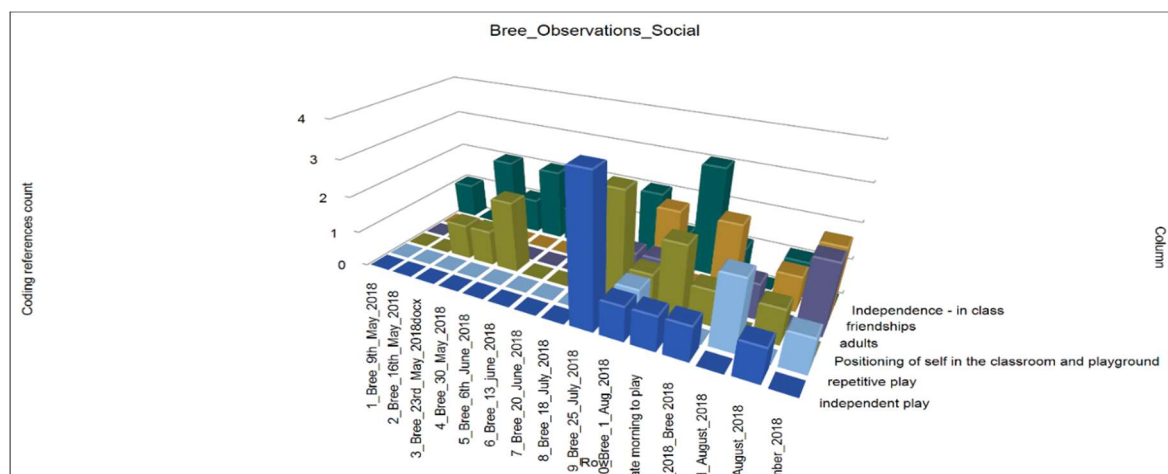
*Yesterday I had no doubt she misbehaved because I was away and I think a few of them did. It does still affect her. If an aide changes, we automatically, the manipulation comes back out again. It’s huge. It’s so noticeable. Sookiness, the “I can’t do this”. The aide will take over for me so we basically if an aide changes, we have to give them a warning, do not listen to what she is saying, she is quite capable* (ITB2/11/18).

## Social – Findings from the Observations

Social refers to interactions with others, including friendships, and is divided into Playground (Independent and Repetitive Play), Positioning of Self, and Relationships (adults, children, independence) (Figure 5.4). The second half of the observations contain more references because they included observations in the playground.

**Figure 5.4**

*Subcodes for Bree’s observations of the theme Social*

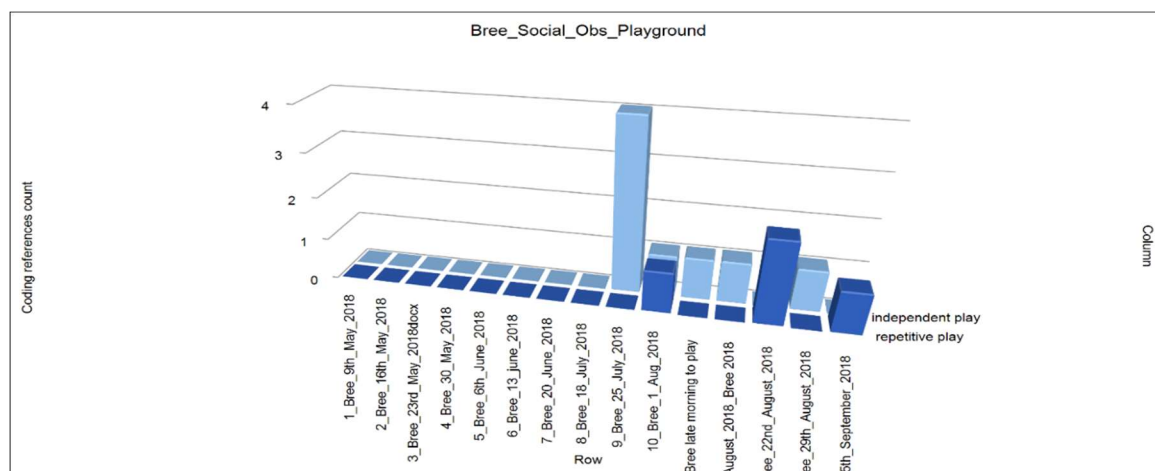


## Social – Playground – Independent and Repetitive Play

The subtheme, Playground, was separated into two branches: Independent Play and Repetitive Play. Independent Play refers to a child playing alone, content with his or her own company. Repetitive Play refers to a child routinely playing the same game or activity. During the six observations which included the playground, Bree was observed engaging in repetitive or independent play at least once during each observation (Figure 5.5).

**Figure 5.5**

*Branches for the subcode, Playground, from Bree’s observations*



## Independent

In five out of seven observations in the playground, Bree was observed playing independently. On three separate occasions, she was observed playing happily by herself most of the time: (i) *Bree put her lunch box away and swung around the pole not interacting with anyone* (ON25/7/18); (ii) *Bree went to the fort then over to a tree and played in the dirt by herself* (ON1/8/18); and (iii) *Bree wandered around saying something about needing to ask her teacher something. Bree then asked the teacher aide when she couldn't see her teacher if she could draw. The teacher aide said she could and Bree went and drew pictures sitting on the concrete* (ON8/8/18).

Bree was also observed playing side by side (parallel play) with other children and following them, but with minimal interaction:

*Bree went to the fort, climbed over it and then went to the sandpit and talked to a boy who was playing alone and they dug holes with spades playing side by side (parallel play?). Bree played in the one spot of the sandpit... Bree followed a few girls (one*

*girl was the same from last week) and then she wandered off by herself. Bree then returned by herself to the sandpit (ON25/7/18)*

Parallel play was observed again on two separate occasions: *Bree then went and sat on the concrete drawing and three other girls joined her. Bree didn't talk much and was focused on her drawing (ON15/8/18)*. Again, later in the month: *Bree sat under the fort in the corner. Her friend joined her for a little while before going off to play but Bree stayed (ON29/8/18)*.

Repetitive play was also observed in the playground. Bree played or engaged in activities that she'd previously been observed doing in the playground. Swinging on the pole was one example – this may have helped her sensory processing: *Bree talked to her teacher aide about her bows, while swinging around the poles like last time. The teacher aide suggested she go and play (ON1/8/18)*. Bree enjoyed drawing and colouring out in the playground, where it appeared to provide a sense of calm and familiarity: *Bree and the girl then got paper and pens to draw on the cement (ON22/8/18)*.

Bree preferred to interact with adults than with peers, also in the playground: *Bree stood with the teacher aide for a while before returning to the group who had a toy parachute... Bree kept returning to the teacher aide talking about the toy parachute (ON5/9/18)*. Bree sometimes followed a friend or group of peers around but didn't necessarily interact with them, as evidenced in earlier observations referenced under Independent Play: *Bree followed the group around with the toy parachute (ON5/9/18)*.

### **Social – Positioning of Self**

Bree regularly positioned herself on the outer edge of her peers, as observed on four separate occasions: (i) *Bree chose a space away from others and didn't speak to anyone (ON30/5/18)*; (ii) *She sat on the edge of the group in her own space (ON6/6/18)*; (iii) *Bree was sitting on the outer of the group on the carpet (ON25/7/18)*; and (iv) *Bree is sitting on the outer of the group on carpet for literacy (ON15/8/18)*.

It was also noticeable that Bree chose to sit in her own space, both inside the classroom and outside during eating time: *Bree likes to sit in her own space whether it is on the carpet or at eating time (ON6/6/18)*. Choosing to sit in her own space meant that she did not have to interact with other children: *Bree sat in her own space to eat and didn't talk to the other children (ON23/5/18)*.

In three observations, Bree took in her surroundings before choosing a seat on the outer of a group: (i) *Bree stood for a while and observed the room and it took at least a*

*minute for her to choose a new spot – still on the outer of the group (ON25/7/18); (ii) Bree observes her surroundings a lot both in the classroom and in the playground. More so when she needs to make a choice where to sit (ON1/8/18); and (iii) Bree observed everyone moving to the table before taking a seat at her group's table (ON8/8/18).*

In one observation, Bree chose to sit away from the group and it became clear that she was moving more than usual, displaying a sensory need for movement: *Bree was sitting a metre or so away from the group. Bree was moving a lot in her spot on the carpet (ON8/8/18).* Her need to move and position herself away from the group was also noticed in an observation two weeks later: *Bree smiled and skipped over but did her movements at the outer of the group (ON29/8/18).* Bree consciously chose to sit near a group, but not necessarily with a group. She observed her surroundings before making a decision about where to position herself, both inside and outside the classroom.

### **Social - Relationships (Adults, Children)**

Bree continually sought reassurance from adults: *Bree approached her teacher about the "ea" column for reassurance that she was doing it properly (ON1/8/18) and liked them to be close by in class: Bree prefers to talk to teachers, teacher aides and likes to ensure they are close by (ON22/8/18).* Bree liked to please her teacher and watch her intently in class: *Bree followed all instructions and continued new activity. Bree watched the teacher intently but did not look at other children (ON25/7/18).*

In the playground, Bree sought out the adult on duty: *Bree stood with the teacher aide for a while before returning to the group who had a toy parachute (ON5/9/18) and continued to return to the adult on playground duty: Bree kept returning to the teacher aide talking about the toy parachute (ON5/9/18).* Bree preferred to interact with adults; interaction with peers was limited and mostly noted in the playground. She also preferred to interact with one person rather than a group: *Bree prefers to play with one person (ON18/7/18).*

Bree usually interacted with the same peer: *Bree sat next to a girl she played with last week (ON1/8/18).* She was again observed playing with the same friend a fortnight later: *Bree waited for her usual friend after the bell rung. They ran off together and were followed briefly by another girl in their class (ON15/8/18).* I was informed by the teacher aide that Bree became emotional if she was unable to play with her usual friend:

*Bree and another girl, who the teacher aide said she was spending a lot of time with, held hands and went off to play. The teacher aide said if she doesn't get to hold or sit with the person she wants to in line, she will cry (ON29/8/18).*

Bree liked familiarity and demonstrated this non-verbally: *Bree observed where she was going to sit and then patted next to her for the girl who sits next to her during literacy groups. But didn't talk to anyone when the girl sat down (ON5/9/18)*. She attempted to interact with her peers; in one observation she tried to interact non-verbally: *Bree briefly spoke to neighbour by tapping her and pointing to her drink bottle (ON1/8/18)*. Two weeks later, she briefly chatted with the child sitting next to her, but it wasn't sustained: *Bree chatted to the girl who sat beside her briefly, then Bree sat quietly eating (ON15/8/18)*. With the exception of her one "chosen" friend, Bree's preference for interacting with the teacher rather than her peers was evident.

### **Social – Independence in Class**

Independence in Class overlaps with the earlier subtheme of Positioning of Self and Bree's preference to sit in her own space without interacting. This was observed throughout the series of observations: (i) *Bree sat in her own space to eat and didn't talk to the other children. Bree mostly stared into space, deep in thought (ON23/5/18)*; (ii) *Bree likes to sit in her own space whether it is on the carpet or at eating time (ON6/6/18)*; and (iii) *Bree observes her surroundings a lot both in the classroom and in the playground. More so when she needs to make a choice where to sit (ON1/8/18)*.

Bree seemed to prefer being independent most of the time and did not need to interact with children to get on with her tasks, including eating her fruit and returning to her work: *She was the last from her group to munch and crunch outside. She chose a space from others and didn't speak to anyone. She returned to the classroom as soon as she finished her fruit (ON30/5/18)*. Bree happily joined in a movement activity in her own space alongside her peers: *There was a movement activity song to move to and all the children enjoyed it. Bree smiled and skipped over but did her movements at the outer of the group (ON29/8/18)*.

Bree was confident to ask her teacher for what she needed: *Bree asked her teacher if she could go and get her hat and she returned and sat near children but did not talk to them. (ON9/5/18)*. She also asked for help from the adult aide in the room: *Bree took no notice of the other students chatting. Bree continue to stop to talk to the parent helper. The parent helper encouraged Bree to continue her task (ON23/5/8)*.

Bree preferred to do things on her own and on her terms:

*The learning support teacher went over to the teacher and Bree said "hello" to her. Teacher said Bree could glue her words in and Bree said she didn't have glue and waited until another student gave her glue. But she didn't ask for it. Bree very*

particular about “bits” on glue stick. Bree glued in the words perfectly straight on the page (ON13/6/18).

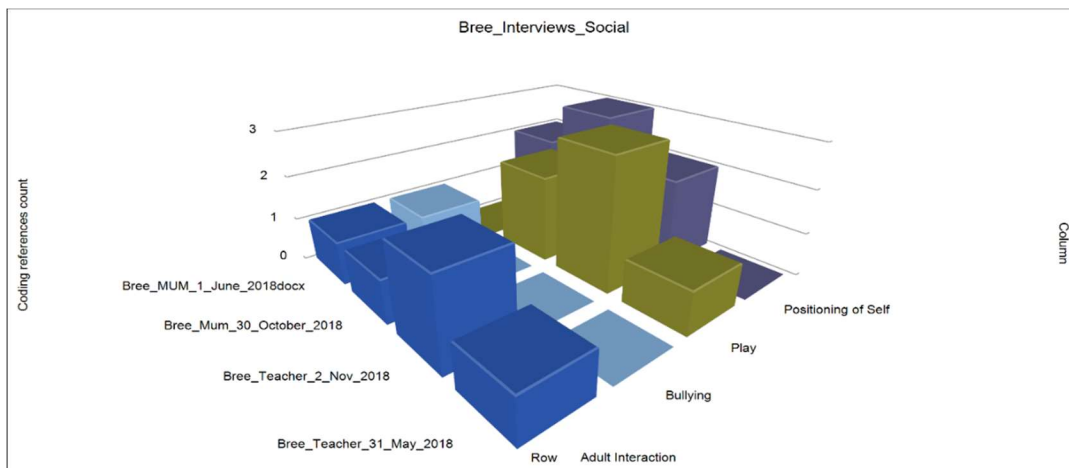
She made conscious decisions about where to sit and work, whether it was at the table or on the carpet. Bree regularly chose her own space where she could work independently. Independence overlaps the subtheme Positioning of Self, with some examples of the overlaps: (i) *Bree sitting on carpet at roll call. She sat on the edge of the group in her own space* (ON6/6/18); and (ii) *Bree observed everyone moving to the table before taking a seat at her group’s table.*

### Social – Findings from the Interviews

Bree’s mother and teacher made numerous references to all the Social subthemes, as visually displayed in Figure 5.6.

**Figure 5.6**

*Subcodes from Bree’s interviews under the theme of Social*



Positioning of Self, and Adult Interaction were referenced most frequently, followed by Play. Bullying was only referenced in the first interview with Bree’s mother.

### Social – Adult Interaction

Bree liked her teacher and didn’t want to leave her:

*The things she’s doing, when I ask her, why aren’t you reading? What’s going on? You know, all of this stuff. What’s going on? No, she doesn’t want to go to year one and leave her teacher. So now, I think she’s “okay, if I don’t perform and I don’t do they will keep me with my teacher”* (IPB1/6/18).

Bree’s mother believed that Bree preferred to interact with adults because they could



provide her with information that children couldn't: *Kids her age, young kids do not have the answers that she wants* (IPB30/10/18). Bree's teacher confirmed this and said that Bree would go into the staff room for adult interaction: *Very much adult orientated. Hence coming into our staffroom. And it has lessened. It used to be every day* (ITB31/5/18).

Bree's teacher had to address Bree's sense of space and boundaries when interacting with adults: *That was the biggest challenge since we last spoke is that I've had to find the time to go right, let's go through strangers and appropriate touching* (ITB2/11/18). Bree's first point of contact in the morning was with her teacher:

*If a new adult walked in, she would still turn around and have a chat. If an aide walks in, it's how are you going? But not as much now. She will still do the morning thing where she will walk in and tell me some sort of story* (ITB2/11/18).

It was thought that Bree's preference for talking to teachers rather than her peers was due to being able to engage with them at a higher intellectual level and obtain information from adults that her peers couldn't provide.

### **Social – Bullying**

Bullying was only raised by Bree's mother in the context of concern for the future. She raised the issue in her first interview:

*I'm afraid that is going to make her a target for bullying one day because she's so sweet. She just wants everyone to be happy, to love her. But at the same time, she's got this little stuff coming out now that she didn't have before* (IPB1/6/18).

Bree's teacher did not mention bullying in either interview, suggesting that it wasn't a current issue for Bree in preparatory grade.

### **Social – Positioning of Self**

Bree's mother was mindful of her daughter's unawareness of personal space when interacting with adults:

*She will hug you but socially inappropriate...So she'll be in your personal space. She'll put her face close to yours and talk to you and hug and kiss you at awful times like when you're trying to dress her so she's sweet and loving but she's sort of evolving, coming into her own* (IPB1/6/18).

In contrast, Bree's mother had watched Bree dancing at school and noticed that she didn't want children in her personal space: *If you've seen her dance with Baby Shark (song) on stage, she was like all the kids get away from me, I'm going to dance now* (IPB30/10/18). So, despite not wanting children in her space, Bree wanted to be in the personal space of

adults: *Bree's got no personal space. She doesn't understand personal space (IPB30/10/18).*

An incident with a stranger led Bree's mother to ask for her teacher's assistance with defining personal space at school:

*So, she will run out and kiss the pizza delivery guy because wonderfully he brought me food. She will do the same with her sister, with anybody. If someone stands there across the road and says come, give me a hug, she will go. She will not think about it (IPB30/10/18).*

Bree's teacher had found it difficult to teach Bree about personal space: *That was the biggest challenge since we last spoke, is that I've had to find the time to go right, let's go through strangers and appropriate touching (ITB2/11/18).* In class, Bree preferred to sit in her own space and work, and particularly liked to sit in the same spot: *Table-wise you can see she's very much on her own. Even though she's at a table, yeah, I'm here but again same seat, same position, need to be her (ITB2/11/18).*

Bree struggled with the notion of personal space and found it hard to understand the inappropriateness of being in adults' personal space.

## **Social – Play**

Bree's mother noticed that Bree's dominating behaviour in the playground was isolating her from her peers:

*However, she has got this awful thing now where she is the older child, the responsible one, so she dominates the kids at school now, which isolates her because they don't want to play with her that much because she does have this thing now that "I know better than you" (IPB30/10/18).*

Bree became emotional when other children didn't want to do things her way:

*She will do two things. One, she will try to dominate the group, see if they want to do what she wants to. And if they don't want to do it that way, she will sit out and get very emotional about it and isolate herself and come home and say nobody wanted to play with me. Because they didn't want to do it her way. (IPB30/10/18)*

Bree's teacher mentioned that Bree engaged in parallel play:

*It's the here whether or not you're talking, you're still engaged in that conversation, well, if someone else was talking, she really doesn't care about what they're saying. Unless you're actually making books with me or drawing with me, it's still very much that parallel play (ITB31/5/18).*

Later in the year, during the second interview, Bree's teacher reported that she was

getting better at joining in with her peers:

*So, she still has that parallel play happening a lot. In saying that they had to write friends' names the other day and she was able to name friends she identified with. They were all the people at her table but they are people she talks to and feels comfortable with so that's successful for her (ITB2/11/18).*

However, Bree's teacher pointed out that joining in with her peers at playtime didn't last long:

*She may play out there with a group of kids. They all seem to play a game. If she wants to partake in that game, she will probably go in for a small amount of time and then she will just retreat again. Normally it's to the paper, she wants to go back to create something. Same with the playground down below, she'll go down there for a short amount of time and then it's enough. To me it seems she goes to get that energy out that she needs to and then goes back to what she enjoys, going back to the paper, creating, colouring and all the rest of it. She's often at the door going 'there's no more paper'. As much as she named the kids at her table and she does get along with them and one of the boys in particular who has the game outside but it's not like she'll sit with him on the carpet or anything like that, it's basically in its context (ITB2/11/18).*

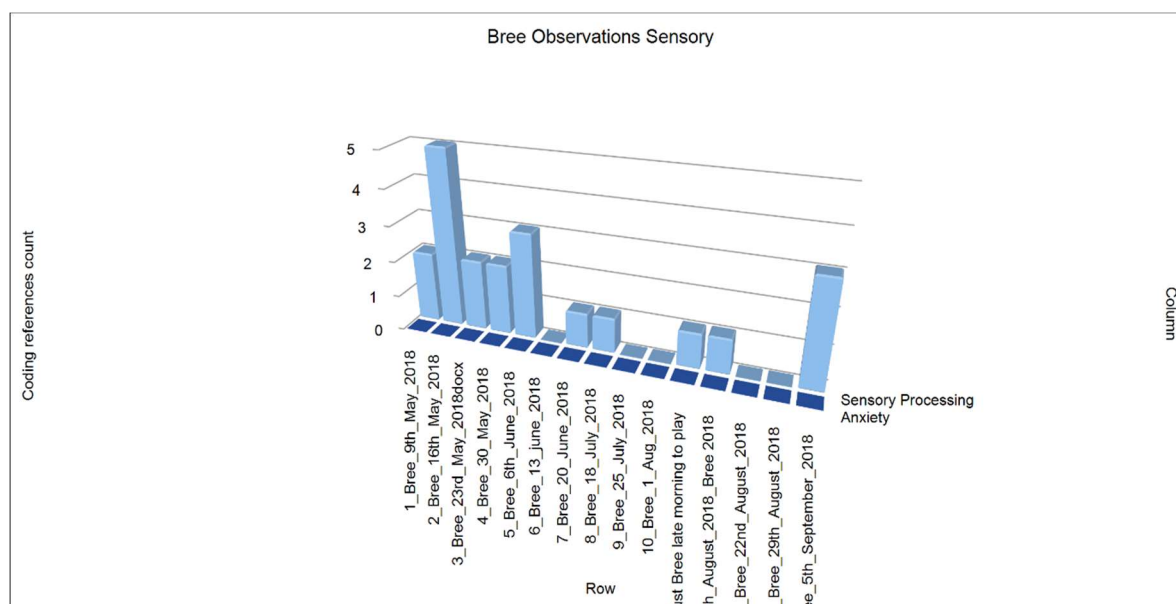
The teacher's view was that Bree perceived any children who were around her at the time as her friends: *I'm at the table and these are my friends and then I'll go outside and these are now my friends and then I'll go back to paper. That's her socially (ITB2/11/18).* She added that Bree enjoyed playing by herself and saw those playing around her as her friends.

### **Sensory – Findings from the Observations**

Sensory processing involving movement of the body was evident in 12 out of the 15 observations of Bree (Figure 5.7). Sensory processing refers to way in which the body responds to sensations such as touch, sound and movement, and the coping mechanisms that are used when this information is misinterpreted. Unlike Alannah, tics and anxiety were not observed in Bree. However, some of the sensory processing behaviours discussed later in this section and Bree's Positioning of Self strategies may have been evidence of masked anxiety. Anxiety was mentioned in the interviews with both Bree's teacher and mother.

**Figure 5.7**

*Subcodes from Bree's observations for the theme Sensory*



### Sensory – Sensory Processing

Bree was observed moving her feet throughout an observation of literacy groups: *Bree continually moved her feet* (ON16/5/18). Repetitive movement of her feet was again observed a few months later: *Bree stared into space, moving right foot fast* (ON5/8/18). Hooking her feet around a chair provided Bree with sensory stability: *Bree was completely still besides turning pages in her book or pointing along with the words, and had her feet hooked around the bottom of the chair legs* (ON9/5/18).

In an early observation, Bree was seen rocking in her chair but I couldn't ascertain whether it was due to anxiety or the need for sensory input: *Bree sporadically rocked her chair throughout her groups (I couldn't pinpoint times due to increased stress or where sensory stimming was needed)* (ON30/5/18).

Evidence of acute sensory processing manifested in Bree as thinking about her tasks and extreme sensitivity to her surroundings: *Once again, Bree looked at the task for a while before starting. Bree was distracted by child next to her who dropped her rubber and teacher aide redirected her.* Sensitivity to her surroundings related to Bree being easily distracted and affecting her ability to work effectively, as discussed earlier under Academic: *Bree was distracted by a child who had finished and was talking, which meant Bree needed to stop what she was doing to listen* (Both ON16/5/18).

Bree needed to engage in whole-body movement, regularly observed when transitioning between activities: (i) *Bree moved a lot to transition to reading at the same table and movement included skipping, kicking up her legs and running* (ON16/5/18); (ii) *Last week it was noticed she had a lot of big movements when moving around the room. This may have been due to the walk to the tuckshop and back before literacy groups* (ON23/5/18); and (iii) *Bree “bounced” to wash her hands, spoke to the teacher aide but not the other students. Bree sat opposite the child she usually plays with as someone was already sitting next to her* (ON15/8/18).

Bree was also absorbed in whole-body movement while sitting on the carpet: *Bree was sitting a metre or so away from the group. Bree was moving a lot in her spot on the carpet* (ON8/8/18). She continually got out of her seat and I noted that it was most likely due to seeking whole-body movement: *Bree continually got up to get a tissue. (At first, I thought she must have had a runny nose, but soon realised this wasn't the case – possibly a sensory/movement issue)* (ON30/5/18).

Bree was observed tip-toeing, commonly associated with autism and sensory processing (Snyder, 2006): *Bree took the tuckshop box to tuckshop. Bree came running into the room to the teacher, tiptoeing, to tell her teacher a poster had fallen off the wall outside and gave it to her* (ON23/5/18). Bree was observed tiptoeing again a few months later: *Bree tiptoed and skipped to the bathroom using big movements* (ON5/8/18).

For a special fundraiser, students were allowed to wear a pirate costume to school. Bree was continually distracted, touching her textured pirate costume material: *Bree quickly distracted by her surroundings, especially looked at others' pirate costumes and playing with her own* (ON6/6/18). On the same day, I noticed Bree needed less whole-body movement: *Bree was calmer today and required less movement* (ON6/6/18).

Bree liked to work while standing and sometimes placed one knee up on her chair: *Bree asked teacher aide to sharpen pencil and waited patiently with her. Bree stood to colour her work, sometimes with her knee on the chair* (ON20/6/18). Bree enjoyed moving her body to the literacy song: *Bree enjoyed singing along and slightly moved her body to the beat – more so than the other students* (ON18/7/18).

Bree found it overwhelming to enter the classroom in the morning when it was full of children and adults, possibly related to visual and/or auditory overload, so the teacher put a strategy in place to assist her. Feeling overwhelmed could also be viewed as anxiety: *The teacher mentioned that last year Bree would go into the office (glass window) during the morning when parents were settling their children in as Bree found it overwhelming. She*

would then join the class for roll call (ON9/5/18).

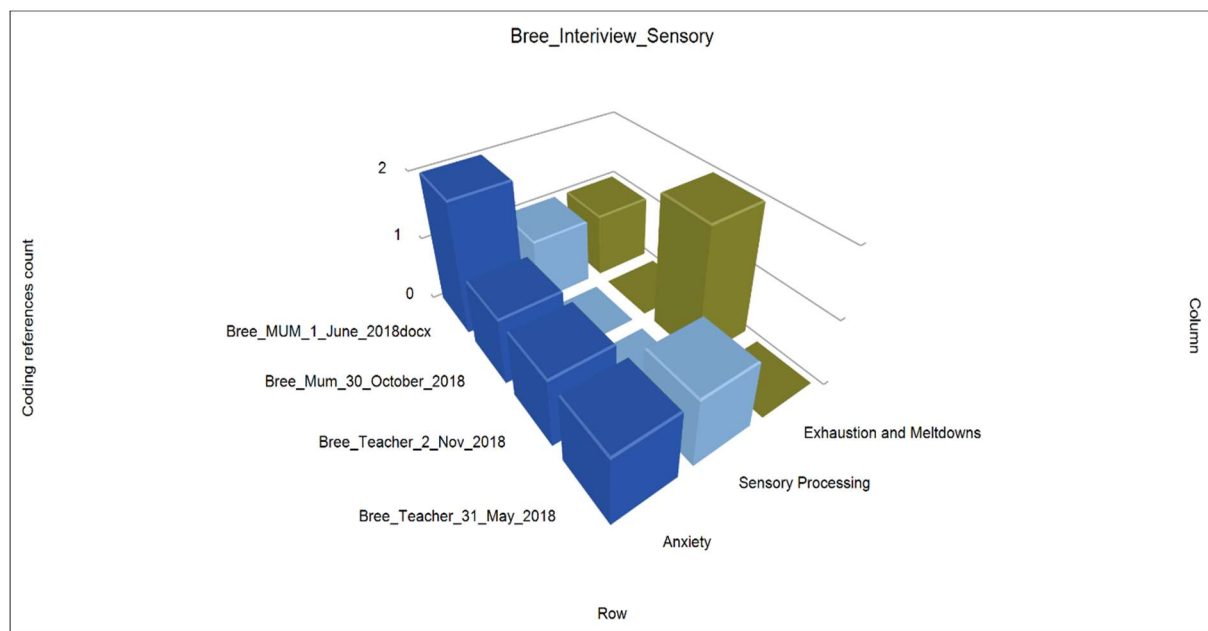
Bree also appeared to have a hearing sensitivity: *Bree continued cutting. She covered her ears when the student next to her squeaked their chair on the floor* (ON5/9/18). A month earlier, I happened to be present when Bree was upset by the noise of heavy rain after the school bell rang: *After school it rained heavily and it was noisy on the tin roof. This frightened Bree, who was in tears and was comforted by a parent* (ON5/8/18). It is possible that Bree was sensitive to high-pitched sounds.

### Sensory – Findings from the Interviews

During the four interviews with Bree’s mother and teacher, references were made to all three subthemes of Sensory, with Anxiety the most frequently mentioned (Figure 5.8). This is in stark contrast to the lack of evidence in the observations but may be due to Bree successfully masking her anxiety.

**Figure 5.8**

*Subcodes from Bree’s interviews for the Sensory theme*



### Sensory – Anxiety

Bree’s mother reported episodes of anxiety that led to meltdowns:

*Absolutely she’s got anxiety. And she’s screaming in the afternoons and in the mornings. So, this morning she’s got like a big piece of paper and she wants to put it up for a party. I asked her why and she said because I’m going to die. I said no I’m not. So, she’s really focused on that now* (IPB1/6/18).

Her mother believed that Bree's anxiety stemmed from frustration and that she may have been feeling anxious for a while but was unable to verbalise what she was feeling: *I think she's frustrated. I'm a little concerned with the anxiety. Where did that come from? She's never had these panic attacks or freaking out or maybe she did but couldn't attach a word to it (IPB1/6/18).*

Bree's mother noticed Bree's anxiety when transitioning from holidays back to school:

*During the school holidays I kept them busy. So, we did all sorts of weird things every day to entertain. So, when she returned to school she didn't want to go because then she's going to leave mummy so then she had this attachment issue (IPB30/10/18).*

Bree exhibited more anxiety at home than at school:

*She's been quite calm. She's travelling quite well at the moment unless she's in trouble and you're very definite I'm not giving into you, that's normally what sets her off. I haven't got my own way so that will bring tears on. Other than that, she's pretty good. There's not much that sets her off (ITB2/11/18).*

Bree's teacher talked about the benefits of knowing a child's strengths and deficits prior to entering the classroom at the start of the school year:

*None of that occurs 'til quite later on when the paperwork needs to start getting done, or the interviews start happening with the parents. That's been a long time. And by then a lot them (students on the Autism Spectrum) are already floundering or already hitting that "I'm anxious because that teacher hasn't understood me yet" and I think that's a lot of wasted time. The child's anxious and we're frustrated. I think that all needs to happen a lot earlier (ITB31/5/18).*

## **Sensory - Meltdowns**

Meltdowns are usually triggered by a build-up of anxiety, as mentioned in the previous section. Bree's meltdowns began before she started school, when she was unable to verbalise what she was feeling:

*Then just before her little sister was born, I was pregnant, she stopped talking completely. Nothing. From a full sentence to nothing. Completely quiet. Having these temper tantrums, screaming. We ask her "tell me what's wrong?" And she'll just scream, no words (IPB1/6/18).*

When Bree struggled to express herself, a meltdown would ensue:

*She's not a child who is overly forthright with how she feels at all. She'll have a*

*tantrum or she'll demand something or she will get in trouble for breaking whatever rule but she's not one to sit there and go I'm feeling this at the moment and I think this is going to be one of the biggest issue (ITB2/11/18).*

### **Sensory - Sensory Processing**

Bree's mother mentioned that Bree needed regular sensory input by engaging in whole-body movement at home:

*You can't contain her. She'll go and stand in front of the TV for five minutes and then she'll run again and then she'll come back, put her nose against the TV, stand there and then she'll run again so you have to constantly have to watch her because she has to move and figure stuff out (IPB1/6/18).*

Her teacher also reported that Bree needed regular sensory input through whole-body movement in the classroom, confirming her mother's account and my observations:

*She will walk a lot. You will find her behind you a lot. You will find her at the door a lot. She just tracks. Really, just tracks around. You just got to let her do it. It's no different to going to Child C (another AS child) go out and jump 20 on the trampoline (ITB31/5/18).*

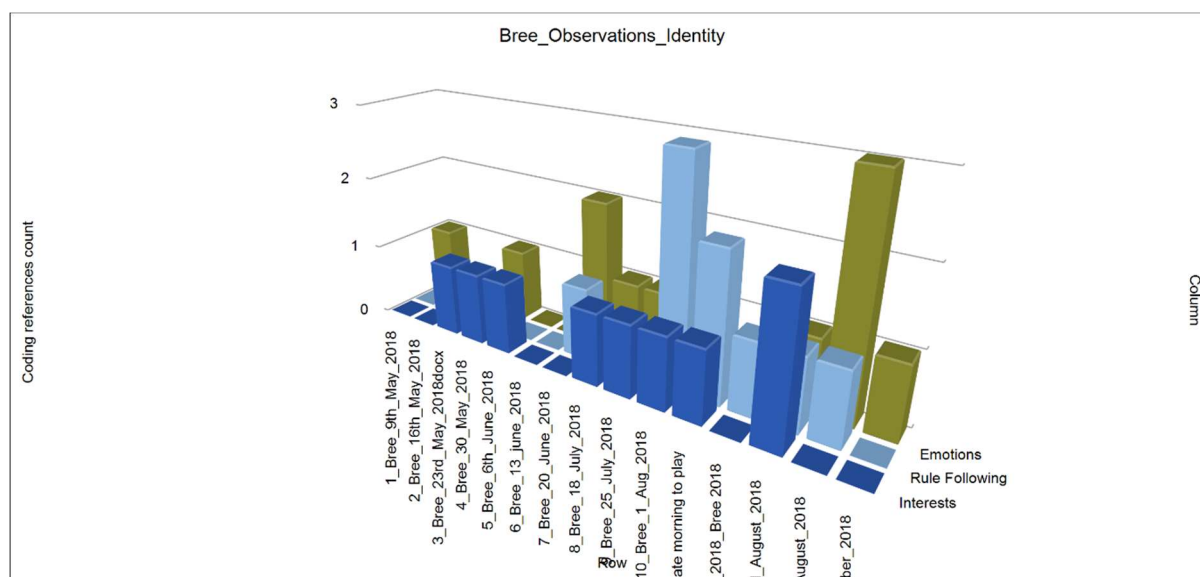
### **Identity – Findings from the Observations**

Identity is the final CASSI theme and refers to self-expression and how a child is viewed by others in a classroom context. Identity has three subthemes: Interests, Rule Following, and Intense Emotions. Bree was regularly observed experiencing intense emotions and having narrow interests over the 12 observations (Figure 5.9). Rule Following was mostly observed during the later observations.



**Figure 5.9**

*Subcodes for Bree's observations of the theme Identity*



### **Identity – Narrow Interests**

As noted under Academic, Bree was a perfectionist when it came to colouring and writing; for example: *Bree focused on her writing about the book and worked quietly* (ON30/5/18). To avoid repetition, Bree's intense interest in writing and colouring has not been included under Interests, although they provide evidence of both Identity and Interests.

Since Bree attended a state school, she had more leniency with school uniform regulations. On four separate occasions, I observed Bree wearing oversized bows in her hair: (i) *Bree always wears something in her hair. I haven't noted this before but it is a regular occurrence. Today is a crown on a headband* (ON18/7/18); (ii) *Bree had a big pink bow in her hair* (ON25/7/18); (iii) *Wearing two big bows in hair* (ON1/8/18); and (iv) *Bree with a big bow in her hair* (ON8/8/18).

On the fourth occasion, Bree was dressed up as a fairy for dress-up day: *Bree was dressed up as a fairy with a dress, glitter make up and a bow* (ON22/8/18). On another dress-up day, Bree wore a feminine pirate costume and accessories for a fundraising day: *Bree talked with the other children about the pirate costume* (ON6/6/18). Bree enjoyed princess-like costumes and accessories, as discussed during the interviews: *Bree is happy to dress up princess like – her mum said this in her interview and dad said this in an informal conversation last term* (ON22/8/18). Bree's interest in hair distracted her from her work: *Bree stopped what she was doing and pointed out to the parent helper that they had the same hairstyle* (ON23/5/18).

## Identity – Rule Follower

Bree liked things to be in order – this may also be a perfectionist trait: *Bree made sure all paper waste buckets were organised properly (all the same way) before returning to the table* (ON20/6/18). Another example was the pencil tray, which needed to be in the middle of the table so that all the children could reach: *A child moved the pencil tray to get a pencil but didn't return it to the centre. Bree moved the tray back to the centre* (ON15/8/18).

Bree liked to please the teacher and followed instructions to complete tasks, particularly if she was feeling confident: *Bree didn't speak to anyone throughout task but followed all instructions and completed her whiteboard task* (ON1/8/18). Bree checked with her teacher for reassurance that she was completing the task correctly: *Bree approached her teacher about the "ea" column for reassurance she was doing it properly* (ON1/8/18). Above all else, Bree wanted to please her teacher and did not like to be distracted from doing something her teacher had asked her to do:

*A child tried to hug Bree while she was collecting the sheets but Bree pulled away to continue collecting the sheets like the teacher had asked. She took on this role seriously. Bree tidied the sheets before handing them to her teacher* (ON8/8/18).

Bree was honest in her answers and always followed her teacher's directions:

*Bree distracted by watching her teacher at the next table. Teacher asked her to finish and read with the group. Bree said she hadn't finished and the teacher replied it was nearly lunch time. Bree put her work away and began reading* (ON22/8/18).

I noted during one observation that Bree always followed the rules rigidly: *Bree likes rules to be followed* (ON1/8/18). Bree wanted the other students to do the same and let them know if they weren't following the rules. For example, Bree told a peer that she should be eating the sandwich in her lunchbox first: *Bree sat next to a girl and told her how she should be eating something in her lunch box* (ON29/8/18).

It was important for Bree to follow the rules and please her teacher. Her need for things to be "just right" could also be seen as perfectionism.

## Identity – Emotions

During an initial observation, Bree's mother reported that Bree's emotions had been volatile over the past few days: *I saw Bree's mum on her way out of the classroom who said that Bree had been all over the place for the last few days so it would be interesting to see how Bree was today* (ON9/5/18). However, it was only at the end of that month that I observed Bree's intense emotions when she was crying: *Bree started to cry (possibly related*

*to having to stop last task before finishing?). The child next to her asked why she had a tear on her cheek and Bree replied she missed somebody (couldn't hear name) (ON30/5/18).*

Bree also displayed empathy towards others, signalling that she could be in tune with the emotions of others:

*Bree stopped work and went over to comfort a peer who was crying as he missed his mum. Bree brought over a tissue to her peer. The child who was crying was chosen to do a job and Bree went back to her work but sat closer to the peer's chair who was crying. Bree then went over to teacher at another desk to ask what a picture was (ON20/6/18).*

During this same observation, I noticed that Bree had to stop what she was doing to empathise: *The social, emotional side that affects learning, i.e., stopping work to listen or watch what is happening next to her, mothering a crying child (ON20/6/18).*

Bree's willingness to help was again observed a few months later: *Bree noticed the girl next to her needed a tissue and she went and got her one (ON22/8/18).* Bree appeared to attract the teacher's attention by crying. On one occasion: *Bree fell over and burst into tears. She stopped when looking around for a teacher. She wouldn't let her friend comfort her. She cried again when she found a teacher and was fine once she received a hug (ON18/7/18).* A teacher aide confirmed this conclusion:

*Bree and another girl who the teacher aide said she was spending a lot of time with, held hands and went off to play. The teacher aide said if she doesn't get to hold or sit with the person she wants to in line, she will cry (ON29/8/18).*

Not long after the above comment by the teacher aide, Bree again sought attention through injury and emotion. In hindsight, finding an excuse to leave the playground intermittently could have been her way of seeking calm from the playground chaos, as she did earlier in the year by going into the teacher's office at the start of the school day. Intense emotions and sensory responses may be linked:

*Bree bumped her head again and went back to the teacher aide for an ice pack and that lasted less than a minute. The teacher aide said she does this often so she can go into the classroom – just like the teacher said she does to check on things and to see if her teacher is there (ON29/8/18).*

Intense emotions were observed when Bree experienced sensory overload due to loud noise: *After school it rained heavily and it was noisy on the tin roof. This frightened Bree who was in tears and was comforted by a parent (ON5/9/18).* Bree also displayed intense emotions in response to change: *Bree will get emotional if things don't go the way she*

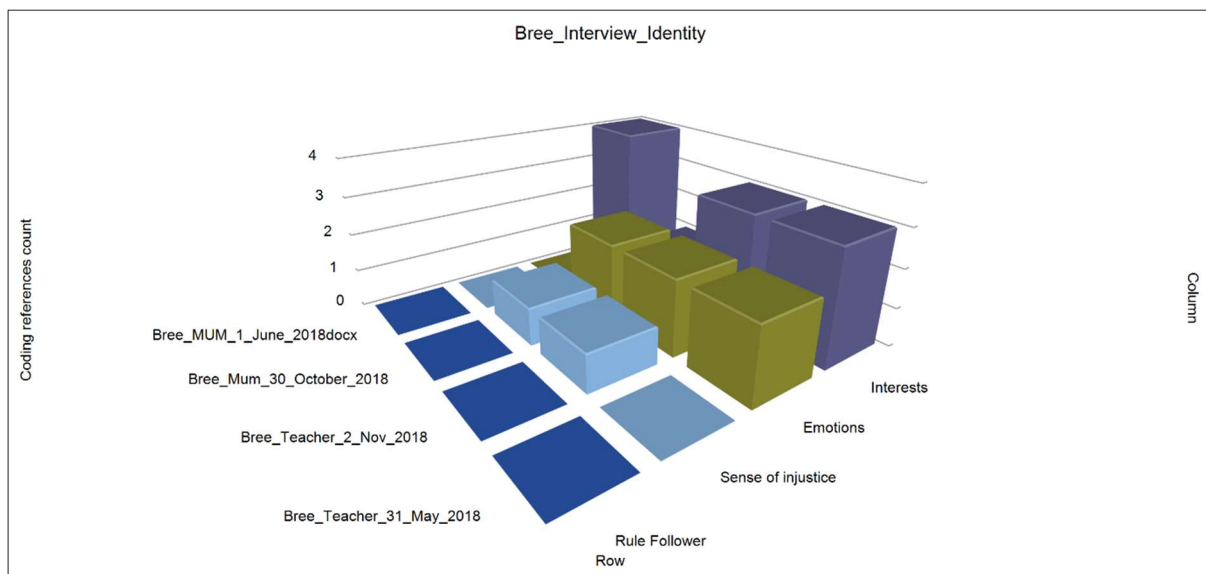
planned (ON29/8/18). I noticed when Bree wasn't showing intense emotions that her facial expressions were blank: *Bree mostly had a serious or non-smiling face during lunch and playtime (ON25/7/18).*

### Identity – Findings from the Interviews

Three areas of Identity were referenced in the interviews, Emotions and Interests most frequently (Figure 5.10). There were no references to Rule Follower which I had observed.

**Figure 5.10**

*Subcodes from Bree's interviews for the theme Identity*



### Identity – Emotions

Bree's mother advised that Bree had repeated preparatory year as she was not emotionally ready for Year 1:

*It was the best decision we made because Bree wasn't emotionally ready for year one. She was ready intellectually, sort of, she still had some things where she was left behind with the language barrier and stuff, but she would've been fine while she wasn't emotionally ready (IPB30/10/18).*

Her mother also referred to Bree becoming emotional when things didn't go her way:

*She will do two things. One, she will try to dominate the group, see if they want to do what she wants to. And if they don't want to do it that way, she will sit out and get very emotional about it and isolate herself and come home and say nobody wanted to play with me. Because they didn't want to do it her way (IPB30/10/18).*

This was also observed at school by Bree's teacher: *She's been quite calm. She's travelling quite well at the moment unless she's in trouble and you're very definite I'm not giving into you, that's normally what sets her off. I haven't got my own way so that will bring tears on* (ITB2/11/18).

Her teacher added that Bree suppressed her emotions at school:

*She's not even identifying with or asking for clarification why. She'll just keep that inside so automatically you need to be ready with you need to share that because... she needs that clarification even though she's not asking for it. I see problems for her later on if she doesn't talk things through* (ITB2/11/18).

Like many children on the autism spectrum, Bree was prescribed medication to help her cope with intense emotions:

*Initially when Bree was on Ritalin and that was a tablet at home and we would give her a tablet here at school. I know Bree's mum doesn't like medication so she pulled her off one of them and on those particular days, the tears would start and the moodiness would start so it was more that behaviour that would be increased. In saying that, when they first put her on, we did very much get a very docile child so it's between a rock and a hard place. There was a lot of time there where they were manipulating the medication to see what she does need* (ITB31/5/18).

Bree was empathetic to her peers and could sense their emotions, but her caring sometimes intensified and became "controlling" or "bossy":

*So, she's one of the most caring little people in that room. Sometimes it goes too far and becomes bossy, controlling and doffy but at the same time, if you're sick, she'd be the first one there to come give you a hug or ask if you're alright* (ITB31/5/18).

Bree showed intense emotions at school when things didn't go her way, but quite often suppressed her emotions until she arrived home.

## **Identity – Narrow Interests**

Bree's mother mentioned three areas in which Bree took an inordinate interest. Quite surprisingly for one so young, Bree was fixated on the topic of death:

*Bree has this fascination that everyone is dying. Everybody she tells. The teacher aide is dead because she is old. So now she's got this thing because she's afraid that I'm going to die...It's absolutely worse. Everybody's dying around her and she thinks it's okay to say: "you're going to die, are you old, is your mum dead?" so that's really tough now because she's fixated on it now* (IPB1/6/18).

She was also deeply interested in rocks:

*Yeah, she's specific about it. It needs to be a certain type of rock. It needs to be a certain colour; it needs to match and she likes the smooth ones that's been polished by the sand. She picks up the smooth ones now and then she looks them and talks about them (IPB1/6/18).*

Bree's mother identified her interest in science and art: *She's got science. Anything scientific. She loves science so her dad will tell her about sludge, where does sludge come from? She loves anything scientific and art (IPB1/6/18).* Bree's interest in rocks shifted to crystals and her interest in science and art continued throughout the year:

*She's got thing about crystals. She wants to know everything about crystals and her dad has to explain to her different types of crystals and formations and stuff. So, she's still on the scientific way. She's fixated on painting, rainbows, very colourful weird stuff, aliens, spaceships (IPB30/10/18).*

Bree's teacher reported that Bree was fascinated by ice cubes in the first aid room at school, which subsequently transferred to a focus on the tuckshop:

*She still, when she first came, she still had strong fixations. So, one was ice. She needed to have ice. She would seek out any teacher because she knew she could get an ambulant's card to get to ice. So, we'd often get this phone call "we have a little girl up here crying for ice". That then moved to the tuckshop. So, she had to get to the tuckshop. So that was the next thing (ITB31/5/18).*

As stated earlier, Bree had an intense interest in drawing: *Her focus on drawing is something that other kids normally go and get but it's her particular go-to activity during that time. Nothing to do with the other kids (ITB31/5/18).* Bree also liked to make books for her drawing:

*In particular, she needs to make books; she loves to make books. There may not be anything on the page. I don't know if it's really a fascination with the stapler. It could be, but she does love to make books (ITB31/5/18).*

Bree's intense interest in creative activities and drawing continued throughout the year:

*For example, she will when we do free activities, she has to do something with the paper. She likes to create... I need to make a book. I need to make a picture. She is very creative and kids will watch her to see what she creates to then either copy or go she's actually cutting this to make something rather than folding the paper or whatever, she will put out all that stuff herself (ITB2/11/18).*

Bree was very independent when engaged in her interests and found it difficult to stop (also an example of hyperfocus):

*She will create whatever it is she wants and then she can be quite fixated. The book is on her mind. Even if she's told to pack up, you'll see her sneaking outside to get umpteenth pieces of paper to make this book (ITB2/11/18).*

Bree's mother and teacher described a number of interests that Bree fixated on. While some had changed over time, her interest in artistic endeavours was unwavering.

### **Identity – Sense of Injustice**

One clear emotional trigger for Bree was feeling wronged by her mother:

*So, I'll say to her, this is now the example, the tooth fairy gave her money. Now she wants bubbles. So, I say to her Bree, where's your money? Forgot it today Mummy. Okay, I will buy it for you. However, I will take your money. You will give me your money. Because that's what you want, you need to buy it with your own money. We get to the shop, Bree gets the bubbles but at the same time she sees a different bag, a unicorn bag. So, I say Bree, you need to choose, the bag or the bubbles. You can't have both because you don't have enough money. And right there in the middle of the shop she absolutely broke down because I dared to say this is how it works and she felt that I was wrong (IPB30/10/18).*

Bree also became emotional when she felt wronged about a stapler in the classroom:

*Yes, it was like why couldn't I change the staples? Which then again required you can't, she will just shut down and do her crying so right we don't want the stapler broken, you need to ask for help for this one. You can't just take it. But again, the tears came and she would've just stopped at that rather than actually verbalise what did I do wrong. What could I have done? So, her teacher next year needs to be ready to, you need to explain yourself, otherwise she will be offended if she doesn't hold it (ITB2/11/18).*

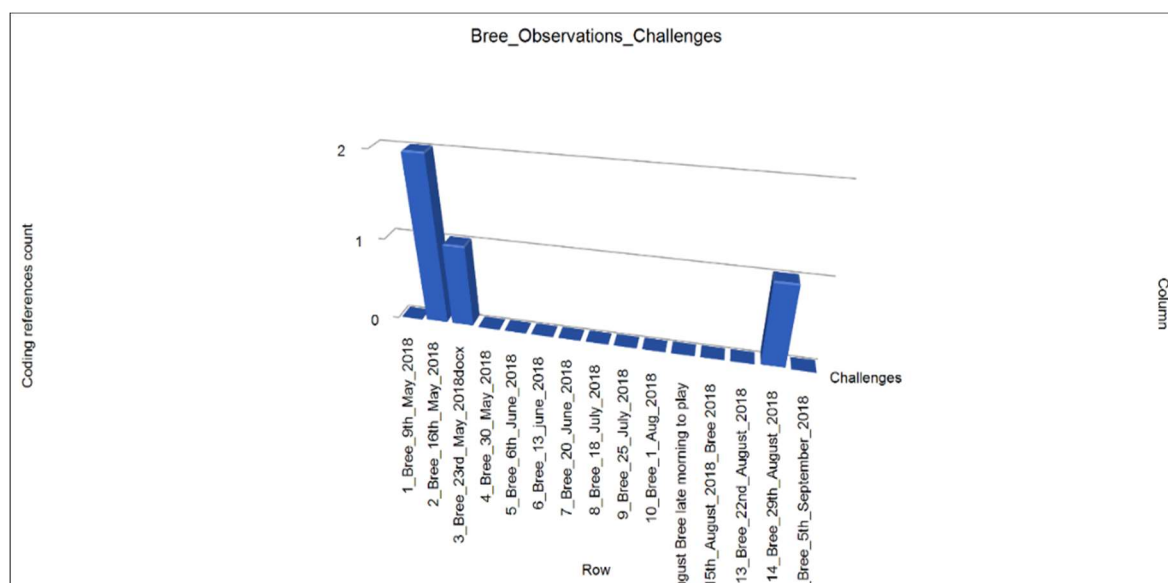
It was clear from these examples that Bree had a strong sense of justice, both inside and outside the classroom.

### **Encircle – Findings from the Observations**

As explained in the previous chapter, Encircle encompasses Intervention, Professional Development, Classroom Strategies and Challenges surrounding the five key CASSI themes and adds another layer. All four areas were discussed in the parent and teacher interviews. Challenges was only identified in the observations (Figure 5.11).

**Figure 5.11**

Single subcode, Challenges, identified in Bree's observations for the theme Encircle



### Encircle – Observation - Challenges

I observed that it took longer for Bree to complete tasks due to distractions, even though she was clearly a capable student: *Teacher asked Bree if she was going to write fast today. This implied she takes longer than others to complete her tasks (ON16/5/18).*

Bree's challenge with distractions like peer chatter was that she struggled to multi-task: *Bree unable to multi-task, if there a distraction, Bree focuses on that and stops work (ON16/5/18).*

Bree struggled to socialise and do her work to the detriment of one or the other: *Bree is slower to complete tasks because she can't talk and work concurrently (ON23/5/18).*

Bree required regular reassurance from her teacher. Her pursuit for perfectionism meant that she took longer to finish set tasks: *The teacher moved away she said to avoid Bree asking about each word (needing reassurance) and so Bree would then continue writing after the teacher left (ON29/8/18).*

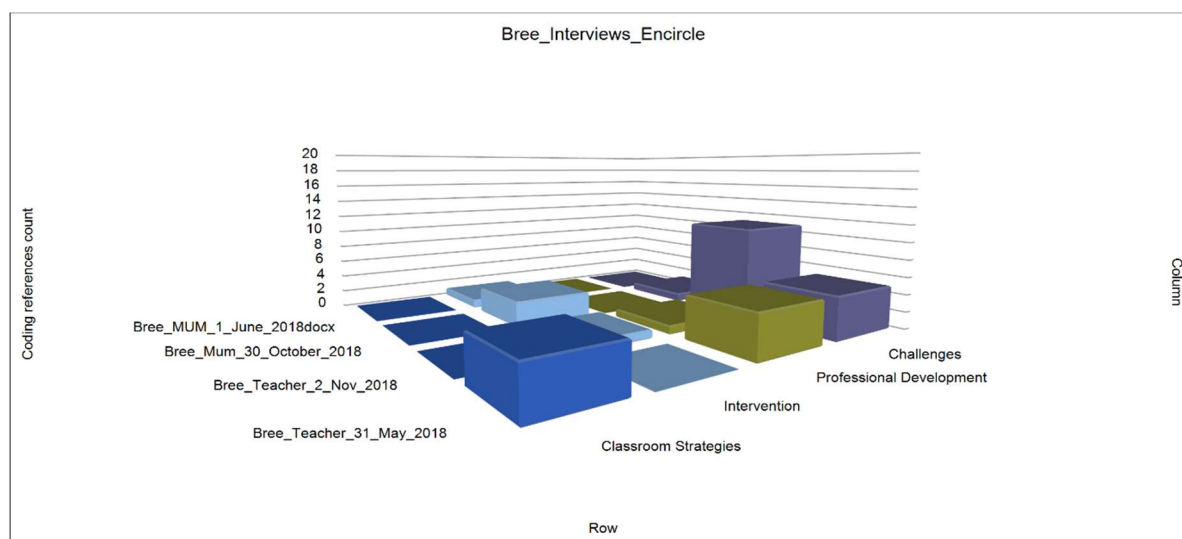
### Encircle – Findings from the Interviews

The four areas of Encircle: Intervention, Professional Development, Classroom Strategies and Challenges were discussed in the interviews with both Bree's mother and teacher. Their frequencies are shown in Figure 5.12.



**Figure 5.12**

*Subcodes identified from Bree's interviews for the theme Encircle*



### **Encircle – Interviews- Challenges**

Bree's mother found a lack of acceptance of autism by other parents in the school, but things had improved over time as more children were diagnosed:

*This year has been way better than last year because last year my daughter was the only autistic child in her prep class that I was very vocal about. Whereby this year there's a lot more parents with autistic children and it's actually made it easier because there's a lot of mums who have special needs kids this year, which makes it way better than last year. Last year was an isolation type of thing. You know, afraid the kids will catch autism and all sorts of things. This year it's okay. It's a different experience this year (IPB30/10/18).*

Bree's teacher talked about the frustration associated with not receiving reports of children's diagnoses prior to the start of the school year:

*Same for any paperwork that comes from the unit, it's often too late. It's while we've already hit the ground running and you've already picked up yourself what it is, but that prior knowledge isn't given soon enough (ITB31/5/18).*

Bree's teacher found it difficult to converse with parents about the possibility of their child being on the autism spectrum:

*Any time you do any of those conversations, you're very anxious because obviously we're not doctors and often it is just a feeling. Obviously, it's based on observations and all the rest of it but you're still about to tell them something where there is still*

*that stigma attached to it where you don't know what the parents' reaction is going to be (ITB31/5/18).*

Professional Development was more beneficial prior to the start of the new school year for refreshing skills and knowledge:

*It would be great to have things in place when they begin. Not actually start getting filtered the stuff when we need to have an ICP meeting or an IEP. It's like why is this all coming to me now. I think that's the biggest thing. It needs to occur before they begin, which is very much, Sue Larkey came at the start of the term and again I was like I would have preferred this in December when we knew they were coming, and you can upskill again (ITB31/5/18).*

Few girls on the autism spectrum are diagnosed by the time they attend preparatory year and it is difficult for teachers to determine which students need to be referred:

*I've only had two autistic girls. One was exceptionally bright and that made her circumstance very easy to diagnose. It was in your face. She was off the charts bright. It was very monotonous speak. It was, she loved to mimic me, which is lovely... because she's so bright and caring and bubbly and you go, you're not ticking all those boxes that you're meant to be ticking to make this easy for me. Because obviously it's a huge thing to say to a parent, I believe your child is autistic. And unfortunately, that is still the case. I think it's changing, but it's still the case, as you've seen (ITB31/5/18).*

While Bree had challenges in the classroom, they were sometimes difficult for the teacher to identify because they weren't always typical autistic traits:

*Her challenges are fairly much the same but she goes in waves. We can be travelling very smoothly and then all her traits come to the forefront all in one time so in saying that she is also that she is very susceptible to change (ITB2/11/18).*

Due to a misdiagnosis, Bree had repeated preparatory year, a decision her teacher only became comfortable with at the end of her second preparatory year:

*This whole year I'd say I constantly doubted whether I should have repeated her because I don't repeat students. And no one sort of comes in to look at a child and goes, yeah, you're right. Yeah, this one should have been done. With my years of experience, they've just gone well you're calling it, you normally don't, say anything, so you've come to this meeting with a plan in your mind with a child that was bilingual and misdiagnosed and all the rest of it. I'm assuming I'm correct here. So, I'd say success wise I'm happy with that decision now (ITB2/11/18).*

Bree's teacher mentioned one of the challenges of teaching children on the autism spectrum was that traits differed in boys and girls:

*Girls are so different... You can just see girls are totally different. You just look at a student, a female student and the whole ups and downs with friends and female concepts and you just go no one is helping her through that or trying to get that out of her then it will be just a whir in her head (ITB2/11/18).*

Bree's teacher questioned her intuition with regard to girls:

*But you seriously sit there and go "Are you, are you not?" And each girl we've had has had a major issue with speech and language, so you toe that line and question is it autism or a speech and language issue or slash processing issue or is there something more her? Whereas boys are very obvious... Whereas girls it is hard. Boys just take it at face value and they'll just tell you (ITB2/11/18).*

Bree's teacher talked about the lack of autism testing resources for girls: *It would be great to have a female testing resource. Are they displaying this? What we found typical of a girl with autism and then can we do checklists like that (ITB2/11/18).* She believed that a checklist would help to confirm her suspicions:

*It's more once they get to the school setting, so the other one I'm thinking of having a checklist to go that would be a lot easier than second guessing yourself. Guessing the whole year, going okay, I'm getting no support here from the parents. They don't see the same things I'm seeing (ITB2/11/18).*

Teaching social skills to girls on the autism spectrum required resources: *I also think putting in some social skills programs in the future aimed at girls. Again, look at the boy ones and there's the Alien Adventure, whole series and there's the investigator one. Where's the little girl one? (ITB2/11/18).* The lack of education around girls on the autism spectrum was a particular challenge for specialist teachers:

*You won't see the same thing in a girl. I can say that even this year when I look at specialist teachers are coming in and they expect a certain thing. It's like you need to realise she won't look like the other autistic children in the room, but she still has it and you have to be mindful of that. She got into a bit of trouble with the specialist teachers this year. And again, I think it's they don't understand that you won't see the same thing. That's probably the biggest one (ITB2/11/18).*

Bree's teacher stated that girls on the autism spectrum present differently to boys and no two days are the same:

*It's a learning curve the whole time. The boys are straight forward whereas the girls*

*are like how am I going today? I think you can do that each day she walks in, what mood do I have to get you out of? Less so now, but certainly last year it was who knew what we were going to get and it would often require her coming in here (office) to settle (ITB2/11/18).*

In the interviews, the numerous challenges of parenting and teaching an autistic child were highlighted and emphasised. For parents, acceptance of their child by others was an issue. For teachers, a lack of professional development, differences between males and females on the autism spectrum and a lack of resources were foremost barriers.

### **Encircle- Intervention**

Bree's mother believed that specialists, such as occupational therapists, should be brought into the school for easier access to those services:

*Because an occupational therapist at school will make it a lot easier for parents and occupational therapists will zone in the specific things that kids need to do. The Special Education Unit at the school supported Bree with her learning and English-speaking skills They've got speech therapists at school because English is not her home language so the government has offered as a sort of bridging (IPB1/6/18).*

In a later interview, Bree's mother reiterated that more intervention services at school were essential for students on the autism spectrum: *I would have loved if the school had an occupational therapist and not just a consultant and had those services in the special ed unit, not just for Bree, but for all the kids who need additional support (IPB30/10/18).* According to Bree's mother, additional interventions would also better support teachers in the classroom:

*I think that if teachers get more support maybe, I don't think training is right but they need more support. Like for example this year, they have so many autistic children or children with special needs just in Bree's class. Those two (teachers) are exhausted because it is a constant battle for them from one to the other and to give attention to the other kids as well (IPB30/10/18).*

Bree's teacher added that more work needed to be done to develop the social skills of girls on the autism spectrum: *They (school administration) leave social skills to fourth term as an intervention (ITB2/11/18).* Both the parent and teacher believed early intervention was essential for the child to succeed at school.

### **Encircle – Classroom Strategies**

As expected, classroom strategies were only identified by the teacher. Bree's teacher

planned a transition process to minimise Bree's stress when advancing to the next year level:

*Other than that, I know that Bree's mum is worried about her transition eventually to year 1 at the end of the year. I don't think that will be a concern because as I said we transition her up anyway. I think she'll be fine but when certain things happen with Bree her behaviour increases, like they do for any child. Her particular behaviour is to check where I am. That may be a problem at the end of the year (ITB31/5/18).*

One strategy was to welcome parents into the classroom at the beginning of the new school year: *It's like the transitions. We drop up here and the child comes down. Why isn't there more interaction there? Mum and dad come in! (ITB31/5/18).* Another strategy for making communication easier with an autistic child was for the teacher to position herself beside the child when speaking to him or her, so that they focused on her voice instead of trying to process what was going on around them:

*I think they need to process exactly what you've said. And a lot of that is often why I go to the side of them so I sit on the side or behind them so they can just listen to my voice rather than look at me at all. And with Child D (another AS child), sometimes with Bree, someone else did it today, it's this (touching the arm), she's here, she's going to speak and I need to focus on that but I also need to focus on she's there (ITB31/5/18).*

The two key strategies used by the teacher in the classroom were ensuring smooth transitions between activities and classes at the beginning and end of the school year; and facing students when interacting with them.

## **Encircle – Professional Development**

As expected, Professional Development was only discussed in the teacher interview. Bree's teacher believed there was a lack of quality professional development on autism: *I think that's where it's quite limited because that spectrum is huge. No, I've never been to any PD's. Obviously, that's come in, in-house, is all that's been received (ITB31/5/18).* When asked by a colleague for information on teaching children on the autism spectrum, Bree's teacher shared her knowledge: *So I gave all the known names, Attwood's and all the rest of it, that she could get online and have a look at because any PD that she wanted to attend she had to pay for herself (ITB31/5/18).*

Professional Development opportunities didn't always present themselves at the time they were needed:

*A lot of those PDs happened in term 1 and right at the start and at that time, you're*

so caught up getting to know the class, you're so busy, that it's too late. We really needed that information before they came here not when they first started... Would be great to have things in place when they begin. Not actually start getting filtered the stuff when we need to have an ICP meeting or an IEP. It's like why is this all coming to me now. I think that's the biggest thing. It needs to occur before they begin, which is very much (ITB31/5/18).

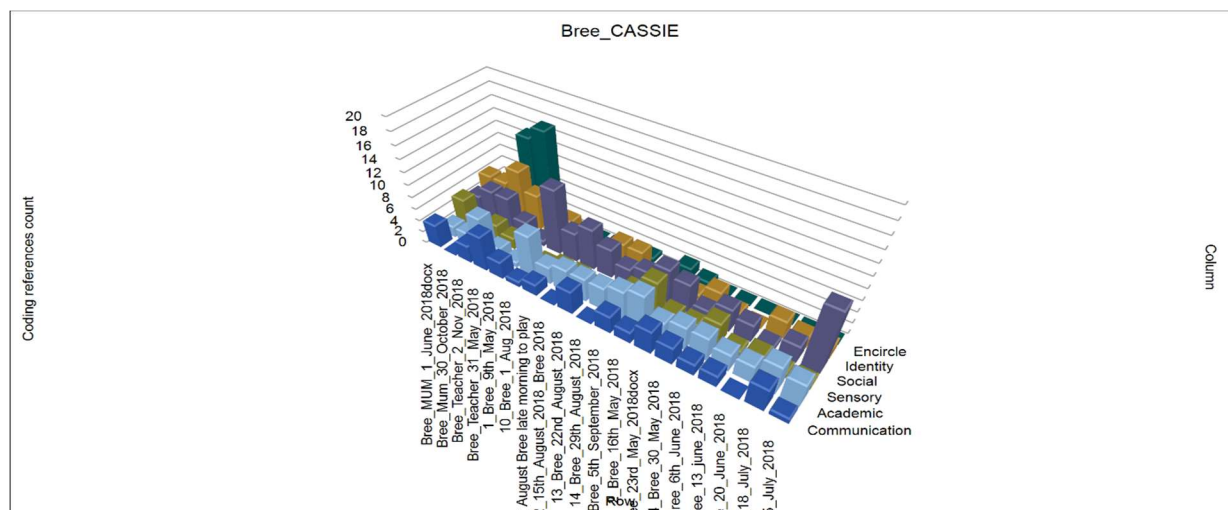
Bree's teacher sought information from a guidance officer who worked at a school: *Other than that, for me, it's going to my sister who is a G.O. That's where I tap into a lot* (ITB31/5/18). She wanted to implement social skills programs aimed at girls on the autism spectrum: *I also think putting in some social skills programs in the future aimed at girls. Again, look at the boy ones and there's the Alien Adventure, whole series and there's the investigator one. Where's the little girl one?* (ITB2/11/18).

## Summary

This chapter explored the case study of Bree. The observation and interview data were analysed and categorised under five areas: Communication, Academic, Sensory, Social and Identity (CASSI). Academic and Social were the key themes, most consistently referenced throughout the data collection (Figure 5.13), although all the key themes were widely observed and discussed. Academic had the fewest references.

**Figure 5.13**

*The main themes CASSIE Coded from all interviews and observations for Bree*



The next chapter compares and contrasts the findings from Chapters 4 and 5 in a cross-case analysis. Each case is methodically compared for similarities and differences against each CASSIE theme.

## **Chapter 6: Cross-Case Analysis**

The cross-case analysis in this chapter builds upon the previous two chapters and case studies of Alannah and Bree respectively. This is the second stage of the analysis, in which the findings from Chapters 4 and 5 are compared and contrasted across the six themes of Communication; Academic; Sensory; Social; Identity; and Encircle.

The cross-case analysis follows the framework proposed by Miles, Huberman and Saldana (2014), comparing more than one case for similarities and differences to deepen “understanding and explanation” (p. 101). The case-oriented approach, focused on a limited number of cases for comparison and more general explanations, helped find common patterns, but is not ideal for generalisability (Miles et al., 2014). This chapter was aimed at investigating the CASSIE themes more deeply – the latter having emerged from the individual case analyses of Alannah and Bree as the key ideas pertaining to each of the six themes, for enhanced robustness and value.

The first step was to compare the subthemes in each of the five key themes for the two case studies using hierarchy displays from NVivo. Next, the key ideas from those subthemes were tabled, comparing similarities and differences between Alannah and Bree. The sub-themes from these five themes are discussed, followed by an in-depth explanation of the final theme Encircle. This was used to create the conceptual framework or wheel and led to development of the CASSIE tool, a pragmatic application of the research findings for identifying female students on the autism spectrum and facilitating communication and understanding between parents, teachers and the students.

Alannah and Bree both came from traditional nuclear family homes. Alannah, aged five, was an only child, while Bree, aged six, had one younger sister at the time of the research. Both were in the preparatory year of schooling – Bree was a year older because she was repeating the preparatory year. The girls had been diagnosed as having autism spectrum disorder level 1 using the DSM-5; Bree also had a comorbidity of Attention Deficit Hyperactivity Disorder (ADHD) and was prescribed medication for this condition.

### **Communication -Similarities**

Communication refers to the way students exchange information with others, in this case, in the classroom. Four common subthemes were unveiled for Alannah and Bree: Literal; Non-Verbal; Talking out of Context; and Echolalia (Figure 6.0). However, there were slight differences in the evidence for Non-Verbal, Talking out of Context and Echolalia, as

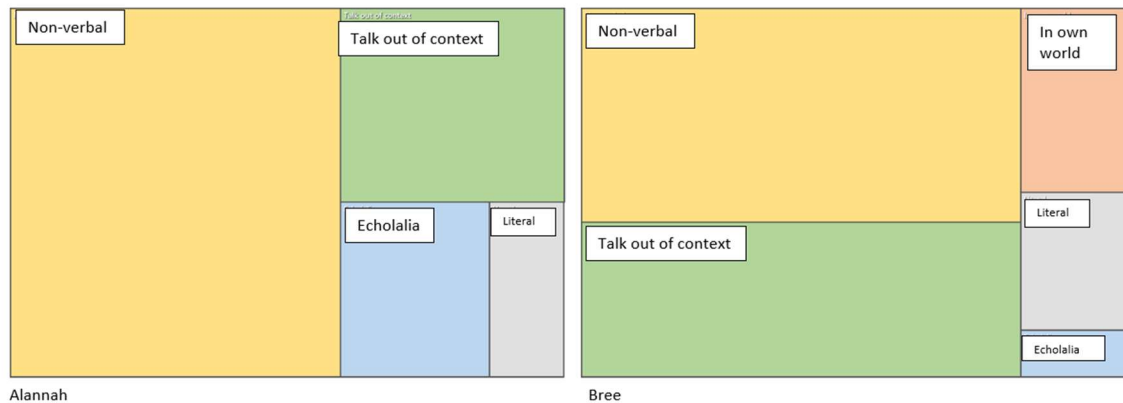


discussed in the following section and displayed in Table 6.0 below. One subtheme of Communication, In Own World, was only relevant to Bree.

### Figure 6.0

#### Communication: Hierarchy Chart

Communication Comparison



*Note.* The Hierarchy Chart displays the frequency within the data of the subthemes within the larger theme, Communication. Frequency of reference is displayed with the most referenced subtheme in the top left to the least referenced subtheme in the bottom right. The more references a subtheme had, the larger the subtheme area, facilitating a visual comparison of the most and least observed and discussed subtheme in each case study.

A common feature of Communication for both Alannah and Bree was that they were regularly observed being non-verbal in the classroom. While Alannah used non-verbal gestures to avoid speaking, Bree often spoke quietly.

The most frequent references for Alannah and Bree related to their preference for speaking with adults. However, their conversations tended to be out of context and usually focused on what the girls were thinking at the time, rather than current topics of conversation; they appeared to assume that the listener knew the context of what they were saying. This seemed to relate to Theory of Mind or an inability to distinguish between one's own and others' state of mind, not realising that the other person may not have the same knowledge or background information to the story (Baron-Cohen et al., 1985; Marshall, 2014). The conversation may therefore appear to be out of context. Both Alannah and Bree were inclined to take words and phrases literally, which, at times, led to social faux pas. Furthermore, Bree tended to talk at her peers, correcting them and telling them how things should be done.

Echolalia was more evident in Alannah. It was not prevalent in Bree, who was only once observed displaying signs of echolalia in the classroom. With Alannah, echolalia was

observed in the classroom, albeit a quiet repetition of words and phrases, and was also reported by her mother as occurring at home. From a teacher’s perspective, echolalia is not a well-known or widely used term. It is characterised by an immediate or delayed repetition of words or phrases a child has heard or mimicking a noise (Marom et al., 2018). Echolalia is a form of communication that can also have a soothing effect, such as a stim. In this study, it was included under Communication because the behaviour was focused on understanding information being received from others or sharing their needs. For example, Alannah repeatedly stated that she was thirsty to emphasise to her mother that it was a high priority, but was unable or unwilling to use other words, such as “I am thirsty” or “may I have a drink?” In the classroom, Alannah repeated instructions quietly to help her process the information given by her teacher.

**Table 6.0**

*Communication Comparison Chart.*

Communication	Similarities	Differences	
		Alannah	Bree
	Non verbal	Non-verbal -fewer words	Minimally verbal but more quietly spoken
	Preference to speak with adults – tends to be out of context	Will attempt to join peer conversation but it is out of context.	Tends to speak ‘to’ her peers
	Echolalia – repetition of sounds or words	Observed twice during one observation but a regular occurrence at home.	Observed only once and not discussed in interviews.
	Takes statements or phrases literally		
			Appears to be ‘in own world’

*Note.* Each row provides information on explicit recorded similarities and differences between the two girls related to the sub-theme displayed in Figure 6.0 above. Themes were grouped in the same colour as used in Figure 6.0

### **Communication - Differences**

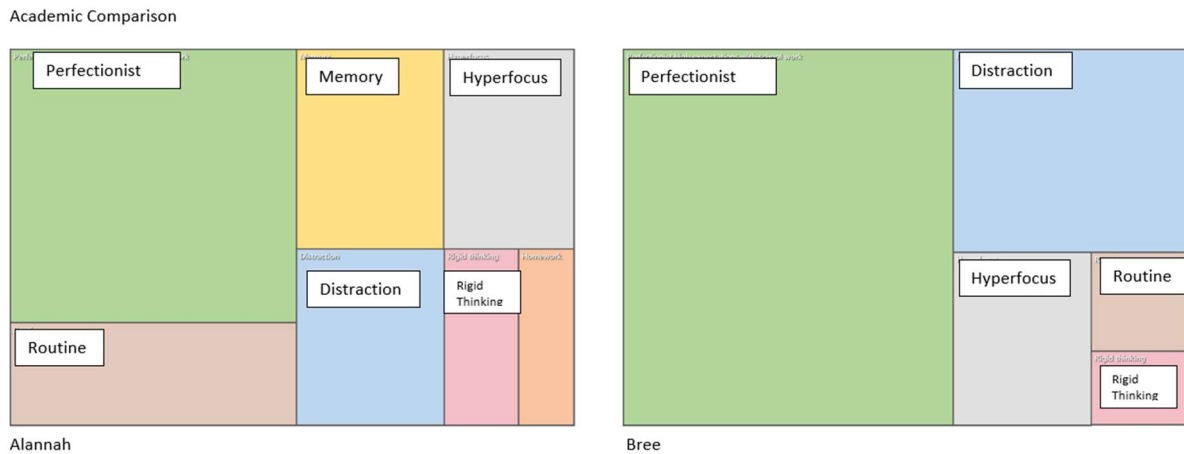
The four common subthemes listed in Table 6.0 highlight the similarities and differences between the two girls. The one key point of difference was that Bree was regularly observed being “in her own world”, staring into space and seemingly deep in thought. Although similar to hyperfocus, the difference between being “in her own world” was that Bree could easily be disrupted and brought back to the present or current task, whereas it is much more difficult to disrupt hyperfocus and move a child on to a different task. Alannah was never observed being “in her own world”, nor was it reported in the interviews.

## Academic – Similarities

Under the key theme, Academic, six similarities between Alannah and Bree (Table 6.1) were uncovered. In order of the most frequent to least frequent references, they were: Perfectionist; Distraction; Hyperfocus; Rigid Thinking; and Routine (Figure 6.1).

**Figure 6.1**

*Academic: Hierarchy Chart*



*Note.* The Hierarchy Chart displays the frequency within the data of the subthemes within the larger theme, Communication. Frequency of reference is displayed with the most referenced subtheme in the top left to the least referenced subtheme in the bottom right. The more references a subtheme had, the larger the subtheme area, facilitating a visual comparison of the most and least observed and discussed subtheme in each case study.

Perfectionism was the most referenced area for both girls. Combined with the distraction of peer chatter, it was evident that both Alannah and Bree had difficulty finishing their tasks (Table 6.1).

**Table 6.1***Academic Comparison Table*

	Similarities	Differences	
		Alannah	Bree
<b>Academic</b>	Perfectionist doing class activities particularly drawing, writing and colouring.		
	Difficulty finishing tasks –results don't always reflect capability		
		Homework is difficult due to mental fatigue	
	Distracted easily-unable to multitask work and peer chatter		
	Ability to hyperfocus on tasks of interest – affects moving on to the next task		
	Rigid thinking – headstrong - inflexible		
	Need for Routine		
		Excellent long-term memory, poorer short-term memory	

*Note.* Each row provides information on explicit recorded similarities and differences between the two girls related to the sub-theme displayed in Figure 6.0 above. Themes were grouped in the same colour as used in Figure 6.1

In terms of learning outcomes this would have had serious implications, especially as tasks did not always reflect the girls' true academic ability. In the classroom, perfectionism was usually focused on activities like drawing, writing and colouring.

It was noticeable in the observations that both girls were easily distracted, making it difficult to multitask and do their schoolwork while also engaging in peer chatter. Both girls were unable to work and listen to their peers at the same time; they stopped working to listen to noises around them, which led to difficulties resuming the task and completing their work. As a result, execution of tasks did not reflect their true academic ability.

By way of contrast, hyperfocus referred to the girls' fixation on a task at hand and being unable to stop, interrupt or move on to a different task. The tasks they typically hyperfocused on were writing, colouring and drawing – intense interests for both girls. Difficulty to stop a task when hyperfocused could have created a perception that the girls weren't following instructions and were being deliberately non-compliant; leading to a negative view by teachers when they were, in fact, deeply engaged and oblivious to their surroundings due to an overwhelming need to continue with the current task. This is why transition time is so important and students need to know the day's routine in advance.

In the interviews, both girls' teachers and parents described them as being rigid in their thinking, meaning that they were headstrong and inflexible and unable to see other options or viewpoints. At times, this interfered with their learning as they wanted to do things

their way. Coupled with the need for routine, the girls' inability to be flexible caused further disruption to their learning.

The need for routine was evident both inside and outside the classroom. While teachers endeavoured to maintain classroom routines by adhering to timetables, daily interruptions and unforeseeable changes were common. For both students in this study, routine had a positive effect on their learning and disruptions had a noticeably negative effect, triggering anxiety and an inability to transition smoothly to a new activity. This, in turn, resulted in less time and less work being completed and difficulties focusing on new activities, therefore not reflecting their true academic ability.

### **Academic – Differences**

Within the Academic theme, there were two major differences between Alannah and Bree; one was Homework and the other was Memory. In Alannah's case, homework was discussed in the interviews with her mother, who reported that mental fatigue caused by her daily activities affected her ability to complete homework (Table 6.1). Homework did not emerge as an issue from Bree's data analysis. Since the research questions focused largely on the classroom setting, no questions directly addressed homework, but it is worth noting the comments or lack thereof, as homework related to their in-class learning.

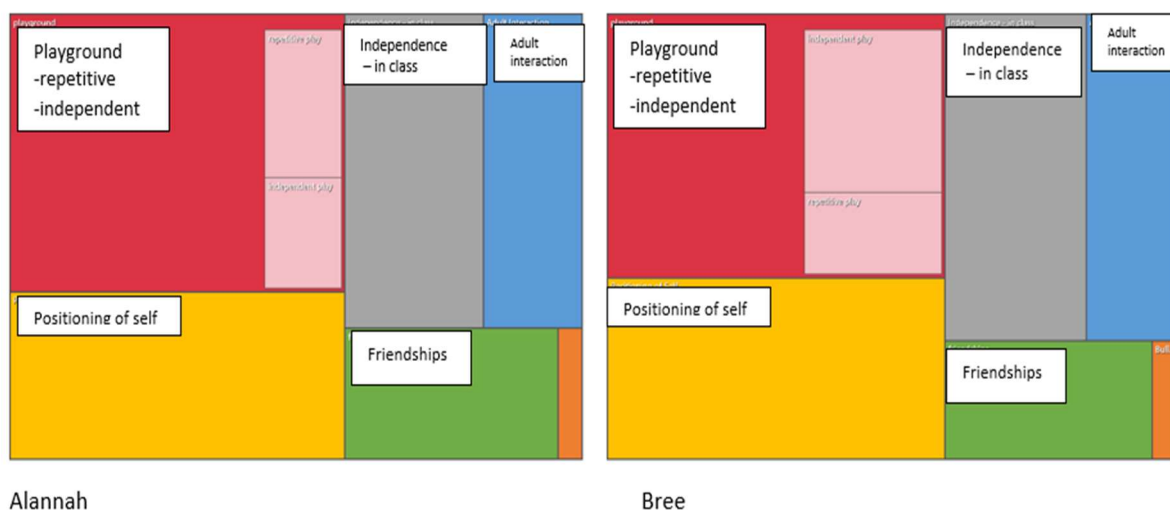
Memory was a prevalent theme for Alannah, in particular from her mother's viewpoint, who described her as having excellent long-term memory and poorer short-term memory. Memory is often associated with autism (Packiam Alloway & Alloway, 2015), particularly processing and recall as they relate to academic ability. Memory did not emerge as a factor in the interviews for Bree.

### **Social – Similarities**

The Social theme for Alannah and Bree generated many subthemes, with the two most prominent occurring in the playground: Repetitive Play and Independent Play, as well as Positioning of Self (Figure 6.2). Key ideas focused on these two subthemes. All key ideas for the theme Social were identified in both Alannah and Bree (Table 6.2).

**Figure 6.2**

*Social Hierarchy Chart*



*Note.* The Hierarchy Chart displays the frequency within the data of the subthemes within the larger theme, Communication. Frequency of reference is displayed with the most referenced subtheme in the top left to the least referenced subtheme in the bottom right. The more references a subtheme had, the larger the subtheme area, facilitating a visual comparison of the most and least observed and discussed subtheme in each case study.

Social was the only CASSI theme to highlight all similarities and no differences in the interviews and observations. Nor were any variations identified in the key ideas for the theme Social (Table 6.2).

The playground is an important context for identifying how a student on the autism spectrum socialises (Gilmore et al., 2019), and playtime is typically when students practice their social skills with their peers (Gilmore et al., 2019).

**Table 6.2**

*Social Comparison Table*

Social	Similarities	Differences	
		Alannah	Bree
	Prefers to play alone or with one friend in the playground		
	Tends to be independent and repetitive in play		
	Positions herself on the outer of the group		
	Observant of surroundings/people		
	Interacts with adults over peers		

*Note.* Each row provides information on explicit recorded similarities and differences between the two girls related to the sub-theme displayed in Table 6.2 above. Themes were grouped in the same colour as used in Figure 6.2.

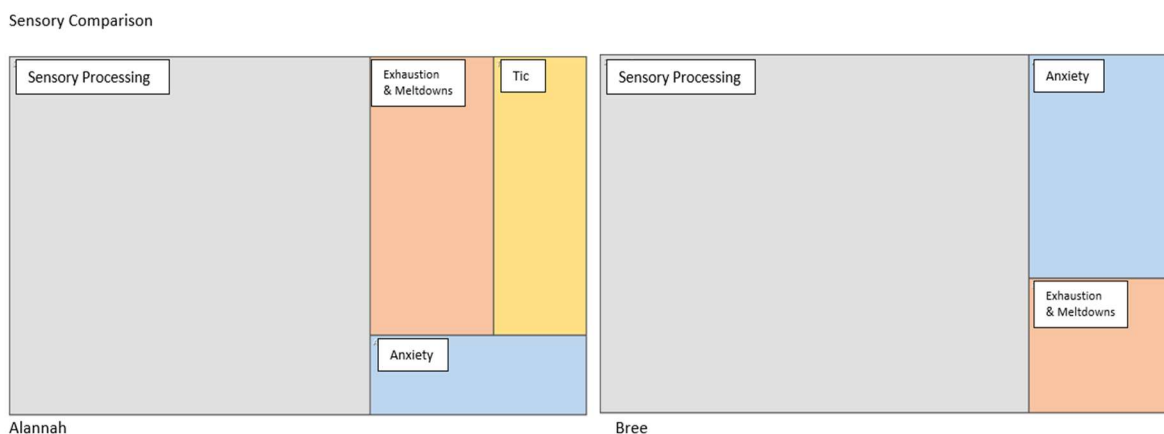
Social skills were most apparent during playtime, both in the classroom and in the playground, where Alannah and Bree could be observed forming social relationships and interacting with others. In the playground, the girls preferred to play with one friend or independently. They also preferred to talk to adults than peers; this was noticeable in the playground and in the classroom. Their play was often independent and repetitive. For example, Alannah chose to climb on the animal mounds and look around at other students, while Bree chose to colour in. They appeared unconcerned about being joined by other students and were calm and content to play independently.

Another common finding for both Alannah and Bree was their preference for positioning themselves on the outer of the group in the classroom and in the playground. The girls observed their surroundings and made a conscious choice to position themselves on the edge of the group. Limited social interaction in the classroom and during playtime is likely to impact the development of autistic children’s social communication and relationships with peers (Gilmore et al., 2018). School staff may be needed to support them in the playground and nurture social interactions with their peers (Gilmore et al., 2018).

### Sensory – Similarities

Sensory Processing was the most referenced theme in both cases, but with several points of difference within the subthemes. Anxiety and Meltdowns were identified as separate subthemes, in reference to how information is processed by the senses and the subsequent actions that are taken (Figure 6.3).

**Figure 6.3**  
*Sensory Hierarchy Chart*



*Note.* The Hierarchy Chart displays the frequency within the data of the subthemes within the larger theme, Communication. Frequency of reference is displayed with the most referenced subtheme in the top left to the least referenced subtheme in the bottom right. The more references a subtheme had, the larger the subtheme area, facilitating a visual comparison of the most and least observed and discussed subtheme in each case study.

It was difficult to break down Sensory Processing into subthemes, but the key ideas in Table 6.3 show that Alannah and Bree used whole-body movement and stimming as calmative measures to process the world around them. The girls were also regularly distracted from their work by the noise of their peers chattering around them.

Anxiety and meltdowns were related, since the anxiety experienced by Alannah and Bree was mostly internalised at school and released in the home environment in the form of a meltdown.

**Table 6.3**

*Sensory Comparison Table*

	Similarities	Differences	
		Alannah	Bree
<b>Sensory</b>	Anxiety – usually internalised at school and released at home, anxiety evident through body language	Separation anxiety, anxiety from not getting things right or being able to articulate what she means.	Transitioning and change anxiety, stems from frustration, not being able to verbalise
	Whole-body movement including rocking	Leg up on a chair, moving legs in seat,	Tracking, big movements
	Stimming – repetitive movement		
		Prefers tactile learning	
	Easily distracted by chatter		
			Sensitive to noise
		Tics	
	Exhaustion leading to meltdowns		

*Note.* Each row provides information on explicit recorded similarities and differences between the two girls related to the sub-theme displayed in Table 6.3 above. Themes were grouped in the same colour as used in Figure 6.3.

### **Sensory – Differences**

Although there were many similarities in Alannah and Bree’s sensory processing, there were also some slight variations. For example, Alannah preferred to regularly change her body position by moving her legs on the seat, while Bree preferred big body movements and tracking by walking up and down. Both were sensitive to the noise of peer chatter which distracted them, and Bree was also acutely sensitive to loud, high-pitched noise. Another difference was that Alannah preferred tactile learning, whereas this was not observed or reported for Bree.



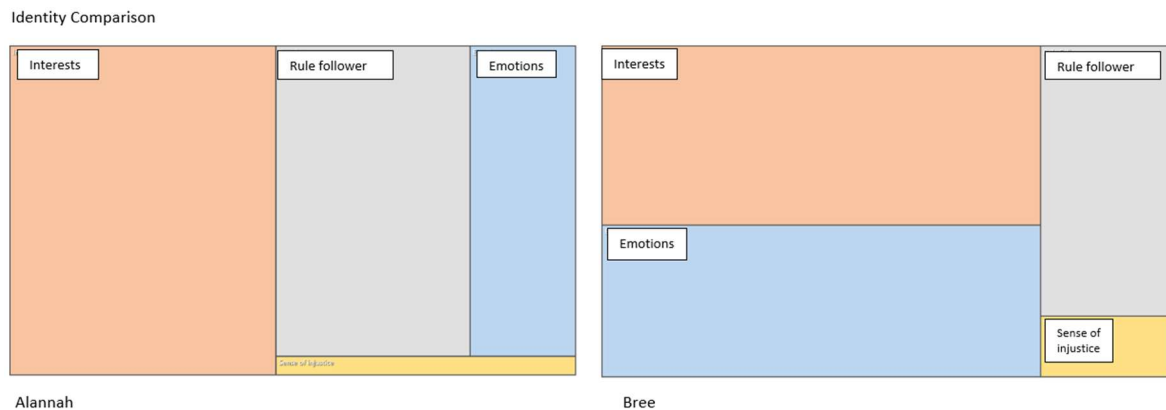
Both Alannah and Bree experienced varying levels of anxiety; however, the causes of their anxiety were minimally different. Alannah experienced separation anxiety and anxiety associated with not getting something right or being unable to articulate what she meant. Bree’s anxiety stemmed from transitioning from place to place, changes in routine and also being unable to articulate what she meant.

## Identity – Similarities

Narrow Interests was the most commonly referenced subtheme for both Alannah and Bree, followed by Rule Follower and Intense Emotions. Sense of Injustice was also evident in both cases, but the least referenced (Figure 6.4).

**Figure 6.4**

*Identity Hierarchy Chart*



*Note.* The Hierarchy Chart displays the frequency within the data of the subthemes within the larger theme, Communication. Frequency of reference is displayed with the most referenced subtheme in the top left to the least referenced subtheme in the bottom right. The more references a subtheme had, the larger the subtheme area, facilitating a visual comparison of the most and least observed and discussed subtheme in each case study.

Alannah and Bree both had Narrow Interests; each with different topics of interest (Table 6.4). For Alannah it was a particular toy, dinosaurs and a TV show called Paw Patrol; whereas for Bree it was death, science-related topics, rocks and art. However, they were also noticeably different in their outward appearance. Alannah preferred “tomboy” clothes, such as dog costumes and Paw Patrol shirts and was unfussed about her long hair. On the other hand, Bree was more “girly” and liked wearing oversized bows, dresses and glitter. Both girls loved colouring in and were perfectionists when it came to this interest.

Alannah and Bree both experienced intense emotions. Bree was inclined to display her emotions equally on the playground and at home, whereas Alannah was more likely to exhibit intense emotions at home. Intense Emotions was identified in the girls’ responses to the outside world, such as noise and frustration, and often overlapped with Exhaustion/ Meltdowns under Academic. Again, this factor was likely to affect their schoolwork.

It was evident that both girls followed the rules and liked to please, particularly their teachers and adults. Another key idea to emerge from Rule Follower was that they had high expectations of themselves and others. In particular, Bree was quite confident to let a peer know if they weren’t doing things right.

The interviews indicated that Bree and Alannah possessed a strong sense of justice, related to the subtheme of Rule Follower. When things didn’t go right, or they felt that a decision was unjust, intense emotional displays ensued characterised by difficulty coping with those intense emotions.

**Table 6.4**

*Identity Comparison Chart*

Identity	Similarities	Differences	
		Alannah	Bree
	Narrow interests - colouring	TV show, a toy, dinosaurs	Science, rocks, art
		Girly	Tom boyish
	Intense emotions		
	Rule follower/likes to please		
	High expectation of self and others		
	Has a strong sense of justice		

*Note.* Each row provides information on explicit recorded similarities and differences between the two girls related to the sub-theme displayed in Table 6.4 above. Themes were grouped in the same colour as used in Figure 6.4.

### **Identity – Differences**

There were no significant differences between the cases or the variations within the similarities discussed above (Table 6.4). One important difference was observable in the girls’ propensity towards gender constructs. Alannah had a tendency to be “tomboyish”, while Bree was more “girly”. Marshall (2014) identified the inclination of girls on the autism spectrum to have an outwardly “tomboyish” appearance, which may also contribute to their misdiagnosis or missed diagnosis.

## Encircle

A deeper dive into the data from the parent and teacher interviews revealed four additional dimensions to the CASSI themes. These external, but tangential dimensions were: Challenges, Intervention, Professional Development and Classroom Strategies. The nature of their relationship was one of enveloping the CASSI themes, hence the label Encircle, an appropriate umbrella term for the four areas, creating a sixth theme or overarching model named CASSIE. The term Encircle illustrates its emergence from the interviews with parents and teachers, but does not preclude implicit and future contributions from other key stakeholders who are an important part of supporting students with a disability.

**Figure 6.5** *Support network for girls on the autism spectrum who attend school*



Figure 6.5 is a visualisation of girls on the autism spectrum as the central core of this research, developed from the higher-order analysis of the data, and their relationship with other stakeholders. The key stakeholders, integral in supporting girls on the autism spectrum and interrelated with the four areas of Encircle are: Parents and Caregivers; Teachers and School Support Staff; Allied Health Practitioners; Medical Practitioners; and Friends. These five groups or areas of support all emerged from the data, principally the interview data but also observations, and are therefore an important outcome of the research.

The data collected and coded under Encircle do not just pertain to the cases in this research, but also emanate from the teachers' past teaching experiences. Sub-themes in each area of Encircle are further analysed in Table 6.5. Where possible, classroom strategies have been added to align with and counteract a particular challenge.

## **Observations – Encircle Challenges**

Challenges was the only area that appeared in both the observations and interview data for each case study. The observed challenges applied only to Alannah and Bree, not to the teachers, parents or other children. The most prominent challenges to emerge from the observations of Alannah were: (i) difficulties completing tasks when there was a social distraction; (ii) being quiet to mask the difficulty of multitasking and being distracted; (iii) difficulties communicating verbally with peers; (iv) difficulties completing tasks within a set time due to delays caused by processing before starting work; and (v) difficulties sitting still for long periods and problems caused by regular whole-body and kinaesthetic movements during class time.

For Bree, the key challenges to emerge from the observations were: (i) difficulties completing tasks within a set timeframe; (ii) difficulties multitasking when peer chatter was a distraction; and (iii) difficulties completing work due to delays caused by her need for perfectionism. The different ways in which Alannah and Bree dealt with challenges in the classroom affected them socially, academically and communicatively. For example, the challenges of communicating with peers made it difficult for them to form friendships and distractions affected both girls' demonstration of their academic capability.

## **From Interviews – Encircle Challenges**

The challenges described by the teachers were not limited to Alannah and Bree (Table 6.5); but also referred to their past experiences with other children on the autism spectrum. For example, Alannah's teacher had learnt to effectively use a picture exchange communication system (PECs) with a previous student on the autism spectrum who also had a hearing impairment, as a visual aid for communicating. Bree's teacher described a previous student who was dismissed as being naughty until he moved school and was placed in her prep classroom. She knew from day one that he needed to see a specialist; an autism diagnosis subsequently confirmed her hunch.

While the interviews uncovered the challenges for mothers of daughters with autism, these were not necessarily the same for their children. For example, Alannah's mother couldn't find out anything about Alannah's day at school, which was not necessarily a challenge for Alannah – she was simply not ready to talk about her day. Bree's mother found the lack of acceptance by other parents a big challenge, an issue she believed Bree was oblivious to.

Alannah and Bree’s teachers cited their biggest challenges as: a lack of professional development for teachers coping with students on the spectrum; the absence of resources specifically for girls diagnosed with autism; questioning whether their student was misdiagnosed or undiagnosed; and difficult conversations with parents about the need to seek an assessment for their child. Alannah and Bree’s teachers acknowledged the different presentations of autism in girls and boys, as well as the need for individual strategies for each child that sometimes-involved trial and error, especially in the absence of allied health reports and recommended strategies.

**Table 6.5**

*Cross comparison of challenges from the Parent and Teacher interviews*

Challenges			
Parent Interviews		Teacher Interviews	
Alannah	Bree	Alannah	Bree
Finding out about her day – verbal communication		Working out whether a child is undiagnosed but on the Autism Spectrum	
	Lack of acceptance from other parents		The initial conversation if a child suspected as being on the Autism Spectrum
Working out whether behaviours are part of the Autism Spectrum or not e.g.: meltdown		Encouraging social interaction	
			Not receiving all paperwork and reports about child
Daughter’s exhaustion		Lack of professional development on Autism	Lack of Professional Development on girls on the Autism Spectrum
		Identifying strategies that work for each child on the Autism Spectrum – what works for one child will not necessarily work for another child on the Autism Spectrum.	Identifying a girl on the Autism Spectrum – boys and girls differ

The challenges described by the teachers impacted on their teaching of students on the autism spectrum and not on the students themselves. Both teachers identified the lack of professional development on autism in general, and autistic girls in particular. Additionally, they believed they lacked professional development on effective strategies that could be implemented for each individual autistic student (Table 6.5). Compounding these challenges was the lack of medical and allied health reports about students and their diagnoses in providing appropriate information on suitable supports and interventions. Having

conversations with parents of students who have not been diagnosed was regarded as difficult and uncomfortable, and teachers expressed the view that enhanced training and improved resources would boost their confidence to write reports and recommend referrals to a paediatrician.

The parents’ perspectives of their daughters’ behaviours outside the classroom were important for affording teachers a holistic view of their students. The parents identified four challenges at home that related to the school context: (i) finding out about their child’s day; (ii) acceptance by other parents; (iii) working out which behaviours were autistic traits; and (iv) their child’s exhaustion (Table 6.5). It is well documented that girls on the autism spectrum camouflage or mask their feelings in public settings, such as the classroom, in order to fit in with the outside world. Communication between parents and teachers is therefore necessary to better understand students’ challenges inside and outside the classroom, since one context often affects the other (Bulhak-Paterson, 2015; Cook et al., 2017; Marshall, 2014; Parish-Morris et al., 2017).

### **Encircle –Intervention**

Intervention refers to action taken by the school or a parent to support a student’s learning in the classroom. Interviews with the parents and teachers unveiled the types of intervention initiated by the schools and the parents for Alannah and Bree (Table 6.6).

**Table 6.6**

*Intervention: comparison table of Parent and Teacher interviews*

Intervention			
Parent Interviews		Teacher Interviews	
Alannah	Bree	Alannah	Bree
Occupational Therapist	Wanted a school Occupational Therapist	Teacher aide support	Teacher aide support
Speech Therapist – privately and government-provided	Special Education Unit	Teacher implements therapist’s suggested strategies	
Specialist teacher aide			Special Education Unit – Social Skills program

Parents were largely responsible for initiating interventions related to occupational therapy and speech therapy outside school. At school, teachers relied solely on their own professional development and implemented strategies recommended in the child’s therapy

reports. The teachers admitted that these interventions were often based on minimal professional development and resources. They also relied heavily on teacher aides, who were assigned to diagnosed students, guiding and supporting them in their learning. In Queensland, schools received government funding for “verified” disabilities, including autism spectrum disorders, to provide support and reasonable adjustments to their learning program (Queensland Government, 2019). However, teachers also relied on the Heads of Special Needs to allocate support time and guide them in completing individual education plans (IEPs), available through the Queensland Curriculum and Assessment Authority (QCAA).

Neither Alannah nor Bree had a full-time teacher aide, but had time allocated every week for a teacher aide. Only students with a verified diagnosis of autism received teacher-aide support time. In Queensland state schools, funding for support hours were provided to schools based on the number of verified students, and was allocated by the Head of Special Education to teacher aides for supporting autism-verified students.

Intervention was found to be lacking in classroom settings. This is further discussed in the next section on Professional Development to provide a clearer understanding of how interventions can be used more effectively.

### **Encircle - Professional Development**

In Queensland, Australia, teachers are required to undertake 30 hours of professional development each year to maintain their registration. Table 6.7 shows the types of professional development the teachers had received or wanted to receive in future to enhance their teaching practice with autistic students.

**Table 6.7**

*Professional Development (PD): comparison of Teacher interviews*

<b>Professional Development</b>	
<b>Teacher Interviews</b>	
<b>Alannah</b>	<b>Bree</b>
Conversations and feedback with colleagues	Conversations with colleagues
Reading literature on Autism	
	Programs specific for Autism - resources
Communication with Parents	
	Workshops specifically on girls and Autism

*Note. Teachers’ PD was not discussed in parent interviews.*

Both teachers claimed that conversations with colleagues, particularly key stakeholders who possessed training and knowledge in the area of autism, were the most valuable source of information when it came to professional development. It was interesting that both teachers had not received any professional development on autism in girls, and had independently sought more learning on the phenomenon. For example, Alannah's teacher accessed literature on autism and girls in her own time; while Bree's teacher had searched for but was unable to find a classroom program specifically for girls on the autism spectrum.

Both teachers talked about the importance of communicating with parents. Alannah's teacher viewed communication with the parents as a way of gaining further insights into autism. Bree's teacher communicated with parents, but as indicated under Challenges, found it difficult to talk about seeking a professional diagnosis for their child. Bree's teacher was unable to locate resources about girls on the autism spectrum, probably impacting on her approach towards girls like Bree, and wanted more resources and professional development on the topic. Despite differences in their professional development experiences, their collective responses reflected many of the problems teachers have in dealing with girls on the autism spectrum; most notably, the lack of resources related to girls and an absence of material on how best to teach them.

### **Encircle – Classroom Strategies**

Classroom Strategies are those identified by the teacher as needing to be implemented in the classroom. They differ from an intervention, which is usually a strategy identified by an outside support network and implemented by someone other than the teacher. The strategies outlined in Table 6.8 were reported by the teachers in the interviews. While these may also have been used at home, the strategies discussed here were all used in the classroom to support students. The limited range of strategies outlined is reflective of their inadequacy; both in terms of access and distribution.

Alannah and Bree's teachers identified four similar key strategies: (i) transitioning students to their first year of schooling and their next classroom; (ii) open communication between parents and teachers as an important aspect of understanding their students; (iii) positioning students near or alongside them when talking; and (iv) personalised strategies for each child.

Bree's teacher reported success using touch because this approach made it easier for Bree to process what the teacher was saying. Both teachers articulated the importance of understanding that each autistic student is different, so strategies will vary for each child.



Visual cues were used by Alannah’s teacher and at home by her mother, highlighting the value of consistent strategies in the classroom and home environment. Alannah’s mother said she often updated the teacher before school on Alannah’s mood.

**Table 6.8**

*Classroom strategies is one area of the Encircle theme*

Classroom Strategies	
Teacher Interviews	
Alannah	Bree
Visual cues	
	Employ social skills program
Implement therapist’s strategy suggestions e.g.: Provide regular whole-body movement activities for sensory regulation e.g.: animal walks to transition to activity	
	Speak up if something doesn’t seem right when there is no diagnosis.
Transitioning students to the school environment and next classroom prior to new school year.	Transitioning students to the school environment and next classroom prior to new school year.
Open communication between parent and teacher	Open communication between parent and teacher
Positioning of student near teacher	Positioning of teacher next to student so the student can focus on the voice (instead of front on). Touch arm or hand gently when speaking at their height level (teacher).
Personalising strategies for each child	Personalising strategies for each child
Provide time for students to finish a task at a later time.	

Alannah’s teacher was well versed in visual cues due to previous experience with a student on the autism spectrum. Had the scope of the questioning about visual cues in the interviews included the home environment, further similarities and differences may have been identified.

Alannah’s teacher incorporated strategies proposed in Alannah’s therapy reports in her teaching practice and used some of these with the whole class. One example was animal walks for whole-body movement and transitioning from one activity to another. Animal walks is a commonly used term by occupational therapists and is increasingly being practiced in classrooms, allowing students to use whole-body movements by mimicking the ways in which different animals walk. Alannah’s teacher pointed out that this strategy helped other children who may also need whole-body movement and was not detrimental to any who didn’t require extra movement.

Alannah's teacher provided extra time for Alannah to finish a task later in the day as she found it difficult to stop, especially if it was incomplete. Alannah was often incapable of finishing tasks due to distractions and wanting to be perfect, and needed extra time to complete them.

Bree's teacher felt that a structured social skills program was important for students on the autism spectrum and should be implemented at the start of the school year. In her school, Bree and other students on the autism spectrum accessed lessons on social skills via the learning support unit.

Another strategy used by Bree's teacher, although admittedly difficult at times, was to "speak up" and talk to the special need's teacher and the student's parent/s if she observed the student showing signs of autism. It was hoped that initial conversations with the learning support unit and the parent/s to broach the subject of a referral to a paediatrician would lead to further support in and outside the classroom (intervention) through an early diagnosis.

### **Encircle Summary**

Challenges, Intervention, Professional Development and Classroom Strategies were mainly identified in the teacher interviews, although there were also some references in the parent interviews. These four areas were combined under the term Encircle, collectively making up the sixth CASSIE theme.

Encircle interlinked with the five CASSI themes to create the CASSIE model (Table 6.9). The five dimensions of CASSI represent the core findings of the research that focused on the girls themselves; while Encircle, which surrounds CASSI, refers to the strategies and support of key stakeholders. The combination of all six themes culminated in development of the communication and support tool CASSIE for use in classroom settings. As these significant themes – Intervention; Professional Development opportunities for teachers; Classroom Strategies and Challenges for both students and teachers were not necessarily observable in the classroom, it was crucial to interview parents and teachers to find out what was and was not occurring. The interview findings and the resultant model, CASSIE, provide a base resource specifically for girls on the autism spectrum, many of whom present with subtle differences, hence its value for teachers who will inevitably encounter students on the autism spectrum in their classrooms – both diagnosed and undiagnosed.

The principle themes and sub-themes embedded in CASSIE were identified in the literature review, and formed the basis of the pre-determined codes in the initial data analysis. However, the Encircle theme had the most references to sub-themes, probably because the

literature mainly comprised studies from the perspectives of teachers and parents rather than the children themselves. It was evident from the literature that observations of students on the autism spectrum were lacking, particularly girls, not only due to autism becoming better understood in more recent times, but also the difficulties of obtaining ethics approval.

**Table 6.9**

*Encircle: complete table of findings from all Parent and Teacher interviews*

<b>Encircle</b>			
<b>Challenges</b>			
<b>Parent Interviews</b>		<b>Teacher Interviews</b>	
<b>Alannah</b>	<b>Bree</b>	<b>Alannah</b>	<b>Bree</b>
Finding out about her day – verbal communication		Working out whether a child is undiagnosed but on the Autism Spectrum	
	Lack of acceptance from other parents		The initial conversation if a child suspected as being on the Autism Spectrum
Working out whether behaviours is part of the Autism Spectrum or not e.g.: meltdown		Encouraging social interaction	
			Not receiving all paperwork and reports about child
Daughter’s exhaustion		Lack of professional development on Autism	Lack of Professional Development on girls on the Autism Spectrum
		Identifying strategies that work for each child on the Autism Spectrum – what works for one child won’t necessarily work for another child on the Autism Spectrum.	Identifying a girl on the Autism Spectrum – boys and girls differ
<b>Intervention</b>			
<b>Parent Interviews</b>		<b>Teacher Interviews</b>	
<b>Alannah</b>	<b>Bree</b>	<b>Alannah</b>	<b>Bree</b>
Occupational Therapist	Wanted a school Occupational Therapist	Teacher aide support	Teacher aide support
Speech Therapist – privately and government provided	Special Education Unit	Teacher implements therapist’s suggested strategies	
Specialist teacher aide			Special Education Unit – Social Skills program

Professional Development			
Parent Interviews		Teacher Interviews	
Alannah	Bree	Alannah	Bree
		Conversations and feedback with colleagues	Conversations with colleagues
		Reading literature on Autism	
			Programs specific for Autism - resources
		Communication with Parents	
			Workshops specifically on girls and Autism
Classroom Strategies			
Parent Interviews		Teacher Interviews	
Alannah	Bree	Alannah	Bree
Visual cues		Visual cues	
			Employ social skills program
		Implement therapist's strategy suggestions e.g.: Provide regular whole-body movement activities for sensory regulation e.g.: animal walks to transition to activity	
			Speak up if something doesn't seem right when there is no diagnosis.
		Transitioning students to the school environment and next classroom prior to new school year.	Transitioning students to the school environment and next classroom prior to new school year.
		Open communication between parent and teacher	Open communication between parent and teacher
		Positioning of student near teacher	Positioning of teacher next to student so the student can focus on the voice (instead of front on). Touch arm or hand gently when speaking at their height level (teacher).
		Personalising strategies for each child	Personalising strategies for each child
		Provide time for students to finish a task at a later time.	

Access to pages 170-172 has been restricted at the request of the author

The key ideas on the CASSIE wheel and its associated Encircle table (the CASSIE tool) are reviewed in the next chapter, together with the contribution of these findings to the limited discourse on autistic girls in the primary classroom. The interplay of each CASSIE theme is also discussed in relation to the overarching research question, with the objective of better understanding and improved learning support for girls on the autism spectrum.

## Chapter Seven: Discussion of the Findings

The cross-case analysis in the previous chapter consolidated the themes that emerged from the findings in relation to Alannah and Bree presented in Chapters 4 and 5, and went a long way towards addressing the first research question: What are the (varied) characteristics of girls on the autism spectrum in early years classrooms? This chapter turns to a discussion of the findings and addresses the first research question in more detail, as well as the second: How can girls on the spectrum be best supported in their learning in early years classrooms?

Chapter 6 described the development of the CASSIE model from the exhaustive data analysis that underpinned the study, not only for defining the major characteristics of girls on the autism spectrum in early years classrooms, but also as a tool for supporting teachers and parents in the early years. In addressing the second question, CASSIE forms the central feature of Chapter 7 as an important mechanism for supporting girls on the spectrum in early years classrooms. To strengthen the rigour of this hypothesis, CASSIE is critically evaluated against the current academic research and non-technical literature by:

1. Relating, and pulling together, its individual components to existing but often disconnected literature (technical and non-technical) on young females with an autism diagnosis;
2. In particular, relating the tool to the work of Marshall (2013) and two other texts solely devoted to girls on the autism spectrum;
3. Relating the tool to the DSM-5 and assessing its value against the understandings of autism from that text.

Chapter 7 also discusses the practical applications and implications of the tool for the various stakeholders in particular of teachers, parents and allied health professionals as well as the girls themselves.

Recalling the overview of literature in Chapter 2, the existing literature on autism revealed that there were few studies focusing on girls on the autism spectrum, and still fewer in the context of early years education. More recently, however, the literature has begun to recognise the existence of a female autism phenotype that has started to emerge, particularly in the non-technical literature and there is a need for further examination of the characteristics across all ages (Hull et al., 2020). This phenotype concept refers the female-typical representation of autism with a major component being the camouflaging of traits, which

“perhaps doesn’t meet the current DSM-5 diagnostic criteria” (Hull et al., 2020, p.1). The literature reviewed in Chapter 2 is re-examined here in relation to the findings encapsulated in CASSIE, followed by an evaluation of the CASSIE communication tool (Appendix G) and an outline of the contribution of this study to a deeper understanding of autistic girls in primary classrooms.

## **Critical Discussion of CASSIE**

The following sections present evaluations of the CASSIE themes (Appendix I) and their application for better understanding and support of girls on the autism spectrum in primary classrooms. Derived from the case studies of Alannah and Bree, the CASSIE themes are evaluated against the existing literature. Each CASSIE theme was developed through the lens of triangulated perspectives made up of the student observations, parent interviews and teacher interviews.

### **Communication**

The research literature exposed a stark contrast between the way that males and females on the autism spectrum communicate. Communication is not straightforward; it involves speaking as well as non-verbal gestures. Girls are often more minimally verbal or quieter than their male counterparts (Marshall, 2019; The Pierced Protagonist, 2019). The term “minimally verbal” has been used because it incorporates both the gestures and fewer words used to communicate (Brignel et al., 2018). A child who is minimally verbal, or non-verbal if they do not use words, may have selective mutism. However, as selective mutism is an anxiety condition that requires a separate diagnosis, it is not used here. The term minimally verbal is used in this study as both Alannah and Bree used words most of the time.

Although some girls on the autism spectrum may be minimally verbal, girls can appear to be more social by masking and mimicking peers (Marshall, 2019; Murphy, 2019). Both Alannah and Bree displayed distinct and common communication patterns: they enjoyed talking to adults in class; they had minimal conversations – in number and duration – with peers in the classroom and playground; and they often broke down when they were with their parents at home due to exhaustion from socialising during the day. By masking, the ways that autistic girls communicate with their teachers, peers, parents and other adults may vary, depending on who they are communicating with and the context of the situation (Marshall, 2019).

In both cases, the use of gestures and quiet or shy behaviours by both Alannah and Bree were significant challenges for their teachers in meeting the girls’ academic and social



needs, especially as they appeared to be doing their work and were not being disruptive. While autistic girls are often shy, quiet and minimally verbal, some autistic girls, like Bree, can also be talkative, but usually on their topic of interest, and with people they know or connect with easily (Marshall, 2019). In isolation, traits of shyness and being quiet and minimally verbal may not appear to be problematic, and could merely be viewed as compliance. However, placed alongside other traits of autism, this stereotypical trait is one reason why girls are often not diagnosed. This leads to one important thesis that has merged from this study; that the complexities around communication traits of young females on the spectrum is the main cause for them being “invisible” in classrooms and, perhaps, other social settings.

The preference of Alannah and Bree for speaking with adults rather than peers may be due to adults being more “forgiving” of social faux-pas, such as talking out of context (Hendrickx, 2015; Murphy, 2019). It could also be explained by Theory of Mind (ToM), where an autistic person assumes that the person they are talking to already knows the context of the conversation (Baron-Cohen, Leslie & Frith, 1985; Marshall, 2014). Adults are more likely to keep up with changes in conversation and redirect or guide them back to the original idea when necessary. An adult would also be able to readily converse with a student who is talking with intensity about one of their interests that may be too advanced for their peers. The intensity in which a child speaks on a topic can be viewed both positively or negatively when a teacher or parent may dismiss a child’s extensive knowledge of a particular topic as their “thing”, rather than viewing it as an indication of their intelligence. Another example of theory of mind is when an autistic girl does not understand that someone else’s knowledge of a topic is separate to, or different from, their own; so the girl feels that she is coming across as unintelligible, when instead, it is due to their belief that the person they are talking to possesses the same knowledge base (Baron-Cohen, Leslie & Frith, 1985; Williams & Roberts, 2016).

It is typical for a child on the autism spectrum, whether male or female, to take other people’s ideas or sayings literally (Boorse, 2019). This has ramifications in a classroom context. In one example, while reading a book to her teacher, Bree took an idiomatic phrase literally and therefore did not comprehend the story line. Alannah was also observed taking statements from the teacher literally, requiring the teacher to explain later the double meaning of the term used. Not understanding sarcasm or nuances in phrases or sayings can make it difficult to communicate in social situations and contribute to social faux-pas (Szalavitz, 2016).

Although not prominent in this research, echolalia is a common trait related to communication for males and females on the autism spectrum (Marom et al., 2018). Echolalia is a term mainly used by health professionals and is not commonly known outside the autism community, as I encountered in my experiences with parents during this research project. Parents who are new to the post-diagnostic journey may not know what it means. Not just limited to repetition of words, echolalia can also manifest as repetition of phrases from something that children have heard, or mimicking a noise (Marom, Gilboa & Bodner, 2018). Like stimming, it is a form of communication that can have a soothing effect when an autistic child is stressed (Carpenter, 2017). Alannah's mother talked about Alannah's echolalia, especially when communicating during times of need or stress. On the other hand, Bree's mother had not heard of the term echolalia, and when described to her, she couldn't recall Bree repeating noises, words or phrases. However, I had observed Bree doing this once in the classroom. Greater awareness of the phenomenon echolalia may mean that it is more recognised and understood by parents and teachers as an autism trait, rather than merely an annoying repetition of sounds or words.

Being "in one's own world" is not a trait that features in the academic literature, but one that I observed frequently during this study; it is considered here as it related to issues of communication for the two girls and therefore has significance for future studies and implications for stakeholders. It had been observed by Marshall (2014) in her psychology clinic and by Craft (2016) while working in the autism community. Marshall (2014) described it as being "away with the fairies" (p. 25) and Craft (2016) described it as "getting lost in one's own thoughts" (p. 2). The phenomenon can be linked to hyperfocus, where it is difficult for a child to move on from an activity, due to their highly focused attention on a particular interest or activity (Hupfeld et al., 2018; Williams & Roberts, 2016). When Bree was regularly observed being "in her own world" it was as though she was staring into space, deep in thought. These perceived deep thought processes are similar to hyperfocus, discussed under the theme Academic, where Bree and Alannah's intense focus on an activity was difficult to interrupt in order to move them on to the next activity.

Being "in one's own world" was difficult to categorise and was eventually placed within communication because the student was thinking, possibly multiple thoughts, and a teacher observing this may find it difficult to understand what is going on inside the child's mind, particularly if the child cannot articulate what they are thinking in a way another can understand. When a student is in their own world, it should not be seen as being lazy or a way of avoiding work. On the contrary, it can be viewed as a strength, since these cognitive

processes may be the source of innovative and creative ideas. While Craft (2016) observed and documented girls on the spectrum getting caught up in multiple thoughts and going into “their own world”, it is not a widely known trait of girls on the autism spectrum. However, it was a significant finding in this study and therefore has significance and implications for a better understanding of the characteristics of girls on the autism spectrum.

## **Academic**

The empirical research in both the current case studies showed that perfectionism was the most important factor affecting academic achievement in the classroom. Perfectionism is a well-known trait for girls on the autism spectrum (Posterino et al., 2017; Hendrickx, 2015). These authors also associated it with eating disorders. In striving for perfection, the girls did not always complete their work because of the time they took over colouring or writing or constantly redoing tasks, such as forming letters. Work had to be completed according to their own exacting standards, a trait also identified by Greenaway and Howlin (2010).

Perfectionism can be a positive trait when girls’ drawing and writing work is highly detailed and/or highly intellectual (Marshall, 2014). However, it can be challenging when it comes to broader academic requirements, as autistic girls struggle to complete their work on time or at all because of the high levels of perfection they set for themselves. Not completing classwork has two negative outcomes. One is that students’ capabilities are not fully demonstrated, even though they are quite capable, and the second is that uncompleted work may lead to them falling behind in their learning. Either outcome can result in teachers making incorrect judgments; identifying it as a lack of commitment to their studies or an inability to meet curriculum criteria. Interestingly, Bree repeated preparatory year after a joint decision by her parents, teacher and the school administration because they believed she was not emotionally ready to transition to Year 1. Bree’s teacher had reservations about her repeating the year, which were only allayed when Bree made progress in her second year of schooling. Holding a student back a year has been controversial, with research revealing comparatively more negative effects than positive outcomes (Hattie, 1999).

The perfectionism evidenced in both cases were mostly observed in classroom tasks that involved drawing, writing and colouring. It was associated with not wanting to make a mistake, i.e., keeping within the lines when colouring and wanting to please the teacher (Bulhak-Paterson, 2015, p. 7; Hendrickx, 2015, p. 203). Although perfectionism has been categorised under the theme Academic to align with the classroom focus of this study, it

could also fall under the theme of Identity, particularly if the study focused on their special interests outside of school.

Another reason both girls had difficulty submitting work on time was that they were both easily distracted by noise, particularly peer chatter. The notion of distraction affecting girls' academic achievement overlaps with the Sensory, Social and Communication themes of CASSIE. Noise is associated with Sensory and could contribute to sensory overload from an overstimulation of the senses, not necessarily released until outside of school time (Williams & Roberts, 2016). The mental energy required to interact with peers while working overlapped with the Social and Communication themes, because it required significantly more effort for the girls to keep up with conversation with their peers and simultaneously focus on the classroom task at hand. Distraction, caused by a combination of sensory, social and communication aspects while completing classwork, may affect a girl on the autism spectrum's ability to complete a task, thus not demonstrating her true academic capability.

Complicating the notion of distraction affecting academic ability was the tendency of both girls to hyperfocus on certain tasks. Hyperfocus was discussed within Communication because of its link to girls on the autism spectrum being "in their own world". When it came to areas of particular interest, which for Alannah and Bree were most likely related to creative activities of writing, drawing and colouring, it appeared difficult for them to move on to the next task. This hyperfocus hindered their ability to transition from one task to another and potentially had a negative effect on demonstrating their academic potential.

The need for routine was evident in both girls. It is well documented that people on the autism spectrum need daily routine and are resistant to change, with the level of rigidity dependent on each individual child (Scarborough, 2012; Hendrickx, 2015; Johnson & Hastings, 2002; Morton, 2019; Szalavitz, 2016). Routine includes knowing what is going to happen during the day and being aware of any changes in advance. Unexpected changes in routine can trigger a meltdown, further discussed under the Sensory theme. Inflexibility may affect the ability of students on the autism spectrum to cope with change when they already have in mind how and when things will occur. In turn, this can affect how a child learns and their capacity to demonstrate what they have learned in the classroom, such as being unable to finish a task on time (Singer, 2017).

Homework reinforces the learning that occurs during class time. It remains a controversial topic among parents, students, teachers and school administrators (Hattie, 1999), but for children on the spectrum the debate assumes another dimension (Silvester, 2017). A neuroscientist and teacher, Silvester proposed that homework can be a source of

stress for many students. However, Hattie and Pickering (2007) argued that homework benefits student achievement when it is purposeful, monitored, involves parents and is designed so that students can complete it. Homework was an issue for Alannah, as she was often too exhausted from focusing on communicating, academic work, sensory issues and social interaction at school to complete the set homework. Exhaustion relates to the CASSIE theme Sensory, where the energy required at school leads to meltdowns once the student arrives home. Completing homework can be stressful, and autistic students have to contend with the added challenges of sensory overload and exhaustion from masking throughout the school day, inhibiting their mental capacity for further work.

Memory was another factor that impacted on levels of achievement at school. Memory issues were only evidenced in Alannah's case – her mother reported that she had excellent long-term memory but poorer working memory. However, some researchers (e.g., Packiam Alloway & Alloway, 2015) argued that difficulties with working memory are common among children on the spectrum. Alannah's problems could be linked to her issues with homework and its purpose for reinforcing learning at school and consigning knowledge to long term memory (Silvester, 2017). Difficulties associated with transferring information from short-term to long-term memory may have affected her academic work and therefore negatively impacted her achievements. However, it was noted that she was able to recall things of interest in great detail from her long-term memory, but the recollection usually occurred at a later time when it was not always relevant. This could be why testing at school, soon after learning a new concept, may not reveal a child's true capabilities until later on.

## **Sensory**

The most important aspect of Sensory is Sensory Processing, which refers to how students respond to the environment around them (Critchley, 2019). Sensory Processing can include anxiety, tics, exhaustion and meltdowns; however, they have been separated because they are mostly the result of sensory overload during Sensory Processing.

Sensory Processing affected another CASSIE theme, Academic, when the students struggled to process the chatter of peers while trying to focus on their work. To assist Alannah and Bree with processing their environment, and as part of Sensory Processing, coping strategies included stimming and whole-body movements, both of which are typically observable in boys and girls on the autism spectrum (Hendrickx, 2015, p. 67).

Stimming, a common trait of autism, is a self-regulation method that involves repetitive motor movements (Angulo- Jimenez & DeThorne, 2019; Kapp et al., 2019).

Alannah and Bree used stimming to self-regulate and cope with anxiety in the classroom. There are a number of ways to stim; for Alannah and Bree repetitive rocking, foot tapping and smaller movements were common. Such stims should not be seen as a negative trait, but rather a strength of a self-regulatory function (Kapp et al., 2019). Although distracting for other children, stimming has a calming effect and is not harmful to the person stimming or anyone around them.

Whole-body movements were also used by Alannah and Bree; their teachers purposefully implemented whole-body movements into their school day. Whole-body movements activate the vestibular system, allowing for more coordinated movement and balance. A common video program used by teachers in the classroom is “Go Noodle”, engaging kids through movement and mindfulness to promote physical and mental health and improve behaviour. Alannah’s teacher used this tool to benefit the whole class in alignment with a UDL approach. Whole-body movement activities, like the animal-walks mentioned in the findings, were put in place to assist students on the autism spectrum, but were also anticipated to benefit all children in the classroom, including those who had not yet been diagnosed (Sherratt, 2005).

Despite the prevalence of anxiety in children on the autism spectrum, there has been little research on how it presents in the classroom environment (Adams, Simpson, & Keen, 2018). While anxiety was mentioned in the interviews, I did not observe any evidence thereof in the classroom. However, this is not to say anxiety wasn’t present, since girls are known to mask or use coping strategies such as stimming until they get home (Bulhak-Paterson, 2015, p. 5). Several factors caused anxiety for Alannah and Bree that also overlapped with the Academic theme. Change of routine and new transitions, perfectionism and rigid thinking, all subthemes of Academic, were found to trigger the girls’ anxiety, as evidenced in both the observations and interviews.

Anxiety and sensory overload can result in meltdowns and/or exhaustion when someone’s senses are over-stimulated (Goodall, 2015; Scarborough 2012). Like anxiety, meltdowns usually occur in the home environment (Buckingham, 2019). In class, girls may be quiet and exhibit a shut-down manner to cope with what’s happening in her surroundings, affecting her ability to communicate effectively. This aspect of girls being quiet or shy is further discussed under the theme Communication.

Tics are intermittent involuntary movements that are most likely visible (motor tics), unless they are vocal, in which case they would be audible (Williams & Roberts, 2016). The motor tics observed in Alannah included continual eye squints and blinking, shoulder shrugs

and throat clearing/swallowing, and appeared during times of excitement and/or stress. A tic is similar to a stim, but stimming manifests as more repetitive, voluntary actions (Williams & Roberts, 2016).

The theme Sensory interlinks with Academic and Communication, an indication of the complexity of autism and why it is difficult to understand, deconstruct and diagnose. Each girl processed sensory information and the effects of sensory overload in similar ways; coping with sensory overload using variations of stimming and whole-body movements depending on the situation and the extent of their anxiety.

## **Social**

The findings revealed that both girls exhibited the most similarities within the Social category of the CASSIE model, with almost no variations. The two dominant factors in the Social theme emerged from the data collected during Alannah and Bree's time in the playground and within a group setting when inside the classroom.

Few qualitative studies have been conducted on the playground activities of students on the autism spectrum (Gilmore et al., 2018). My observations took place during play time in the playground, which included eating lunch. Of significance was that both girls mostly involved themselves in repetitive and independent play, markedly different from the other girls in the playground (Cook et al., 2017).

The times when the girls played by themselves, sometimes observing others and sometimes focused on their own activity, were included in activities coded as Independent Play. They did not appear to be unhappy playing by themselves and seemed calm and content. When Bree engaged in parallel play, such as when she was drawing and colouring while other students sat with her and joined in, there was little interaction. Like stimming, independent play can be a strength when students are happy to be autonomous in their work and play. Independent play provided the girls with an opportunity to focus on their special interests and provided a reprieve from social interaction (Hendrickx, 2015).

Repetitive play was consistently observed. Alannah enjoyed playing on a particular mound in the playground and watching others; while Bree enjoyed talking to the teacher aide on duty or colouring and drawing in the concrete area. Morton (2019) reported that girls on the autism spectrum prefer to walk and talk with the teacher on duty than play with peers. In this study, repetitive play may have been related to the need for routine, as described under the theme Academic, or a way of soothing themselves, since the girls appeared to know what they were comfortable doing without overstimulating themselves. The negative repercussion

was limited opportunity for interacting with peers and socialising. However, by identifying repetitive and independent types of play that autistic girls engage in, the school can support rich social communication opportunities in the playground (Gilmore et al., 2018).

The topic of bullying emerged from the literature review as a relatively common occurrence in the school playground. A plethora of literature attests to a higher rate of children on the autism spectrum being bullied at school for numerous reasons, including misunderstanding social cues, solitude play and difficulty with communication (Attwood, 2004; Hendrickx, 2015; Humphrey & Hebron, 2015; Liu et al., 2018; Maiano et al., 2016; Williams & Roberts, 2016; Zablotsky et al., 2013). However, little has been written about bullying of girls on the autism spectrum (Cook et al., 2017).

In this study, bullying was never observed. It was only mentioned once in the interviews as a future concern. Bree's mother anticipated that bullying might occur when Bree was older and became more aware of social interaction. This is understandable, as the literature contends that children on the autism spectrum are often the target of bullying at school (Attwood, 2004; Carpenter, 2017; Liu, 2018). Bullying is characterised by three main elements: an imbalance of power; intent to cause harm; and is repeated over time. Alannah's mother claimed that Alannah had not noticed any unpleasant behaviour directed at her by other children, but may become more aware in the higher year levels. While I did not observe any bullying, there was evidence of both girls being excluded, apparently unwittingly by their peers, which may be a precursor to bullying (Zablotsky et al., 2013). A girl's inability to see others' intentions does not mean that bullying isn't occurring (Horlock, 2019). Both Alannah and Bree enjoyed playing in solitude, which may make them targets of bullying in the future, since playing with friends provides a form of protection (Attwood, 2004; Bradshaw et al., 2013).

While focused intervention in play is important for developing social skills to deal with bullying and may minimise the prevalence of children on the autism spectrum being targets of bullying, it cannot be implemented in isolation (Humphries & Hebron, 2014; Pinchover & Shulman, 2016). When Alannah and Bree did play with someone in the playground it was usually with the same child, a common trait in girls (Horlock, 2019). The positive aspect is that it reduces the child's interaction with the adult on duty, which may in turn, assist with developing their social skills. Nevertheless, it is common for bullies to single out children who are not part of a group, so girls playing by themselves or with one friend may be more likely targets of bullying during their schooling years (Attwood, 2004; Bradshaw, Anderson & Law, 2013).



Positioning of Self was the other evident phenomenon in the Social category during the observations. The girls intentionally sat on the periphery of the group in the classroom and at eating time. Like independent play, this may be a means of social respite. Alannah's teacher also mentioned that Alannah was standing on the outside of her dance group during a dance class. This was a significant finding from the primary research and worthy of further exploration, as it may be a more common behaviour amongst girls than boys on the autism spectrum and a helpful identifier in the diagnostic process.

## **Identity**

Narrow Interests are a common trait for someone with an autism diagnosis (Hendrickx, 2015). Interests form a large component of the theme Identity, since the narrow interest is usually a subject area or topic, television show or object such as a toy or person and may change over time. A child with an intense interest often has extensive knowledge of that interest; commonly seen in both males and females with an autism diagnosis. Boys tend to be object focused, while girls are more animal focused (Hendrickx, 2015, p. 60). An intense interest can be a strength when it comes to expertise on a particular topic, and many autistic people have gone on to use their expertise to earn money (National Autistic Society, 2016).

Displaying intense emotions is a well-documented trait for females on the autism spectrum and has frequently been mistaken for misbehaviour, resulting in a missed diagnosis or misdiagnosis (Petrou et al., 2018). Unlike boys, who often express themselves and their anxiety outwardly, girls tend to vent their emotions in the safety of the home environment (Bulhak-Paterson, 2015). This was the case with Alannah, who "masked" or "camouflaged" her feelings and expended a great deal of mental energy on pent-up emotions to not reveal her true self in public (Cook et al., 2017). In this study, masking was observed in the classroom, causing mental exhaustion and intense emotions to build up during the day, only to be released at home in the form of a meltdown (Moyse & Porter, 2015).

Both Alannah and Bree liked following the rules and doing things correctly to please others. In the classroom, they did things right to receive praise from their teacher. In particular, Bree confidently informed her peers when they weren't following the rules, including her own rules on colouring and where the pencil tray should be placed on the table. Following the rules is linked with high expectations and perfectionism, as discussed earlier in this chapter under Academic. Both girls had high expectations, particularly when it came to drawing, colouring and following the rules. Bree continually rubbed out her writing until she

was satisfied with her letters. Like Bree, Alannah was particular with her colouring and expected that events and activities would be unchanged and proceed according to plan. Such high expectations signal a desire for doing the right thing in the right way, and to the best of their ability if it related to the girls' topics of interest in order to showcase their strengths. However, when expectations of work or routine were not met, they were unable to cope with the intense emotions that followed, frequently erupting at home. The high expectations observed with perfectionism and rule-following may be a reason why girls miss being diagnosed, and instead, are viewed as good students who don't cause trouble as they are quiet and doing their work.

A strong sense of injustice is a more common trait in girls on the autism spectrum than boys (Marshall, 2013, 2016). A sense of injustice is related to following rules and rigid thinking about the rules with no flexibility – either classroom rules or rules that the girls have devised to set a precedent. The girls responded to injustice of any kind with strong emotions, again, most likely suppressed until they got home where a meltdown would ensue, as discussed under the theme Sensory. Such a strong sense of injustice has been likened to autistic girls like Greta Thunberg in her ongoing crusade to bring about change. Thunberg, who spoke to world leaders about climate change at the United Nations in September 2019, was both criticised and lauded for her impassioned speech, having embarked on this journey with a strong sense of justice for her special interest, climate change. Reporter Steve Silberman (2019) for MSN News aptly wrote: “Greta Thunberg became a climate activist not in spite of her autism, but because of it.”

## **Encircle**

Encircle was the sixth CASSIE theme, comprised of Challenges, Intervention, Professional Development and Classroom Strategies. The themes emerged largely from the interview data with the parents and teachers, in relation to the first five themes. They involve the support people who were variously present or encircled the lives of girls on the autism spectrum. As explained in the previous chapter, the word Encircle was chosen as an umbrella term that encompassed the four areas and first five themes of the CASSIE wheel. The key findings from each of the four areas are discussed below in relation to the literature and their implications for teaching and learning of girls on the autism spectrum.

Challenges is the first area of Encircle. This was not only observed but also attested to in the interviews with both parents and teachers. The observations exposed the personal challenges that Alannah and Bree encountered, while in the interviews, the parents and

teachers spoke mainly about the challenges that they themselves faced as support givers to Alannah and Bree. As expected, the teachers were somewhat unanimous about their challenges since the study focused on the school context. It is likely that additional challenges would have surfaced if the study extended to the home environment; however, it was important to stay with the interview protocol that aligned with the research questions and targeted the schooling context.

An important observation was that the true abilities of both students could not always be discerned or demonstrated because they did not always complete their set work. The barriers that affected the girls' ability to complete set tasks within a timeframe included: their pursuit of perfectionism (Academic), overlapping with high expectations of self (Identity); social distractions (Social) including communication difficulties (Communication) with peers; noise distraction (Sensory) such as peer chatter; and their need for whole-body or kinaesthetic movement (Sensory). These challenges made it difficult to multitask and combine social interaction with academic tasks, which often resulted in incomplete work. As the girls were quiet and only noticed when they were being distracted, these challenges could easily be overlooked. It could also lead to students who have not been diagnosed being thought of as lazy or incapable. For this reason, it is important for teachers to be aware of the subtle challenges encountered by girls on the autism spectrum, to ensure they have a quiet room for testing and processing time, and extra time to complete tasks in class if needed.

Common interventions, such as occupational therapy and speech therapy, are usually conducted outside school. The cost of these interventions can be considerable; Alannah's mother briefly mentioned funding support. In Queensland, funding was previously available for intervention therapies through a program called *Helping Children with Autism* (HCWA). This was superseded by the roll-out of the National Disability Insurance Scheme (NDIS), but since the latter scheme is still relatively new, there is more to learn about how it will affect children on the autism spectrum (Taylor et al., 2016). The National Disability Insurance Agency (NDIA) is "an independent statutory agency responsible for the implementation of the NDIS to provide funding for equipment and personal supports" to Australians who are eligible for disability assistance (McMillan & Jarvis, 2017, p. 368).

Schools in Queensland receive a different set of funding through a government verification process that allocates resources to assist students with a disability. The subject of school funding was not discussed with the teachers, because although they may have input, they are not responsible for the allocation of funding. However, there is evidence that more intervention time at school is being received by autistic students (Fishman et al., 2018) and

more girls being diagnosed will increase the ratio of autistic girls to boys receiving intervention. This will require teachers and support staff having knowledge and understanding of the female autism phenotype.

In the classroom, teachers rely on medical and allied health practitioners' reports, combined with whatever knowledge they possess of autism and their students to implement support strategies. Schools that have a Head of Special Education (HoSE) teacher, as in both Alannah's and Bree's schools, provide further support through an Education Adjustment Plan (EAP) whereby time is allocated for a teacher aide to assist in the classroom. Both Alannah and Bree were assigned time with a teacher aide. In Queensland, schools have to verify each student's ASD diagnosis, signed off by a medical professional, so that the school receives funding to provide them with extra support (Queensland Government, 2019). Government funding is available to both state and non-state schools, as was the case for both Alannah and Bree.

Intervention is typically led by school support staff, including teacher aides and external medical and allied health providers, such as occupational therapists and speech pathologists, who identify and implement programs and strategies to support each child's needs. Areas of focus may be, but are not limited to, social skill development, sensory processing, fine and gross motor skills, speech development, and anxiety (ASPECT, n.d.). Alannah received external support from an occupational therapist who worked with her at the school, and also received speech therapy outside school. Alannah's parents and teachers were provided with reports by both therapists so that strategies could be implemented to support her. Alannah also received internal support with a social skills program from a teacher aide.

Bree was not receiving external intervention during the data collection period but was participating in a social skills program at school that specifically targeted her needs. Since they can be implemented both internally and externally to the school, communication is essential for sharing information between teachers and parents about the interventions that support each child (Saggers et al., 2019).

Inadequate Professional Development (PD) on autism was an issue identified by the two teachers. Teachers and practitioners need ongoing training for two reasons. Firstly, more up-to-date information on autistic girls, in particular, is emerging and gradually becoming available. This includes a neurodiversity approach rather than a medical model approach (Angulo-Jimenez & DeThorne, 2019). Secondly, each child on the autism spectrum is different and therefore requires different classroom support (Williams & Roberts, 2016). While ongoing PD is a requirement for teacher registration in Queensland, there is no

stipulation for PD on autism to be included, and teachers may therefore receive no training on the topic. PD for teachers is imperative to ensure positive experiences for girls on the autism spectrum, yet it is typically up to the school or the teachers themselves to seek training (Henrickx, 2015, p. 101). Similarly, in pre-service teacher programs in Queensland, courses with a focus on “inclusion and diversity” may not necessarily impart deep knowledge and understanding of autism in girls. As the teachers in this research study reported, they did not receive specific instruction on autism during their pre- or in-service training and there are limited resources available, particularly in relation to girls. The teacher participants proposed that a range of experiences, including knowing an autistic person, reading articles about autism, attending workshops and learning from students on the autism spectrum all contributed to their confidence and knowledge (Young et al., 2017).

The lack of resources and workshops on autistic girls also presented a challenge, as teachers need an understanding of autism and each child’s specific needs to effectively interpret communication and reports from external professionals (Jarman, 2015; Sherratt, 2005). It is this shortfall in professional learning and development that the CASSIE wheel largely addresses.

Classroom Strategies varied for each teacher and their students. Four strategies were mentioned by both teachers and implemented in their classrooms: transitioning; open communication; positioning of the student; and personalised strategies. Transitioning and personalised strategies are both identified in contemporary academic literature (Aksoy, 2018; Fontil et al., 2019).

Transitioning refers to situations when a student moves to a new activity or moves into another classroom in the new school year, begins their first year of school or first year of high school. These situations can be more stressful for students on the autism spectrum (Conway, 2017; Williams & Roberts, 2016). Smooth transitions are particularly important, as students on the autism spectrum tend to thrive on routine and have difficulty coping with change (Aksoy, 2018). For students, transitioning requires knowledge about what is going to happen during the day that lies ahead and may involve engaging all the senses, including what it will look like, sound like and feel like (Larcombe et al., 2019). Major transitions, such as to new classrooms or starting a new school, involve more than one visit to the new environment and may involve only the student and teacher followed by visits with others to avoid overwhelming them (Fontil et al., 2019). Successful transitions allow students on the autism spectrum to become familiar with their new teachers and surroundings, and know what to expect when the change becomes the new normal.

Many teachers are familiar with personalised strategies to suit students' needs through practices of differentiation. However, when it comes to personalising strategies for students on the autism spectrum, one strategy does not work for all. Being inclusive of autistic children demands recognising their uniqueness and appreciating that flexible approaches are required (Goodall, 2015) and at times, finding strategies that work may be a matter of trial and error. For students with autism, therapist reports and communication with parents may assist with initial strategies for use in the classroom and is an excellent approach if therapist reports are made available to the teacher.

Using strategies specific to each autistic student emphasises the importance of open communication between parents and teachers to share information and understandings about their child/student. For example, strategies that work at home may not work in the classroom. One reason for this could be that girls on the autism spectrum are known for concealing their "true selves" through masking or camouflaging (Cook et al., 2017). Masking or camouflaging in the classroom often results in contrary and exhausted behaviour at home, including meltdowns, as discussed under the Sensory theme.

One successful strategy is a conscious decision to position the student near the teacher, but this has not been identified in the literature. Positioning the student near the teacher is important when the student needs to focus on what the teacher is saying and to avoid the student being distracted (Scarborough, 2012). Bree's teacher found that positioning herself at the side and height of the student to talk one-on-one put Bree at ease, because it was easier to focus on the teacher's voice rather than looking at her front on, which could also be distracting. With the student positioned near the teacher, they are also more likely to focus on any visual cues for assistance when the teacher is giving instructions.

Using visual cues is another strategy commonly used with students on the autism spectrum. These not only include pictures, but also gestures or the use of an object such as a bell (sound). Tools such as social stories and a Picture Exchange Communication System (PECS) book can also be included under visual cues, as they assist with both daily classroom instructions as well as transitions. PECS is one of a number of available tools that can be used to assist with communication, particularly for students who are minimally verbal.

Social stories can also form part of a social skills program implemented by schools to assist students, especially when interacting with peers. Social is a key theme of CASSIE, so using a social skills program within schools would be an ideal strategy in the early years. At Bree and Alannah's schools, a social skills program had been implemented by the staff in the Special Education Unit (SEU).

At times, teachers need to have difficult conversations with parents around behaviours that appear “different” when students haven’t been diagnosed but are displaying known traits (Petrou, et al., 2018.) Broaching the subject of a referral to a paediatrician was also identified under Challenges within Encircle. For a teacher who has identified certain traits it may be a difficult conversation to have with a parent, due to the unpredictability of their response. Teachers play an essential role in assisting parents to understand their child in the classroom environment. When a student is referred to a paediatrician, it is likely the teacher will have to complete questionnaires and reports to assist with the diagnostic process, highlighting the importance of PD on autism in girls for teachers, especially since early diagnosis has been linked to better outcomes (Carpenter et al., 2019). One of the benefits of the CASSIE wheel is serving as a communication medium for conversations between teachers and parents.

Another key strategy identified was providing students with more time to complete tasks in class, particularly assessments. Students may need more time to process information in a test situation, particularly if anxiety is an issue. If extra time is not available to complete an activity, time could be offered later in the day to finish the task. Since students may have difficulty completing a task, as discussed under the theme Academic, transitioning to a new task without finishing the one at hand may be an issue, and offering time to complete a task later may be needed.

Although teachers have adapted their toolboxes over time with strategies that suit their students each year, there are some that specifically assist students on the autism spectrum. Yet, what may work for one student may not work for another. Strategies that are implemented to support autistic student may also accommodate the needs of a child who has not yet been formally diagnosed as being on the autism spectrum (Hendrickx, 2015, p. 101). A collaborative effort involving teachers, parents and therapists is necessary to identify and implement strategies that support each individual student in the classroom.

### **CASSIE in Relation to Tania Marshall’s Checklist**

The purpose of this section of the chapter is to continue the evaluation of CASSIE by relating the model drawn from the empirical research in this study to the findings from the clinical work of Tania Marshall, who is one of the leading Australian writers on girls on the autism spectrum. Marshall’s work is well documented and highly sought after by parents with girls on the autism spectrum. Therefore, evaluating the findings and outcomes of the case study conducted in classrooms against those of Marshall’s clinical work is an important dimension of this discussion. The other role of this section of the discussion is to move

CASSIE towards a more holistic perspective of these girls, which was a major purpose of the study. That is, it was to explore the cases of two girls holistically, to see how their different characteristics combined to develop a picture of girls on the spectrum coping in an early years classroom.

Tania Marshall (Appendix K) is a clinical psychologist in private practice in Australia. She is also an award-winning author of books focused on women and girls on the autism spectrum, and a speaker on the international circuit. Marshall's work is based on clinical records she has collated over 20 years in her practice. In private communication with her in 2016, Marshall shared that she obtained permission from her clients to use non-identifiable information to continue to support and expand her work that mainly focused on females. She encouraged me to pursue my PhD research project on the topic of girls in education, and especially researching girls in classroom settings, claiming that it was an area that lacked research, understanding and awareness, and led to misdiagnosed, under-diagnosed and missed diagnoses of females. Marshall also pointed out that "research often lags many years behind anecdotal, observational and clinical work" (Marshall, 2013).

Marshall's work in the field of autism is extensive, but her findings on how it presents in females are largely condensed in her book, *Aspie Girl*. At the end of this book, Marshall collated a checklist of traits under 19 themes, based on clinical evidence far broader than the classroom context, although one theme was devoted to schooling under: "What to look for in school". The 19 themes were based on information from her clients; the parents and their young daughters seeking and receiving a diagnosis, as well as her clinical observations of the children. These 19 themes are tabulated below in Table 7.0.



**Table 7.0***Marshall's 19 themes of Aspien Girls based on her clinical evidence*

Marshall's 19 Characteristic Themes of Young Aspien Girls
Emotional
Social and Friendship
Play
Non-Verbal Body Language
Communication/Speech and Language
Developmental Milestones
Interests
Self-soothing behaviours
Sensory Sensitivities
Fine and Gross Motor
What to look for in School
Self-esteem and Identity
Theory of Mind
Memory
Imagination
Cognitive Abilities
Some Talents, Gifts and Strengths
Some Learning Challenges or Conditions that Impact on Learning
Some Commonly Observed Co-Existing Conditions

Marshall's other 18 characteristic themes outside of "What to look for in school" are also identified in the CASSIE wheel, some of these as themes, and others, as key ideas. For example, one of Marshall's themes is Memory, comprised of three key ideas: girls may have superior long-term memory; they may have superior visual memory; and they display a tendency to struggle with short-term memory. The last of these relates to the findings of Packiam Alloway and Alloway (2015). The CASSIE tool also identified Memory as an important sub-theme, but placed under the theme Academic and not as a separate theme. Another of Marshall's themes is Emotional, where Intense Emotions and Anxiety fall into two CASSIE themes, Identity and Sensory respectively. A further Marshall theme, Cognitive Abilities, is presented under the CASSIE theme Academic, a logical placement given the focus on a learning context. There is an overlap of Marshall's sub-themes identified outside and within the school context, suggesting that CASSIE's key themes may not just pertain to the school context and signals their value for both parents and teachers.

Unlike Marshall's checklist of traits that focus on broader contexts beyond the classroom, the CASSIE tool focuses solely on the classroom environment but also includes, and relates to, key findings and themes that were identified in all the themes on Marshall's checklist. These are expanded in Tables 7.1 to 7.4 . The findings from the classroom

observations that formed the main part of this research project extend Marshall's work as well as further validating her clinical work. The only aspect of Marshall's checklist not included in CASSIE were the developmental milestones, which focused on toddler development such as "may have talked early" and "may have delays in toileting"; these are traits that would be too late to observe at ages five and six. However, in the interviews with the parents, some of Alannah and Bree's early developmental milestones were discussed, and are outlined in their respective presentations of findings, in Chapters 4 and 5. Also absent when comparing findings and themes in this study from Marshall's checklist were key themes and strategies from the Encircle component of CASSIE, which emerged primarily from the interviews with teachers and included Challenges, Intervention, Classroom Strategies and Professional Development, including strategies for support. Marshall does list learning challenges, but these are stated more generally and focus mainly on conditions that impact learning, such as dysgraphia (writing difficulties) and Irlen Syndrome.

Owing to the broader context of Marshall's traits, it would be expected that her checklist would contain more themes and key ideas than CASSIE, having been collected over a number of years in a broader clinical setting. Nevertheless, to evaluate the conclusion drawn from this study, the key ideas from Marshall's one theme, "What to look for in school" are compared to the six CASSIE themes (Appendix L- whole table).

This section begins by evaluating CASSIE against Marshall's work in two main areas, Communication and Academic as there are significant points to emerge here. The other four areas: Social; Sensory; Identity; and Encircle, will be dealt with together as the comparisons are strong and need little commentary. This section concludes with identifying and explaining the areas of difference between the two works.

**Table 7.1***Evaluation of CASSIE theme Communication and Marshall – What to Look for in School*

<b>CASSIE (2019)</b>	<b>Marshall (2013) What to Look for in School</b>
<b>Communication</b> <ul style="list-style-type: none"> <li>• Minimally verbal or quietly spoken</li> <li>• Echolalia</li> <li>• Talks out of context or Theory of Mind</li> <li>• Preference to talk with adults</li> <li>• Takes statements of phrases literally</li> <li>• May appear to be in own world</li> </ul>	<ul style="list-style-type: none"> <li>• Generally well-behaved and quiet in the classroom room</li> <li>• May be selectively mute</li> <li>• Difficulty understanding other people’s thoughts are different to her own, and others cannot ‘know’ certain things (Theory of Mind)</li> <li>• Prefer to talk to adults (Social and Friendship)</li> <li>• May make social faux pas/theory of mind difficulties</li> <li>• May tend to take others or teacher literally</li> <li>• May not get others’ jokes or sense of humour</li> <li>• May appear to be ‘off with the fairies’</li> </ul>

Table 7.1 displays variations in the wording and the sub-themes relating to Communication that were quite similar. For example, “may appear to be in own world” (Stansfield) is another way of saying “may appear to be off with the fairies” (Marshall). One key idea, echolalia, is identified in the CASSIE wheel but does not appear in Marshall’s checklist. However, she does discuss repetitive vocal movements such as tics, which are found under CASSIE’s theme of Sensory, as they are viewed as a regulating mechanism, even though vocal movement is related to communication. Marshall included “generally well-behaved and quiet in the classroom”, whereas the CASSIE tool did not state this explicitly. However, the key ideas presented by CASSIE suggest that girls could be deemed to be well behaved due to traits such as being quietly spoken or non-verbal.

**Table 7.2***Comparison of CASSIE and Marshall’s checklist – Academic*

<b>CASSIE (2019)</b>	<b>Marshall (2013) What to Look for in School</b>
<b>Academic</b> <ul style="list-style-type: none"> <li>• Perfectionist – particularly writing/drawing/colouring</li> <li>• Difficulty finishing tasks- results don’t necessarily reflect capability</li> <li>• Need for routine</li> <li>• Hyperfocus on tasks of interest</li> <li>• Excellent long-term memory, poorer short-term memory</li> <li>• Rigid thinking (headstrong)</li> <li>• Homework difficult to complete due to mental fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Perfectionist in her writing and/or work</li> <li>• Tendency to have difficulty with completion of tasks</li> <li>• May be high average to genius intelligence</li> <li>• Craves knowledge, loves to learn if she is interested in the topic</li> <li>• Tendency to fixate and Hyperfocus on areas of interest (Cognitive Ability)</li> <li>• Superior long-term memory, tendency to struggle with short term memory (Memory)</li> <li>• May have slower working memory (Cognitive Ability)</li> </ul>

In Table 7.2, perfectionism, memory, cognitive ability and hyperfocus are emphasised in both CASSIE and Marshall's work. While homework was not discussed in Marshall's checklist, she concurs with findings from this research that girls would have difficulty completing work, which could also be applicable to homework. The need for routine was another key idea identified in the CASSIE wheel, but not in Marshall's checklist.

**Table 7.3**

*Comparison of CASSIE and Marshall's checklist – Social, Sensory, Identity and Encircle*

<b>CASSIE (2019)</b>	<b>Marshall (2013) What to Look for in School</b>
<p><b>Social</b></p> <ul style="list-style-type: none"> <li>• Prefers to play alone or with one friend in the playground</li> <li>• Tends to be independent and repetitive in play</li> <li>• Positions herself on the outer of the group</li> <li>• Prefers interaction with adults over peers</li> <li>• Observant of surroundings /people</li> </ul>	<ul style="list-style-type: none"> <li>• May spend breaks by herself, walking the hallways, in the library, with a teacher or in the bathroom</li> <li>• She may prefer to play on her own (Play)</li> <li>• Not able to manage more than one friendship at a time (Social and Friendship)</li> <li>• May be the teacher' helper</li> <li>• Tends to observe and watch others (Social and Friendship)</li> </ul>
<p><b>Sensory</b></p> <ul style="list-style-type: none"> <li>• Anxiety internalised at school and released at school</li> <li>• Stimming in the form of repetitive and whole-body movement</li> <li>• Enjoys tactile learning</li> <li>• Easily distracted by surrounding noise</li> <li>• Exhaustion leading to meltdowns</li> <li>• Sensitive to noise</li> <li>• Tics</li> </ul>	<ul style="list-style-type: none"> <li>• Experiences generalised anxiety/May have an anxiety disorder (emotional)</li> <li>• Generally well-behaved in the classroom and the opposite at home</li> <li>• May avoid demeanors or complying with requests due to high anxiety levels</li> <li>• May be highly anxious being called upon by the teacher</li> <li>• May have a passive-aggressive nature</li> <li>• Meltdowns tend to be caused by emotional overload (emotional)</li> <li>• May have repetitive motor movements or vocalisations that suggest a tic disorder (Communication/Speech and Language)</li> <li>• Usually has performance anxiety</li> </ul>
<p><b>Identity</b></p> <ul style="list-style-type: none"> <li>• Tomboyish or girly</li> <li>• Narrow interests</li> <li>• Rule follower/likes to please</li> <li>• Strong sense of justice</li> <li>• High expectations</li> <li>• Intense emotions</li> </ul>	<ul style="list-style-type: none"> <li>• May dress tom-boyish or ultra-princess like (Self-esteem and Identity)</li> <li>• Interests similar to peers but intensity is noticeable (Interests)</li> <li>• Has high expectations of self</li> <li>• May appease and apologise too much</li> <li>• May be on rule patrol</li> <li>• May experience intense emotional reactions and a high sense of justice</li> <li>• May appear highly sensitive, cry when frustrated, anxious or angry</li> </ul>
<p><b>Encircle</b></p> <ul style="list-style-type: none"> <li>• Challenges</li> <li>• Intervention</li> <li>• Classroom Strategies</li> <li>• Professional Development</li> </ul>	<ul style="list-style-type: none"> <li>• May have been diagnosed with ADHD, social anxiety, ODD or bi-polar, and/or an eating disorder</li> <li>• Autism traits hidden by learning difficulties, generalised anxiety and intense emotions</li> </ul>

In Table 7.3 Marshall’s checklist concurs with nearly all of the theme Social on the CASSIE wheel with one key difference. CASSIE identified that girls on the autism spectrum tend to position themselves on the outskirts of a group in the classroom and in the playground. CASSIE’s “positions herself on the outer of the group” was not identified in Marshall’s checklist. This observation is one that deserves further exploration in future case studies to investigate its prevalence amongst girls on the autism spectrum.

When evaluating the CASSIE theme Sensory, there were several variations between CASSIE and Marshall’s checklist for the Sensory theme. Anxiety was mentioned four times in Marshall’s checklist with specific examples of when anxiety may occur, as well as a general statement about anxiety. On the other hand, the CASSIE wheel focused on anxiety at school, where it was held in check and only released in the form of a meltdown at home. The examples of anxiety on Marshall’s checklist could be a reason for internalising general anxiety, as depicted on the CASSIE wheel. One significant difference is that the CASSIE wheel identified tactile learning as a preferred learning style, whereas this was not mentioned in Marshall’s checklist.

CASSIE’s key ideas for the theme Identity are also present in Marshall’s checklist. One difference is “rule follower” and “likes to please”, which are stated under one broader key idea in CASSIE, whereas Marshall separated them. Future case studies may justify separating them into two key ideas on the CASSIE wheel.

The four areas on the CASSIE wheel that comprise Encircle are explained in tabular form and include examples (Appendix I). The two key ideas on comorbidities and hidden traits on Marshall’s checklist are included in CASSIE under Challenges.

**Table 7.4**

*Comparison of CASSIE and Marshall – Other*

<b>CASSIE (2019)</b>	<b>Marshall (2013) What to Look for in School</b>
Encircle (refer to Table 6.10 for complete table) <ul style="list-style-type: none"> <li>• Classroom strategies</li> <li>• Challenges for teacher and student</li> <li>• Intervention</li> <li>• Professional Development</li> </ul>	<ul style="list-style-type: none"> <li>• May doodle on their books/paper</li> <li>• May display emotions that do not match the situation</li> <li>• May complain of headaches and/or stomach aches</li> <li>• May have more days off than her peers</li> <li>• Tendency to be disorganised or overly organised</li> <li>• May be bothered by lighting, classroom setup</li> <li>• May be viewed as a little philosopher</li> </ul>

Table 7.4 lists the themes from Marshall’s checklist that do not appear in CASSIE. This may be attributable to the higher number of cases and broader age range of girls covered in Marshall’s work. In contrast, CASSIE focused on two case studies in the early years, specifically ages 5 and 6. Traits that may have been observed in more cases and over time are “may complain of headaches and/or tummy aches”, “may be bothered by lighting” or “classroom set up”, and “viewed as a little philosopher”. I did not set out to observe particular phenomena but adopted an open approach to what would emerge from semi-structured, rather than structured observation. One example is from Bree’s observational notes: “Bree stopped cutting to draw crosses and ticks on her page”, which is similar to “may doodle on their books/paper” in Marshall’s checklist. While the items in Table 7.1.7 have not been explicitly included in CASSIE, similarities in wording and ideas are evident.

Table 7.4 also highlights the four areas of the theme Encircle that are integral to CASSIE but are not explored in Marshall’s checklist (2013). It is the Encircle component of the CASSIE tool that sets it apart from the work of Marshall (2013). Encircle’s sub-themes, Challenges, Intervention, Professional Development and Classroom Strategies have been expanded in tabulated form (Table 6.10) within the CASSIE tool. What differentiates CASSIE from Marshall’s work lies in the comprehensive, explicit yet accessible details that will be valuable for early years classroom teachers and also for parents. Twelve important indicators describe the key challenges for teachers, supported by interventions, professional development guidance and suggestions for appropriate classroom strategies. This provides a further layer of useful strategies and information that could be implemented in the classroom and also possibly in the home context. This has the effect of bridging theory around the characteristics to practice by applying Encircle, particularly the classroom strategies to assist teachers’ practices. Too often, general texts on conditions such as those displayed by girls on the autism spectrum, are difficult for teachers to make sense of in class; equally parents, too, find little help in extrapolating information to the realities of home and school. The Encircle component extends the overview of what to look for in the classroom with regards to girls and autism by also providing suggestions for real world application.

The combination of all six themes culminated in the development of the communication and support tool CASSIE for use in classroom settings that can be used as a framework for future planning of learning experiences either as a whole or pertaining to one child’s adjustments needed to their individual learning plan to further nurture autistic girls’ learning experiences. Encircle encompasses significant themes that sets CASSIE apart from

other work in the area of girls and autism by providing strategies to support teachers with communication, strategies and further understanding of how the female autism phenotype may present in the classroom.

### **CASSIE in Relation to Craft’s Checklist and The Little Black Duck’s Checklist**

Two additional checklists easily accessible online on observed female autism traits are by Samantha Craft (2016) in *The Little Black Duck* (2018). Both these checklists are general in nature, covering strengths, challenges and deficits, and are not specific to the classroom context like the CASSIE tool, but again, they contain similar, overlapping themes (Table 7.5).

**Table 7.5**

*Craft and the Little Black Duck theme comparison*

<b>Craft (2016)</b>	<b>The Little Black Duck (2018)</b>
Deep thinkers	Communication
Confusion	Behaviour
Words, Numbers, and Patterns	Social
Finds refuge when alone	
Executive Functioning and Motor Skills	
Escape and Friendship	
Social interaction	
Sensitive	
Identity	
Innocent	
Comorbid attributes	
Sense of self	

Craft (2016) created the “Females with Asperger’s Syndrome Checklist” comprising ten sections. It is not a diagnostic tool but based on personal observations of her own daughter who is on the autism spectrum. She believes the checklist can be used to enhance awareness and discussion around girls on the autism spectrum. The only section that does not overlap with CASSIE is “Sense of Self”. The words “sense of self” signal a fit with the Identity theme in CASSIE, but the traits were reported in such a way that they could only have been gathered from older females rather than young participants, as in this research



study. For example, it would be difficult to find out from observing a five-year-old that they “feel trapped between wanting to be herself and wanting to fit in”.

*The Little Black Duck* (2018) is the brainchild of a mother of children with autism, who created a business using her graphic design skills to develop communication tools. *The Little Black Duck* (2018) checklist, titled “Females on the Autism Spectrum” encompasses three themes: Behaviour, Communication and Social, with a section acknowledging that males may also exhibit these traits, but they are more commonly seen in females on the autism spectrum (The Little Black Duck, 2018). The three themes in *The Little Black Duck*’s (2018) checklist were identified from a broad context. Key ideas overlap with the Craft (2016) and Marshall (2014) checklists and the CASSIE tool (Table 7.3).

### **CASSIE in Relation to the DSM-5 Criteria**

Moving away from these texts that were designed to assist parents and teachers, the DSM-5, amongst others, was last updated in 2013 as a manual for health professionals. It is not sex or gender-specific and focuses on deficits, with stipulated criteria for a formal diagnosis and eligibility for support or funding (Taylor et al., 2016). Table 7.3 shows the first phrase in each of the five criteria required for a diagnosis under the DSM-5, which are assigned a severity level from 1 to 3 with 3 requiring the most support. The DSM-5 criteria are more detailed than the previously discussed checklists’ themes and headings, with only a few key ideas or explanations for each criterion. The DSM-5 (2013) is becoming a somewhat outdated source for determining a diagnosis; and controversy surrounds the umbrella term “autism spectrum disorder” in the last update. One point of contention is use of the word “disorder” because it is becoming more accepted, particularly in the autistic community, that autism is a neurotype or condition rather than a mental disorder. The view that autism is a disorder that can be cured is reflective of the medical model approach, lagging behind anecdotal and clinical observations of the female autism phenotype (Marshall, 2014). No specific changes appear to have been made to DSM-5 diagnostic criteria to reflect this in the foreseeable future.

**Table 7.6***DSM 5 criteria overview for an autism spectrum disorder diagnosis*

<b>DSM (5) (2013)</b>
A Persistent deficit in social communication and social interaction
B Restricted, repetitive patterns of behaviour, interests, or activities
C Symptoms must be present in the early developmental period
D Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning
E These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay
<b><i>Specifier severity levels</i></b>
<i>In relation to social communication and restrictive, repetitive behaviours</i>
Level 3 Requiring very substantial support
Level 2 Requiring substantial support
Level 1 Requiring support

Once a diagnosis is made using the DSM-5 by a specialised practitioner, such as a paediatrician, support at school is limited, particularly for females on the autism spectrum (Jarman & Rayner, 2015; Singer, 2017). Funding may be offered for intervention. However, as knowledge of autism is still emerging, education about how students, particularly females on the autism spectrum can be supported in schools is still in its infancy (Jarman & Rayner, 2015). Consolidating medical and social knowledge on autism, including how males and females differ in presentation, will assist in providing better support to autistic students at school. Professionals with an understanding of autism are required for diagnosed students to acquire support and medication (Singer, 2017). This research study, focused on girls on the autism spectrum in the primary classroom, was aimed at ensuring that girls are no longer invisible in the school system and are provided with appropriate support for their learning.

### **CASSIE in Relation to the Four Described Checklists**

Unlike the Marshall, Craft and The Little Black Duck checklists, as the authors name their lists, and the DSM-5, the CASSIE tool (Appendix I) highlights agreement on overarching autism themes, with some variations and different categorisation of key ideas (Table 7.7). The similarities verify the robustness of the CASSIE tool and the findings on which it was based. The CASSIE tool and the three checklists are all female-focused, whereas the DSM-5 is not gender-specific, which could explain the fewer, missed or later diagnoses of females.

**Table 7.7**

*Comparison of female autism traits*

<b>CASSIE (2019)</b>	<b>Marshall (2013)</b>	<b>Craft (2016)</b>	<b>The Little Black Duck (2018)</b>	<b>DSM (5) (2013)</b>
Communication	Non-verbal body language Communication/Speech and Language Theory of Mind	Deep thinkers	Communication Social	Persistent deficits in social communication and social interaction
Academic	Memory Cognitive Abilities	Deep thinkers Confusion Words, Numbers, and Patterns Executive Functioning and Motor Skills	Behaviour Communication	Restricted, repetitive patterns of behaviour, interests, or activities
Social	Social and Friendship Play	Escape and Friendship Social interaction Finds refuge when alone	Behaviour Social	Persistent deficits in social communication and social interaction  Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
Sensory	Self-soothing behaviours Sensory sensitivities Fine and Gross Motor	Comorbid attributes  Sensitive	Social	Restricted, repetitive patterns of behaviour, interests, or activities
Identity	Emotional Interests Self-esteem and Identity Imagination	Identity  Confusion  Innocent	Behaviour	Restricted, repetitive patterns of behaviour, interests, or activities
Encircle	What to look for in school Talents, Gifts, Strengths Learning challenges or conditions that impacted learning  Co-existing Conditions *these themes had keys ideas found across CASSIE	Comorbid attributes		These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay
	Developmental Milestones	Sense of self		Symptoms must be present in the early developmental period  These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.

The DSM-5 focuses on deficits in social communication and interaction as well as repetitive and restrictive patterns of behaviour, without providing a holistic view of the world of an autistic person and little insight into its presentation in females (Ranson & Byrne, 2014).

A comparison between Marshall (2013), Craft (2016) and The Little Black Duck (2018) checklists and the CASSIE tool shows a similarity of traits pertaining to females. The CASSIE tool indicates that many female autistic traits identified in a general context are also commonly found in the classroom (Table 7.10). The traits commonly associated with autism but not identified by CASSIE are not necessarily invalid; they were just not identified during the time the case studies were conducted.

The themes identified in the Craft (2016) and The Little Black Duck (2018) checklists may overlap in Table 7.7, as key ideas of some themes appear in different themes on the CASSIE tool. For example, Craft's theme "Deep Thinkers" is listed under two CASSIE themes, since some of the key ideas relate to both Communication and Academic. Also, in The Little Black Duck checklist, Communication and Behaviour is listed more than once and some of the key ideas have been identified under CASSIE's themes of Communication and Academic. Compared to CASSIE, there were no repeated themes in Marshall's work.

Like the checklists, the CASSIE tool includes strengths in line with the social model approach, with a focus on traits thought to be more prominent in females. The difference between the CASSIE tool and the checklists is that the CASSIE tool focuses solely on the classroom context and has an added Encircle component that includes a further explanation of challenges, intervention, professional development and classroom strategies that affect other CASSIE themes. The extended theme, Encircle, is beneficial for parents, teachers and health practitioners who work with girls on the autism spectrum, to understand what will support girls' learning and development (Sherratt, 2005).

### **The Medical and Social Models of Autism Spectrum Disorder**

The literature review in Chapter 2 identified multiple models of disability. However, the two most frequently referred to in autism discourses are the medical model and the social model – these are inherently dichotomous. The medical model, with a deficit focus on autism spectrum disorder according to the DSM-5, does not support parents, teachers and autistic students in their daily living, let alone learning in the classroom. Rather, the medical model insinuates a stigma associated with the term "disorder" as something "wrong" that requires

“fixing”, even when the perceived negatives could in fact be a strength or unique ability (Angulo-Jimenez & DeThorne, 2019).

The social model proposes more than one perspective, but essentially that autism is a social construct whereby society determines what is a disability and ability and how they are approached (Mitra, 2006). The social and medical models are in opposition to one another – the latter focuses purely on disability, whereas the social model draws attention to autism as a spectrum and showcases abilities. Although the social model exposes the social inequalities encountered by people on the autism spectrum, it acknowledges that it is not the person with the disability who needs to change, but society that needs to change its perspectives on autism (Shakespeare & Watson, 2002). The neurodiversity paradigm for understanding autism is sometimes considered an “out-growth” of the social model in that it acknowledges the need for support (Angulo-Jimenez & DeThorne, 2019, p. 570).

The supportive framework derived from this research project in the form of CASSIE does not fit the medical model, whereby someone is seen as being sick due to injury or disease (Mitra, 2006). Rather, it reflects the social model, where explanations evolve as society changes (Finkelstein, 2007). Classification according to deficits is not a helpful or supportive approach, since it does not recognise or celebrate the strengths that also come with an autism diagnosis. A move towards including autism in the social-model realm without exclusion from the medical model should be considered in future research by redefining autism as a neurotype instead of a disorder (Angulo-Jimenez & DeThorne, 2019). The CASSIE model is located firmly within this latter perspective.

Disassociating autism from the notion of being a mental disorder and moving towards a more holistic view of how it manifests in the real world means that the strengths inherent in this different way of thinking are not ignored. A different way of thinking simply means autistic students will learn about the world in a different way (Sherratt, 2005). The CASSIE tool has been developed to assist parents, teachers and school support staff to understand and support the learning of girls on the autism spectrum in early years classroom and to cope more broadly.

Learners are generally variable, bringing their own experiences and genetic makeup to the classroom (Boser et al., 2014). At the same time, a student’s ability to learn also depends on the learning environment (Boser et al., 2014). Understanding that the way girls on the autism spectrum learn varies, means teachers can better plan for appropriate learning environments and learning experiences that not only support them, but benefit all students. This flexible instructional and curriculum design framework is called Universal Design for

Learning (UDL). It is a pedagogical approach that provides multiple opportunities to minimise learning barriers because it focuses on the needs of learners (Boser et al., 2014). UDL principles are: multiple means of representation (what we learn); expression (how we learn); and engagement (why we learn) (Goodall, 2015). Effective inclusion of autistic students will require numerous flexible approaches in the classroom that meet the needs of the student rather than the student adapting to the classroom environment (Goodall, 2015). Using the CASSIE tool, the UDL approach will particularly benefit girls who have not yet been identified as being on the autism spectrum from a perspective where difference is not denied but valued (Goodall, 2015).

### **Applications of CASSIE**

CASSIE incorporates the characteristics of girls on the autism spectrum as they presented in two in-depth studies of girls in early childhood classroom environment. The literature review pointed out that girls often mask or camouflage typical autism traits, resulting in a missed diagnosis or misdiagnosis (Boorse et al., 2019; Cleaton & Kirby, 2018). Those who can mask such characteristics or who are misinterpreted can become “invisible”.

The term “invisible” refers to diagnosed and undiagnosed girls on the autism spectrum, since the CASSIE tool and associated literature put forward possible reasons why fewer girls are diagnosed than boys (Table 7.8). The DSM-5 (2013) stated that females go unrecognised due to “subtler manifestations of social and communication difficulties” (p. 57).

**Table 7.8**

*Reasons why girls on the autism spectrum are often “Invisible”*

<b>The Invisible Girls</b>
Masking traits
Traits vary between girls and boys
Being quiet or shy is accepted as a normal ‘girl’ trait – not disruptive
Social but more so with adults
Capable but not always shown in work
Bullying not noticed in the early years – unwittingly excluded by peers due to preference to play independently
Misconceptions that autism is a ‘boy’ condition
Deficits are seen as strengths and vice versa.

Focusing on a social model, whereby autism is identified as a neurology, will enable a better understanding of autism in girls, not only in a schooling context but also in a medical milieu where the diagnosis takes place. This holistic view of autistic strengths and challenges, rather than just deficits, will allow for better understanding and earlier identification of girls on the autism spectrum. What the medical model identifies as deficits, the social model may identify as strengths.

Girls on the autism spectrum require a varied approach to their learning in the classroom. Employing the CASSIE tool in a classroom as part of a UDL approach may also cater for students who have not yet been identified as being on the autism spectrum. Teachers who know how their students learn are often more involved in the initial identification when a referral for a diagnosis is sought. Therefore, they require more education on supporting students on the autism spectrum, particularly the invisible girls (Marshall, 2014). The teachers in this study acknowledged their need for not only understanding autism, but also adapting to students' needs and strengths in support of their learning (Goodall, 2013).

Parents also want shared dialogue with teachers about their child's needs in education (Sherratt, 2005); the parents who participated in this study echoed Sherratt's findings. The CASSIE tool provides a medium for cross-communication between parents, teachers and other stakeholders to assist with identifying and implementing appropriate supports for the invisible girls to enhance their learning in the classroom.

## **Conclusions**

The purpose of this qualitative, in-depth study was to identify how girls on the autism spectrum present in early years classrooms, and how they can be better supported through understanding and appropriate strategies. The objective was to extend what we already know about autism and develop new knowledge and insights about the school context, with a specific focus on girls who are quite often invisible in early years classrooms, resulting in fewer diagnoses. From the findings and analysis, a CASSIE communication tool was developed (Appendix I) to facilitate change in the classroom and providing a framework for teachers to extend support to female students with and without an autism diagnosis for better learning outcomes. This discussion sought to strengthen the findings by situating CASSIE within the literature and evaluating its theoretical rigour, ready for practical use in the classroom. The CASSIE tool was developed from both the current literature and the experiences and voices of those who matter most – girls on the autism spectrum and their parents and teachers who work tirelessly to ensure they are no longer invisible.

## Chapter Eight: Conclusion

The discussion in the previous chapter argued that the CASSIE tool, derived from the primary research conducted in this study, had been rigorously reviewed in light of the existing literature. As a theory-building study, this discussion was significant in determining the quality of the findings, especially in relation to the robustness of the CASSIE tool.

This chapter concludes the study by bringing together the different components of the thesis and assessing them holistically. It includes four sections. The first is a critical summary of what the research achieved, followed by a justification of the study. The second section considers the implications of the findings and evaluation of the CASSIE tool; while the third section considers the limitations of the study, leading to the fourth section, which recommends areas for future research.

### **A Critical Summary of the Research**

This research was aimed at increasing the limited literature on girls on the autism spectrum by addressing two research questions:

1. What are the (varied) behaviours and characteristics of girls on the autism spectrum in early years classrooms?
2. How can girls on the autism spectrum be best supported in their learning in early years classrooms?

To address these questions, I chose a case study methodology with the intention of providing an in-depth study on two girls. In view of the problem, I deemed it more important to obtain a deep understanding of the situations and contexts of fewer cases, rather than a broader study of multiple examples. Two girls in the early years of schooling were the ideal participants, although they were never directly involved in the data collection since the primary method of collecting data was through observation. Alannah and Bree were observed in their preparatory year over an extended period of seven to nine months. After gaining permission from the parents and in compliance with Human Ethics requirements, the girls themselves were never aware that they were being observed, adding to the authenticity of the study. The second source of data was interviews with the girls' teachers and their mothers. Two in-depth, semi-structured interviews were conducted with each party, one at the start of the observation period and one at the end. Extensive individual case analyses and cross-case analyses resulted in identification of five main categories of findings related to the girls' behaviours in class, and to a lesser extent, at home. The five categories were:



Communication; Academic; Sensory; Social; and Identity. A sixth theme to emerge from the data analysis was Encircle, which encompassed the provision of care, intervention and support. Together, these six themes were developed into a conceptual framework, CASSIE, forming the basis of a tool that has been critically evaluated in the discussion chapter against a broad range of relevant literature. The research findings and the CASSIE tool identify traits that are specific to the female autism phenotype (FAP) and propose classroom strategies based on FAP.

CASSIE is the culmination of layers of deep research; a comprehensive tool with several important facets for future users. First, it provides a framework for teachers who need to have a conversation with parents about their daughter when they've identified characteristics requiring referral to a paediatrician. Second, it is a tool for pre-service teachers to go into the classroom with solid knowledge about girls and autism. Third, it's an important guide for teachers working with girls on the autism spectrum. Finally, the CASSIE tool challenges the medical view of autism as a deficit model based mainly on a male autism phenotype.

Overall, therefore, this study has made an original and substantive contribution to knowledge in that it has extended the literature on the education of girls on the autism spectrum in the early years of schooling. It provides insights into the behaviours of such girls as they manage their socialisation and learning in unique ways. Evidence from the study demonstrates that the presentation of FAP is varied and complex. Additionally, the findings add to Marshall's (2013) clinical work on girls and autism by examining the phenomenon in a classroom rather than a psychologist's clinic. Marshall's findings, based on 20 years of clinical experience, concur with the findings of this study, offering intellectual strength and applicability to the CASSIE model. Finally, CASSIE will assist teachers, parents and health professionals to improve educational experiences for girls on the autism spectrum who are diagnosed and undiagnosed. The research will be of value to teachers, parents, support practitioners and autistic girls who will benefit from the implementation of the CASSIE tool. The CASSIE wheel will not only serve as a communication tool for parents and teachers, but also a discussion tool when starting out on the diagnostic journey.

With regard to CASSIE's applicability, I have conducted informal follow-ups by sending the model to research participants and other interested parties for comment. The first version of the CASSIE tool and associated explanatory notes were emailed to the teachers and parents who participated in this research, as well as the schools' deputy principals and Bree's special needs teacher. In the email I explained that it was a working draft and would

welcome feedback. The feedback (detailed in Appendix M) received on the CASSIE tool was positive and is summarised below.

Alannah's mother via informal conversation:

*"This is a really good resource. All teachers and schools need this".*

Alannah's Deputy Principal via email:

*"I am very impressed with your CASSIE wheel as it is a simple yet effective tool for teachers to use. Good luck with your conference. I'm sure you will be well received. With your permission, I would like to share your findings with some of our staff in the Learning Enhancement department as well as my classroom teachers. I'm sure they will find it very interesting."*

Bree's teacher via an informal conversation at school in term 3, 2019:

*"Yes, I received it and would like the updated version when it's ready".*

Bree's Special Needs teacher via email:

*"Thanks for sending us the CASSIE tool. It will be a great resource to have as girls can be tricky. I particularly relate to girls often being very good at school but melting down at home and preferring to talk to adults. Their perfection can make it difficult for me to verify as there is nothing that is evident at school, however parents report difficulties at home. It has reminded me to check on one of my students and to offer morning transition into school at the unit if necessary. Thank you for sharing. Great work and certainly needed."*

I also delivered a round-table paper on the CASSIE wheel at the Australian Association of Research in Education (AARE) conference held in Brisbane in December 2019. During the presentation I requested feedback from the attendees to determine the best terminologies to use in the CASSIE wheel. After sharing my conference paper on social media, a number of people requested copies of the presentation paper. Two people responded with positive and constructive feedback.

Mother of a teenage girl on the autism spectrum and wife of a man with a late diagnosis of autism: *"Your wheel is really good. I can see early childhood teachers really liking this tool and using it. I would love to see it used to train student teachers too."* (Excerpt)

PhD candidate and mother of a pre-school aged girl on the autism spectrum: *"Wow Jilly. No wonder that was received so well. What a brilliant tool for teachers. I would love to give that to (daughter's name) teachers so they can understand her better. Thank you for such an important contribution. Obviously, as a mum, it pleases me, and as a researcher it pleases me. Wonderful job and so interesting."*

In March 2020, a teacher and parent of an autistic boy in the Northern Territory, Australia, reached out to me via Facebook to discuss a business she wanted to start, supporting and facilitating the implementation of individual education plans (IEPs) and acting as a communication channel between parents and schools. During our meeting via an online video communication tool, I shared the CASSIE tool and how it could be used with her. She believed this communication tool “*is needed*” and said that I “*need to write a book about this, particularly on anxiety and autism in general*” as it was the topic of our discussion and referenced in my CASSIE wheel. It was reaffirming to receive this feedback from not only a teacher, but also the parent of a child on the autism spectrum who is an activist for children with disabilities.

Through this research I have gained insights into how girls on the autism spectrum learn in typical early-years learning environments and clarified the similarities and differences between two diagnosed girls. People who understand the learning needs of girls on the autism spectrum and the girls themselves usually have one, possibly two, perspectives – theirs and one other. In this study, multiple perspectives have been drawn together from parents and teachers, the ethics committee, the research literature and immersion in the girls’ learning environment. The experience of receiving, collating and developing theory around multiple perspectives has broadened my knowledge and understanding about girls on the autism spectrum in the early years.

This critical summary has, to some extent, justified the study and assessed the significance of its contribution to our knowledge and understanding of girls on the autism spectrum. Nevertheless, there are some important points to be made. The findings gained from the participants in this study are distinct from other studies as it was very difficult to: (i) obtain permission to observe children at a young age; (ii) obtain ethics approval as identified in Chapter 3 because it is difficult to recruit children participants; and iii) parents and schools expressed some trepidation about possible negativity and judgement. For all these reasons the study needed to be handled with care and open communication, which resulted in a positive outcome for disseminating the findings and for the participants involved. The research has successfully addressed the research questions, and the CASSIE wheel has extended the theory into practice.

Prior to collecting and analysing the data, the literature review uncovered many views on autism and how it manifests. I learned from this research that there isn’t just one phenotype for girls on the autism spectrum and multiple strategies may be needed in the classroom over time.

## **Implications and Significance**

Numerous implications for positive change in primary classrooms emanated from this research, evidenced from the early feedback provided by parents and teachers on the development of the CASSIE tool. It is widely acknowledged that a breakdown in communication exists between medical staff and schools, parents and other educational professionals (Carpenter et al., 2019) in terms of speaking the same language. The CASSIE tool provides a common language for improving communication between parents, teachers and health professionals and will enable implementation of appropriate supports for autistic girls to enhance their learning experiences at school. The following sections describe the benefits of the CASSIE wheel for each key stakeholder. Research and specific implications apply to early years of schooling but may also extend to later years of schooling.

### **Teachers**

Teachers spend a large amount of time with their students, so it is understandable that they need to be equipped with knowledge on autistic presentations in girls to be able to provide appropriate learning supports. Teachers are often the first to identify a child with social, communication and academic challenges. The CASSIE wheel is a resource that will assist them to identify the characteristics of autistic girls with or without a diagnosis and allow them to cater to their individual learning needs, thus promoting inclusion within the classroom. The CASSIE wheel also acts as a communication tool when teachers need to approach parents with a potentially difficult conversation about their child. CASSIE not only provides a common language but is also a visual tool that enables a student-focused conversation with a positive outlook. Using the CASSIE tool, teachers can identify specific characteristics in their students and adjust classroom activities according to their needs. Classroom strategies can be integrated into teachers' pedagogical practice alongside their growing knowledge and understanding of FAP. The increased knowledge base on teaching autistic girls through professional development and access to CASSIE will also enhance teachers' confidence to assist girls on the autism spectrum and help them reach their social and academic potential at school.

### **School Leaders and Heads of Special Education**

Schools are increasingly moving towards a UDL approach to promote inclusivity, which is particularly helpful for students who may not yet have received a diagnosis. Working with Heads of Special Education, school leaders can adopt a whole-school approach

to learning by including CASSIE as part of their guidelines for common language and understanding about autistic girls. More awareness and understanding of the FAP will improve communication between all stakeholders and particularly with parents.

Whole-school professional development using the CASSIE wheel as a learning tool together with explanatory notes on the topic of girls on the autism spectrum can be provided to all staff as a resource. The pictorial version of CASSIE (Appendix M) may function as a visual reminder for staff and students who are old enough to be mindful of the neurodiversity of students without identifying any individuals. Teachers who are supported by their school leaders will be confident and knowledgeable to provide strategies that will benefit students on the autism spectrum and therefore build a more inclusive school environment.

### **Parents**

Parents know their children best but communicating their child's needs to the school may prove more difficult. The CASSIE tool provides a common language for open communication between teachers and parents to mutually understand and determine the best ways of supporting a child at school. The CASSIE tool can also assist as a source of shared information with external health practitioners, such as therapists and paediatricians, particularly useful for providing evidence of a potential diagnosis or follow-up consultation. Knowing that their child's learning is being catered for at school will increase parents' confidence and reassure them that their child's needs are being met outside the home.

### **Allied Health Professionals and Medical Practitioners**

CASSIE has a dual purpose: it provides for two-way dialogue between teachers and parents to facilitate communication, and at the same time, serves as a medium for teachers and parents to communicate with medical and allied health practitioners. Discourse in the medical world can be daunting for parents and difficult for teachers to decipher and implement in their classroom. However, CASSIE provides a common language for communication between parents and teachers. It can be used as one piece of evidence in seeking an autism diagnosis, minimising confusion about the FAP presentations, and may also reduce the time for receiving a diagnosis due to more effective, child-focused, two-way communication.

### **Pre-service Teacher Education (Early Childhood)**

As a teaching resource, the CASSIE wheel provides initial education and understanding of the FAP. It can also be used as a reference tool on practicums and

accompany pre-service teachers when they become registered classroom teachers. With the CASSIE tool on hand, pre-service teachers will have access to foundation knowledge of autistic girls in early years classrooms to facilitate identification and early referrals to a specialist. In turn, this will enable earlier intervention and lead to better educational outcomes for autistic girls.

## **Community**

The need for acceptance of autism in the general community prevails. Sharing knowledge brings about greater understanding; and highlighting FAP with a focus on strengths is a positive way of reducing stigma and increasing acceptance. Over time, education will change community perspectives on autism and how it presents in girls. The CASSIE tool provides the autism community with a common language to talk with schools and health practitioners about their autistic girls, and is likely to be comforting for parents. Validation of the FAP through the CASSIE tool will engender reassurance that autistic girls are finally becoming visible and being supported at school.

## **Autistic Girls**

The most important implications are for girls on the autism spectrum who were the focus of this study. Unequivocally the most important years of a child's school experience (Guernsey & Ochshorn, 2011; Ho, 2012; Tayler, 2013), this study will have achieved one of its overarching objectives if the early years for girls like Alannah and Bree improve through greater knowledge and more effective communication between parents, teachers and health practitioners. Previous research (Grolnick et al., 2013; Martin, 2013) emphasised cooperation between parents and schools for enhancing children's achievement, and CASSIE is the ideal tool for bringing about awareness and recognition of girls on the autism spectrum. Autistic girls will finally have the opportunity to learn in an inclusive environment where their strengths and challenges can be identified by teachers and they are catered for more effectively. It is hoped that increased visibility will improve their learning experiences at school and positively influence their future learning, leading to better academic and social outcomes.

## **Limitations**

This qualitative research study was aimed at providing in-depth understanding about the learning needs of girls on the autism spectrum in primary classrooms. The limitations are

mainly those concerned with all case studies: questions around generalisability and transferability, and applicability of the findings across broader contexts.

There were few limitations regarding the method of sample selection. Although unplanned, the fact that the two case studies were at different schools – one state and one independent school in the same metropolitan area in the North of Brisbane, Queensland – was beneficial. Despite the number and duration of observations, it is acknowledged that the complex perspectives regarding girls on the autism spectrum couldn't be fully captured. During the data collection phase for both case studies I realised that time was a limitation. However, focusing on two case studies that involved longitudinal observations and multiple interviews with different participants provided quality, in-depth data within set time frames that may not have been possible with more participants. Any sample set of observations can never be wholly complete, but the richness of the data and the strength of the findings suggest that the study is a rigorous piece of research, strengthened by the development of a practical tool that stands up to theoretical evaluation and scrutiny.

### **Case studies – Generalisations and Transferability**

Generalisability is different in qualitative research than quantitative research in that “it goes beyond how much there is of something to tell us about its essential qualities” (Miles et al., 2014, p. 282). Nevertheless, as Yin (2009) suggested, “multiple cases studies resemble multiple experiments” (p. 38). This is called analytic generalisation and compares previously “developed theory against the empirical results of the case study” (Yin, 2009, p. 38). The findings from these two-case studies were compared to the series of FAP traits identified by Marshall (2014), *The Little Black Duck* (2018) and Craft (2016) to identify similarities and differences in the traits of girls with autism. With these findings in mind, the CASSIE tool, developed from the cross-case analysis, appears to support transferability into early years classrooms (Miles et al., 2014). The conclusions and the CASSIE tool provide a rich source of information about autistic girls that can be further tested in other contemporary contexts (Miles et al., 2014).

### **Future Directions**

The framework of this research project can be used to conduct further case studies for reinforcing and extending the hypothesis that girls on the autism spectrum are not merely defined by deficits but possess strengths that make them unique but often invisible in a schooling context.

The following suggestions for future empirical research are made in light of the limitations, the assessment of CASSIE and the advice of researchers like Marshall (2013) who pointed out that academic research often lags behind anecdotal, observational and clinical work. Future directions could include:

1. Broader empirical research on the use of CASSIE as an interventionist tool in practice in the classroom. This would be the next logical step involving teachers, parents and health professionals. The CASSIE tool would need to be made freely available to schools, parents and health practitioners.
2. Further research observing more girls on the autism spectrum to extend what is currently known about the female autism phenotype (FAP) across a range of year levels. Future research could adopt the same methodology of interviewing parents and teachers of girls with an autism diagnosis and observing students in the classroom and playground, potentially in other school districts and different socio-economic areas. Examining the same age group or female students above the age of six will add breadth to the current findings. New evidence could be compared and contrasted in the same way as the cross-case analysis in Chapter 6. Future research would also be able to track changes in the progress of earlier diagnoses of girls, as well as the development of support strategies for teachers.
3. Future studies could use the CASSIE wheel as a theoretical framework for identifying additional classroom strategies and interventions to support the learning of girls on the autism spectrum, while also validating the CASSIE wheel for other year levels. New studies could either follow the progress of participants in this research or extend the period of observations and interviews from the early years of schooling through to high school. It would also be beneficial to capture the voices of the students with regard to the barriers highlighted in this research. Studies on a larger scale will require a group of researchers to conduct the research but would add to the robustness and generalisability of the CASSIE tool.

Another area of research stemming from this study is the socialisation of girls on the autism spectrum in the school playground, to determine the most effective social programs as they develop through their school years and transition to puberty. This research project has only provided a glimpse of the playground lives in each case, worthy of further investigation, particularly since bullying is an issue in schools, regardless of neurology.

Another direction for future research is to dive deeply into each facet of CASSIE and further refine and develop each theme, particularly the interplay between them. The more



research there is on the female phenotype, the better we will understand girls on the autism spectrum in the classroom context and refrain from pathologising this complex neurology. All these future research directions will continue to build our knowledge and understanding of girls on the autism spectrum and how they can be better supported in primary school.

### **Coda**

Autism does not have to be seen as problematic in the classroom. De Clerq (2011) suggested that schools start by looking at the possibilities for a child with autism instead of focusing on the deficits. Buckingham (2019), who is herself autistic, described autistic individuals as having “a unique set of abilities that others do not have” (p. 25). People on the autism spectrum are beginning to demonstrate that “‘neurotypical’ is not the only way to be, or even the best way to be” (Singer, 2017, p. 1195). The concept of neurodiversity should be adopted in the classroom by educators, so that they are looking at each child’s individual needs for a positive schooling experience.

Over time, autism has become more recognised as a neurotype as opposed to a neurotypical brain, a dominant neurological type or neurotype and “a term coined to sideline with the word ‘normal’” (Singer, 2017, p. 404). Neither one is better or worse than the other; the neurotypical brain is “designed to facilitate socialisation” and the autistic brain is designed “to focus on understanding the world around us” (Castellon, 2020, p. 31). Girls on the autism spectrum require adjustment and support to assist with living in a more neurotypical world and CASSIE provides a good starting point. Implementing the strategies proposed by the CASSIE tool may not affect neurotypical children, but will certainly not be a hindrance (Sherratt, 2005).

The rigorously tested CASSIE tool will not only benefit teachers and parents, but the wider support network and girls on the autism spectrum, whether diagnosed or not. The findings and analysis indicate that CASSIE (Appendix I) will facilitate change in the classroom and provide a resource for teachers to support female students for better learning outcomes. The researcher sought to strengthen the findings by situating CASSIE in the literature and evaluating its theoretical rigour and readiness for immediate, practical use in the classroom. As such, the CASSIE tool represents a culmination of current literature and the experiences and voices of those who matter most – girls on the autism spectrum like Alannah and Bree.

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# Appendices

## Appendix A - Sunday Mail newspaper article 28<sup>th</sup> January 2018

### AUTISM IN GIRLS: WHY IS IT BEING MISSED?

In primary school, many more boys than girls are diagnosed as being on the autism spectrum, but experts say this doesn't reflect its true prevalence. Lynne Testoni discovers why girls are still going under the radar



**19%**  
The percentage of children diagnosed with autism spectrum disorder under the age of seven that are girls. Boys make up 81 per cent.

SOURCE: La Trobe University

**A**urora Greenall was 14 and struggling with the many complexities of high school when she learnt what was different about her – and why she found social situations so hard. Her mother, Jennene, says that Aurora was in a psychiatrist's waiting room when she found the book *All Cats Have Asperger Syndrome*. As Aurora read the picture book – described as a playful look at Asperger's and the autism spectrum – something clicked inside her head and she knew that was what she had. It was then confirmed by professional testing. Although there's debate over the terminology, Asperger's syndrome is generally seen as a form of high-functioning autism. Technically, though, the diagnosis no longer exists. All autism, including Asperger's, is now known as autism spectrum disorder (ASD), but many of those with high-functioning autism still prefer the term Asperger's.

Aurora, now 19, says that having the formal diagnosis and subsequent treatment helped her a great deal. "It meant that I have a better sense of my limits," she says. "It's also opened up a couple of doors for me... I was able to join groups that were really helpful, and I made some friends through that."

Jennene says Aurora's diagnosis of ASD also assisted her significantly as a parent. "Parenting of a child on the spectrum can be isolating... if you don't have a diagnosis, you can't develop a deeper understanding of why there are issues," she says. "So, it's brought a lot of understanding and acceptance of myself as a parent. And it's given me permission to be easier on myself."

**THE DIFFICULTY WITH DIAGNOSIS**  
While Aurora was fortunate to find support and successful treatment,

her ASD diagnosis came 10 years later than the Australian average. And this isn't uncommon for girls.

A recent study by La Trobe University in Sydney found that between 2010 and 2012, the average age for ASD diagnosis in Australia was four years and one month. The same study also showed that of all the children under seven who are registered with the Federal Government's Helping Children with Autism Package, a staggering 81 per cent are male.

So why are so many more boys with ASD diagnosed earlier than girls?

Professor Tony Attwood, a world expert in ASD who treated Aurora and runs the Brisbane-based Mins & Harts clinic, says that experts used to think that boys were 10 times more likely to have ASD than girls, but that's not the whole picture. "When you look at primary school, it's about 10 to one," Attwood says of diagnosis rates. "When you look at high school, it's about four to one. When you look at adults, it's about two to one."

He says this disparity doesn't mean that boys are more prone to ASD – "it means we're missing the girls."

**"Girls with ASD see themselves as different. Often this has considerable psychological consequences... The wheels fall off in high school"**  
— Professor Tony Attwood

b+s 07

Girls on the autism spectrum can present differently from boys, which is why they're often misdiagnosed. Rudy Simone, who has ASD and has founded an international support organisation for women with the condition, says differences include being more expressive in the face and with hand gestures than ASD males, being more capable of talking about their feelings and being less likely to have an unusual fixation, among others (see box, right). Indeed, Hans Asperger only looked at boys when identifying the syndrome named after him.

**MISSING OUT ON ESSENTIAL SUPPORT**  
Attwood says that a lack of awareness of these differences often means that girls with ASD are missing out on identification and help when they need it most.

"[Girls with ASD] need support and guidance socially," he says. "The other thing is a sense of self – they see themselves as different [which] has psychological consequences in terms of the potential for depression, that of 'not knowing who I am'. It also exacerbates anxiety, eating and borderline personality disorders. The wheels fall off in high school."

He confirms that Aurora's experience in high school of being overwhelmed and having a minor breakdown is common for girls with ASD.



**AUTISM AND GENDER: WHAT YOU NEED TO KNOW**

**WHAT IS ASD?**  
Autism spectrum disorder (ASD) is characterised by difficulties in behaviour, social interaction, communication and sensory sensitivities. It ranges from low-functioning autism, with patients with severe developmental difficulties, up to high-functioning autism, often called Asperger's syndrome.

**WHO HAS IT?**  
In Australia, it's estimated that one in 100 people is diagnosed with autism spectrum disorder.

"One of the things that [ASD] girls will do in primary school years is to become a tomboy," Attwood says. "If they have a group of friends it can often just be boys because boys are less complicated, boys are doing things, whereas girls tend to be talkative, 'huggy and feely', and mean in ways that girls [with ASD] don't often understand."

"When you get to high school, it's more difficult to be a tomboy. I find that many [ASD] girls still prefer to be with boys because they feel comfortable and relaxed, whereas they feel more vulnerable when they're with girls."

Psychologist Ramona Toscano, of the Diverse Minds Psychology Clinic in Sydney, specialises in working with girls who are on the autism spectrum. "One of the big things we tell our families when they come here is that we don't treat autism – there's nothing to treat," she explains. "It's the difficulties that are associated with it that we treat."

"What we're doing in therapy is looking at ways to manage anxiety, how to manage mood or learn social skills and [learn about] relating to family members and to other people."

"It's really not the autism that we're treating, but we do it in an autism-friendly way, because we know that the way [autistic kids] process information is very different to the other people that we'd normally see."

Boys are about 10 times more likely to be diagnosed with ASD than girls, but by adulthood that ratio lowers to about twice as likely, Attwood says.

**HOW DO SYMPTOMS DIFFER IN GIRLS?**  
According to Rudy Simone, founder of the International Asperger Society ([aspergirlsociety.org](http://aspergirlsociety.org)), some key differences in how ASD presents in females are:

- Girls with ASD are usually a little more expressive in the face and with hand gestures than boys.
- The girls will have obsessions like boys do, but they're not as unusual as their male counterparts' and tend to be more practical.
- They're more open to talking about feelings than boys with ASD.
- Adult females are prone to temper and crying meltdowns, sometimes over seemingly small things due to sensory or emotional overload.
- They're less likely to stutter than male counterparts when stressed.
- They're better at socialising in small doses and may even appear to be skilled, but it's a performance, and they'll still shut down in social situations once overloaded.

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# System failing autistic children

**EXCLUSIVE SUE DUNLEVY**

AS DIAGNOSES of autism skyrocket – and support systems fail to keep pace – some parents have resorted to enrolling their children in private schools.

Melinda Spencer said she paid her autistic son \$5 a day to attend school for five years because it was the only way she could get him to attend a place he saw as full of confusion, noise and stress.

Autism diagnoses have skyrocketed by 25 per cent in the past three years and it is now the largest group within the National Disability Insurance Scheme.

Despite the rise there has been no improvement in employment and education outcomes for those with the condition, according to the latest Australian Bureau of Statistics data.

About half the young people with autism aged five to 20 years (450 per cent) indicated they needed more support or assistance at school than they were receiving.

Autistic people were half as likely as other people with a disability to complete an educational qualification beyond school, the ABS found.

The labour force participation rate of autistic people was 28 per cent compared with 53.4 per cent of all working age people with disability and

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## GEORGE IS TARTAN UP ROYAL IMAGE

**NEW IMAGE: Prince George, Prince Charles, the Queen and Prince William in the throne room. Picture: Rainer Mueschle**

THE royal family has released a busy new portrait to mark the start of the new decade – and also deliver a subtle message to their kingdom, which is far from united.

The Sun's Royal Correspondent, Emily Andrews said: "It's a lovely family portrait but, as ever, with royal iconography, it's much more than that. After a difficult year for the royal family, the Queen is showing that the next decade, and the future, is in safe hands with Prince Charles, William and George. It's no coincidence this picture was taken in the throne room."

It bears a strong similarity to a photo the royals released before Christmas, again featuring just the quartet as they made pudding.

That photograph was seen as a move to project a more streamlined-down view of the monarchy.

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## Appendix D – Research Project Information Sheets for parents, teachers and school



### Information letter for Parent/Guardian

Dear Parent/Guardian,

My name is Jillian Stansfield and I am conducting a research project for my Doctor of Philosophy degree at Edith Cowan University in Perth, Western Australia. The research project entitled *Exploring the teaching and learning of primary aged girls on the Spectrum* aims to understand how primary school-aged girls diagnosed with Autism learn, and cope, in primary classrooms.

#### **What does participation in the research project involve?**

As part of the research, I will be observing your child in their classroom. The observations will focus on your child in their natural classroom setting up to 2 hours a week across 24 weeks spanning the school year. To alleviate any possible anxiety and distraction generated by my presence in the classroom, I will always stay at the back of the class. I won't have contact or provide intervention during the observation of the daily classroom teaching and learning activities.

In addition, I would like to interview you about your experiences as the parent with a child on the spectrum. Two interviews approximately 45 minutes will be conducted, once in the beginning of the year and once at the end of the year. The interviews will be audio recorded and transcribed by myself. Your child's teacher will also be similarly interviewed.

#### **To what extent is participation voluntary, and what are the implications of withdrawing that participation?**

Involvement in this research project is entirely voluntary and you can request to exclude yourself and your child from the research at any time, without giving a reason and with no negative consequences.

#### **What will happen to the information collected, and is privacy and confidentiality assured?**

The information collected during the research will be stored securely in a locked cabinet or digitally with a secure password and kept at the School of Education, Edith Cowan University in Perth, Western Australia for at least seven years after the project has completed or until the youngest child has reached 25 years of age, whichever is later, and will then be confidentially destroyed. You and your child **will not** be identified in any discussions of the research findings as they will be given a pseudonym name, nor in any publications that follow from the research.

#### **What are the potential benefits of this research?**

As a parent participant, the benefits may include the opportunity to share your experience and knowledge with a researcher who is interested in a condition that affects their child's everyday life; the knowledge their contribution to the study may help other parents, students and teachers

with teaching and/or learning in a classroom with girls on the spectrum and an insight to how their own child learns in the classroom.

**Are there any risks associated with participation?**

The risks to those involved in this study are considered very low. It is anticipated to have no likely risks apart from time commitment. However, if you feel uncomfortable at any stage, please let me know immediately.

**Is this research approved?**

The research has been approved by the Human Research Ethics Committee of Edith Cowan University and by the Principal of your school, whose permission I have already received.

If you are interested in reading the research findings, a summary of the overall findings of the research will be made available to you upon request.

If you have any further questions about this research project, you may contact the following:

Researcher: Jillian Stansfield

Phone number:

Email:

Principal Supervisor: Dr Bill Allen

Phone number:

Email:

Co Supervisor: Dr John O'Rourke

Phone number:

Email:

If you have any concerns with the ethical aspects of this research, please contact Kim Gifkins (Senior Research Ethics Advisor) at [redacted] or [research.ethics@ecu.edu.au](mailto:research.ethics@ecu.edu.au).

If you agree to have your child involved in the research, would you please complete the attached consent form and return it to your child's English teacher.

Thank you for your time,

Yours sincerely,

Jillian Stansfield

PhD Candidate

School of Education

Edith Cowan University

2 Bradford St

Mount Lawley

WA 6050

Phone

Email



## Consent form for Parent/Guardian

I have been provided with a letter that explains this research project to me. I have read and understood the letter.

I have been given the opportunity to ask questions and any questions have been answered to my satisfaction.

I am aware that I can contact Dr Bill Allen, Dr John O'Rourke or Ms Kim Gifkins if I have any further queries, or if I have concerns or complaints. I have been given their phone number and e-mail address in the Information Letter.

I understand that if my child is involved in this research project, she will be observed only for up to 2 hours per week for 24 weeks across a school year.

I understand that if I participate in this research project I will be interviewed and audio recorded.

I am aware that the notes and other documents collected during this research will be stored in a locked cabinet or digitally with a secure password and kept at the School of Education, Edith Cowan University in Perth, Western Australia for at least seven years after the project has completed or until the youngest child has reached 25 years of age, whichever is later, and will be confidentially destroyed after that time.

I understand that I can request to exclude myself or my child from the research at any time without giving any reasons, having any penalty, and my child's learning will not be affected.

I have discussed this research request with my child and give my approval for my child  
..... to be involved in this research project.

Please tick the box if you consent to be contacted at a later date for a follow up after the completion of this research study

Name/s .....

Signature/s .....

Date .....

Best contact number/email .....



## Information letter for School Principal

Dear Principal,

My name is Jillian Stansfield and I am conducting a research project as the major part of my Doctor of Philosophy degree at Edith Cowan University in Perth, Western Australia. The research project entitled *Exploring the teaching and learning of primary aged girls on the Spectrum* aims to understand how school aged girls diagnosed with Autism learn in the primary classroom.

This letter is addressed to you because one of the parents of a female student diagnosed with autism at your school has indicated that he/she would like their child to take part in the research, and I would like to invite her to take part in a case study. I would like to ask you for permission to enter your school to conduct the case study.

### **What does participation in the research project involve?**

Participation in the research means the teacher will be interviewed twice for approximately 45 minutes at a place and time chosen by the teacher. The interviews will be conducted at the beginning of the year and then again at the end of the year. The interviews will be audio recorded. In addition, I would like to observe the female student with Autism in the classroom up to 2 hours a week across 24 weeks spanning the school year. The focus of the observation will be on the student. In order to decrease the anxiety and distraction generated by my presence in the classroom, I will stay at the back of the class. I will never intervene in the class activity or routines.

The student's parent/s will also be interviewed twice for approximately 45 minutes each. Each participant will be provided with their own Information Letter and Consent Form.

### **To what extent is participation voluntary, and what are the implications of withdrawing that participation?**

Your decision whether or not to give permission for me to approach your school, your teacher, and your students to conduct the research is entirely voluntary, and refusal will not affect your future relations with Edith Cowan University.

The teacher's participation in this research project is also entirely voluntary, and he/she may withdraw from the research at any time without giving any reason, and incurring no penalty.

### **What will happen to the information collected, and is privacy and confidentiality assured?**

All information that identifies your school, your teacher, and/or your students, directly or indirectly, will be removed from the data collected, and never used in discussions of in publications emanating from the research. The teacher participant will have a pseudonym that bears no resemblance to his/her name so that he/she will remain anonymous. The hard copies of data, including audio records, documents and notes will then be stored securely in a locked cabinet kept at the School of Education, Edith Cowan University in Perth, Western Australia. The data

will be stored for at least seven years after the project has completed or until the youngest child has reached 25 years of age, whichever is later, and will then be permanently destroyed. This will be achieved by shredding audio and recordings, hard copies of notes and documents and deleting computer files, using a University appointed data disposal agency. The teacher participant's privacy and the confidentiality of information disclosed by the participant are assured at all other times. The data will be used only for this research project, unless consent is provided by the participants for them to be contacted at a future date.

A summary of the overall findings of the research will be made available to you upon request.

**What are the potential benefits of this research?**

Participation in this research project may provide the teacher participant with opportunities for personal self-reflection, and potential professional growth knowing their contribution to the study may help other parents, students and teachers with teaching and/or learning in a classroom with girls on the spectrum.

**Are there any risks associated with participation?**

The risks to those involved in this study are considered very low. It is anticipated to have no likely risks apart from time commitment.

**Is this research approved?**

The research has been approved by the Human Research Ethics Committee of Edith Cowan University.

**Who do I contact if I wish to discuss the project further?**

If you have any further questions about this research project, you may contact the following:

Researcher:	Jillian Stansfield
Phone number:	[REDACTED]
Email:	[REDACTED]
Principal Supervisor:	Dr Bill Allen
Phone number:	[REDACTED]
Email:	[REDACTED]
Co Supervisor:	Dr John O'Rourke
Phone number:	[REDACTED]
Email:	[REDACTED]

Or if you have any concerns with the ethical aspects of this research, please contact Ms Kim Gifkins (Senior Research Ethics Advisor) at [REDACTED] or [research.ethics@ecu.edu.au](mailto:research.ethics@ecu.edu.au).

If you agree to give me permission to conduct the study at your school, would you please complete the attached consent form and return it to me, or contact me to collect it.

Thank you for your time,

Yours sincerely,

Jillian Stansfield

PhD Candidate

School of Education

Edith Cowan University

2 Bradford St

Mount Lawley

WA 6050

Phone: [REDACTED]

Email: [REDACTED]



## Consent form for School Principal

I have been provided with a letter that explains this research project to me. I have read and understood the letter.

I have been given the opportunity to ask questions and any questions have been answered to my satisfaction.

I am aware that I can contact Dr Bill Allen, Dr John O'Rourke or Ms Kim Gifkins if I have any further queries, or if I have concerns or complaints. I have been given their phone number and e-mail address in the Information Letter.

I understand that if I give permission for the researcher to conduct the study at our school, the student participant's class teaching will be observed and the teacher and parent will be interviewed and audio recorded.

I understand that any information collected will be used only for the research, and the school, the teacher participant and the students will not be identified in the research report, or in any presentations of the result of this research.

I am aware that the audio recordings, notes, documents and other information collected during this research will be stored in a locked cabinet and/or password secured digitally kept at the School of Education, Edith Cowan University in Perth, Australia for at least seven years after the project has completed or until the youngest child has reached 25 years of age, whichever is later, and will be confidentially destroyed after that time.

I understand that the teacher participant, or my school, can withdraw from the research at any time without penalty.

I freely agree to give permission for the researcher to conduct the research at our school.

Name .....

Signature .....

Date .....



## Information letter for Teacher

Dear Teacher,

My name is Jillian Stansfield and I am conducting a research project as the major part of my Doctor of Philosophy degree at Edith Cowan University in Perth, Western Australia. The research project entitled *Exploring the teaching and learning of primary aged girls on the Spectrum* aims to understand how school aged girls diagnosed with Autism learn in the primary classroom.

This letter is addressed to you because one of the parents of a female student diagnosed with autism at your school has indicated that he/she would like their child to take part in the research, and I would like to invite her to take part in a case study. I would like to ask you for permission to enter your school and your classroom to conduct the case study.

### **What does participation in the research project involve?**

Participation in the research means you will be interviewed twice for approximately 45 minutes at a place and time chosen by you. The interviews will be conducted at the beginning of the year and then again at the end of the year. The interviews will be audio recorded. In addition, I would like to observe the female student with Autism in the classroom up to 2 hours a week across 24 weeks spanning the school year at times that suit you. The focus of the observation will be on the student. In order to decrease the anxiety and distraction generated by my presence in the classroom, I will always stay at the back of the class. I will never intervene or disrupt routines of activities. I am a primary school teacher myself and fully understand your autonomy in the classroom.

The student's parent/s will also be interviewed twice for approximately 45 minutes each. Each participant will be provided with their own Information Letter and Consent Form.

### **To what extent is participation voluntary, and what are the implications of withdrawing that participation?**

Participation in this research project is entirely voluntary and you can stop at any time, without giving a reason and with no negative consequences. All contributions you have made to the research so far will be removed and destroyed unless explicit permission is given for their use.

### **What will happen to the information collected, and is privacy and confidentiality assured?**

All information that identifies you, your school, and possibly your students, directly or indirectly, will be removed from the data collected. You will have a pseudonym that bears no resemblance to your name so that you will always remain anonymous, including in publications arising from the research. I will personally transcribe the interview recordings and I will send you the transcripts to read through. You may want to change or withdraw information in part or in whole. The hard copies of data including audio recordings, documents and notes will then be stored securely in a locked cabinet or digitally with a secure password and kept at the School of Education, Edith Cowan University in Perth, Western Australia. The data will be stored for at least seven years after



the project has completed or until the youngest child has reached 25 years of age, whichever is later, and will then be permanently destroyed. This will be achieved by shredding audio and video recordings, hard copies of notes and documents and deleting computer files, using a University appointed data disposal agency.

Your privacy, and the confidentiality of information disclosed by you, are assured at all other times. The data will be used only for this research project, unless you consent to being contacted at a later date for a follow up.

A summary of the overall findings of the research will be made available to you upon request.

**What are the potential benefits of this research?**

Participation in this research project may provide you with opportunities to share your experiences for personal self-reflection, and potential professional growth knowing their contribution to the study may help other parents, students and teachers with teaching and/or learning in a classroom with girls on the spectrum.

**Are there any risks associated with participation?**

The risks to those involved in this study are considered very low. Naturally, you may have concerns about my being in the classroom but I assure you of my intention to make my presence as minimal as possible. It is anticipated to have no other likely risks apart from time commitment. However, if you feel uncomfortable at any stage, please let me know immediately.

**Is this research approved?**

The research has been approved by the Human Research Ethics Committee of Edith Cowan University (reference no.....) and by the Principal of your school, whose permission I have already received.

**Who do I contact if I wish to discuss the project further?**

If you have any further questions about this research project, you may contact the following:

- Researcher: Jillian Stansfield
- Phone number: [REDACTED]
- Email: [REDACTED]
- Principal Supervisor: Dr Bill Allen
- Phone number: [REDACTED]
- Email: [REDACTED]
- Co Supervisor: Dr John O'Rourke
- Phone number: [REDACTED]
- Email: [REDACTED]

Or if you have any concerns with the ethical aspects of this research, please contact Ms Kim Gifkins (Senior Research Ethics Advisor) at [REDACTED] or [research.ethics@ecu.edu.au](mailto:research.ethics@ecu.edu.au).

If you are willing to participate could you please complete the attached consent form and return it to me, and contact me by phone or email as shown below.

Thank you for your time,

Yours sincerely,

Jillian Stansfield

PhD Candidate

School of Education

Edith Cowan University

2 Bradford St

Mount Lawley

WA 6050

Phone: [REDACTED]

Email: [REDACTED]



## Consent form for Teacher

I have been provided with a letter that explains this research project to me. I have read and understood the letter.

I have been given the opportunity to ask questions and any questions have been answered to my satisfaction.

I am aware that I can contact Dr Bill Allen, Dr John O'Rourke or Ms Kim Gifkins if I have any further queries, or if I have concerns or complaints. I have been given their phone number and e-mail address in the Information Letter.

I understand that if I participate in this research project, a student in my class will be observed and I will be interviewed and audio recorded.

I understand that any information collected will be used only for the research, and I will not be identified in the research report, or in any presentations of the result of this research.

I am aware that the audio recordings, notes, documents and other information collected during this research will be stored in a locked cabinet or password secure digitally kept at the School of Education, Edith Cowan University for at least seven years after the project has completed or until the youngest child has reached 25 years of age, whichever is later, and will be confidentially destroyed after that time.

I understand that I can withdraw from the research at any time without penalty.

I am willing to participate in this research project.

Please tick the box if you consent to be contacted at a later date for a follow up after the completion of this research study

Name .....

Signature .....

Date .....

Best contact number/email .....

## Appendix E – Observation Template

### Observation Template- Semi-Structured

Pseudonym name..... Date..... Session No.....Duration.....hrs.....mins

Description/context of activity:

.....

.....

.....

.....

Ability/Theme	Observation Examples
Cognitive/intellectual ability. I.e. Strength/weaknesses/ thinking style (rigidity/inflexibility), remarkable memory.	
Relationships. I.e. How the student relates to peers and teachers.	

## **Appendix E - Observations notes continued– typed example**

8<sup>th</sup> May CHILD ALANNAH LITERACY GROUPS – ENGLISH

8.50am Relief Teacher – ALANNAH wasn't stressed by a different teacher.

ALANNAH was silent in the group sitting on the floor (in her allocated spot, upfront to the left of the teacher) and followed teacher instructions to move to group tables. ALANNAH did not start work immediately like the other three children at her table. A continued to watch girl next to her Alannahnd then look back to her page repeatedly. She had her hands either side of her head leaning on her elbows. When the teacher approached, ALANNAH picked up her pencil. ALANNAH didn't communicate in the beginning with her peers or respond when they were saying their sound out loud. ALANNAH's task was to colour in pictures on her page that had the sound 'e'. Each child had their own sound. A carefully chose the coloured pencils she used and would choose one at a time, taking care with her work before returning the pencil and deciding on the next pencil to use. ALANNAH was very focused on her colouring. She did this for a few minutes before stopping and putting her hands on either side of her face and resting on her elbows, looking at her page. The child next to A talked to her about her work and after a moment A responded. The other two children took notice at the girl talking about A's work to her and also looked at the child who was talking to A. A did not respond.

8:57 am – A continued to look at the child next to her even though she was now talking to the other children. A said a few words to the other children while they were chatting and also colouring their sounds. I was not colouring, didn't have a pencil in her hand but was now listening to the other children's chatter. A put up her hand and said 'excuse me' but the children continued to chatter so I returned to looking at her work. A returned her hands to either side of her face and rested on her elbows.

Another child joined the group and A immediately gave him a sound sheet and said 'this is M'. A was listening to the conversation at the next table when the teacher was trying to work out which table another child was in who had just joined the classroom. The child seemed unsure but A was nodding and then the other children worked out yes, the child did belong in that group.

9.04am – Students continued to colour but A continued to look around at the other children then back at her work. The child next to her said 'you forgot to colour that in'. A didn't respond and when the child returned to her work, A coloured her sounds in again.

9.06 am A stopped colouring and looked at her work and the students who were talking.

9.07 am The teacher approached A's table with further instructions for the children and asked what letter each child was doing. A responded straightaway. Teacher left and the other children began work again. A looked at the girl next to her who was colouring. The other children were colouring and talking at the

same time A tried to join in and started with 'yesterday I' and repeated this three times before saying a child's name, however, the children continued chattering oblivious to A talking. A returned to her colouring.

9.14 am After being focused on her colouring for a while, A stopped with hands either side of her face and elbows resting on table then returned to colouring again.

When the bell rang to signal to stop A did immediately. A returned to the floor with the other children on teacher instruction. A group was called back to their table to put their sheets in their drawers. A and another child were still behind the drawers, the other children returned to the carpet. A tried to tell the boy about her puppy in the class tent. The boy said she needed to go back to the carpet. A continued to talk about her puppy in the tent and the boy ushered her to the carpet. A reluctantly returned to the carpet but went around the back of the teacher to her spot to avoid going through the children seated on the carpet.

9.20 am A transitioned well to the rotation 2 – guided reading

Teacher had to take a call just as they sat down to begin. A stayed still with her book. When teacher returned A raised her hand to tell her teacher about her puppy in the class tent. As the teacher went through the 'first read' of the book, A had her hands on either side of her face resting on her elbows. She raised her hand to answer most of the teacher's questions.

9.25 am A rocked in her chair briefly.

When A was asked a question 'What does the batter do?' A responded only with 'ummmm ummm' but questions asked to the group, A could raise her hand and answer the question. When the group was asked to point to particular words and sounds, A could do this quickly.

9:30 am Each child was reading a page each. A needed time to answer a direct question eg 'A, what is he going to do?' The page said 'Run', she knew what the page said but could not answer the question, which was what was written on the page 'run'.

Second book, A was asked 'A, what's on the front of the book?' A responded again with 'umm ummm'. The teacher rephrased with a yes/no question and A nodded immediately then when asked to point to particular words, A was able to do this immediately.

9.35 am Rocked intermittently in her chair. When A was asked to read a page, A twirled her hair and 'ummed'. A needed prompting and kept looking at the teacher for reassurance. She also looked to her peers frequently to check what she was doing was correct (page turning, pointing to words) even though she was mostly correct.

A transitioned well at the end to the carpet. She sat on the carpet facing the front, silent, rocking slightly while other children chatted waiting for everyone to come to the floor.

## Reflection

A cannot talk and do her work concurrently whereas the other children could hold a conversation and colour at the same time. It isn't a bad thing except it was difficult for to join current conversation.

When asked a direct question, it was easier for A to respond non-verbally or when a question was asked to the group. This may be due to more response time needed. A can respond faster to a question with non-verbal gestures.

If A can remain non-verbal in a group, she will.

## **Appendix F – Interview Schedule**

### **Interview Schedule for Teachers**

#### **Initial**

Tell me a little about your journey as a teacher?

Have you taught a child in your class diagnosed with ASD in previous years? Have you taught a girl on the spectrum before?

Would you share with me what you know about ASD?

What assistance do you have in your classroom related to teaching the child with ASD?

Have you received a list of strategies specific to the child with Autism?

Do you feel you have been prepared with the knowledge and tools to have a child with ASD in your classroom?

What do you feel would further assist you in teaching ASD children in your classroom? Ie: PD, workshops, collaboration, more in class support time.

What did you observe were challenges for the girl with Autism?

What were the strengths the girl with Autism showed in the classroom?

What classroom strategies did or didn't work for the girl with Autism?

Is there anything else you would like to share?

#### **Final**

Tell me about any challenges or successes in teaching a girl with ASD in your class this year?

Do you feel you have learned more about teaching children with ASD in particular girls? Tell me more about that?

What do you think would assist you in the future when teaching a girl on the spectrum?

Do you feel there was enough collaboration/communication between the child's support people i.e., parents, special needs teachers, therapists

### **Interview Schedule for Parents**

#### **Initial**

How old is your daughter?

What grade is she in?

Tell me a little bit about your daughter? For example, what are her interests, strengths, challenges, likes and dislikes?



What challenges related to her Autism does your daughter face when it comes to school?  
Think about your daughter's experiences at school up until this point. Based on your own observations, and what your daughter has shared with you, what are some of her experiences in regards to school?

What do you think would benefit your daughter at school to ensure she is supported in the classroom?

What supports or therapies are in place in and outside the classroom? Is there communication between the parties?

### **Final**

Tell me about your child's experience at school this year from your perspective?

Where have you seen growth in relation to her challenges related to Autism?

What do you think benefited your daughter at school this year?

What do you think could have been done differently to support your child?

Tell me about your school experience as a parent of a child with Autism?

Is there anything else you would like to share from either your experience or your observations of your child's experience?

## Appendix G – Child A teacher interview sample

30 May 2018

1. Could tell me about your teaching journey?

I started teaching in 2012 at a local Christian college, just down the road. I did five years there. Two years in year 2 and three years in year 3. And then last year I went to a very low socioeconomic school in England for that reason- to have a very contrasting experience. Obviously, the other school is a Christian School like Child A's school so I had a year in a school over there. It was very eye opening. I'm glad to be back. This is my first year at Child A's school in prep so I hadn't taught prep before now.

2. Tell me a little bit about teaching children on the spectrum?

I've taught a few children with ASD. All very different. One particular child had ASD but also had only one ear, speech language impairment as well so she had a lot of difficulties and I think the ASD was quite severe with her so that was a challenge. But the best thing was having a relationship with her to get her to learn because she was very low in her education. I had child in England last year who also had other needs as well so he was still in diapers and had to use a Pecs book to communicate so couldn't communicate and found sounds very intense. He had a one to one t/a.

Interviewer: Can I clarify what a Pecs book is?

It's like symbols things to communicate things like 'I want something. I want the marbles'. So, he didn't do a year one curriculum. It was like a two year old curriculum basically. He didn't use it at home. There wasn't a lot of continuity for him, which was a shame.

3. You've taught at least one girl on the spectrum. You have a fair bit of knowledge of children on the spectrum. Where did you acquire knowledge and where else you would like to go for knowledge?  
I haven't actually done any PD on Autism, which is, I'd really like to and is something I would like to do this year. At university, I don't think they covered it very well at all. So I think over the years I have had lots of conversations, which have been my learning point. So going to the learning support teachers at last local school and having conversations with them and getting readings from them to read up on and talking to other teachers is how I learnt I think, which is a real shame because I have taught a few children with ASD.

Interviewer: Like on the job learning?

Yes, that's right and because they're so different as well, each child is different, what you learn with one child with autism is going to be different for another child so you kind of just have to, well I feel you have to get to know the child to then see what works for them.

Interviewer: So it's very child first?

I think so.

4. What can you share about A's learning in the classroom from when you first met her? Did she do a transition last year?

Yes, but I was in England so they actually came the week before school to meet me and I actually met A's mum as well. I think that was the Wednesday before school started or something and then we had the launch day on the Friday so she came in again. We got her to pick her tidy tray and things

Access to pages 255-265 has been restricted at the request of the author

## **Appendix K Tania Marshall biography**

Tania Marshall, M.Sc. (App. Psych.), Assoc. MAPS, is a 2017 ASPECT Autism Australia National Recognition Awards Nominee (Advancement category). She was recognized by Autism Australia in both 2016 and 2015 for her work advancing the field of female Autism and Neurodiversity. She is the Author of “I Am AspienGirl: The Unique Characteristics, Traits, and Gifts of Females on the Autism Spectrum”, Foreword by Dr. Judith Gould, “I Am AspienWoman: The Unique Characteristics, Traits, and Gifts of Adult Females on the Spectrum, Foreword by Dr. Shana Nichols and AspienPowers: The Unique Constellation of Strengths, Abilities, Talents, and Gifts of Females on the Autism Spectrum. Tania is an award-winning author, nationally recognized Psychologist, an Autism Consultant, an NDIS Provider, a Helping Children With Autism Early Intervention Service Provider, a Better Start Early Intervention Provider, a Medicare Approved Mental Health Provider and a Secret Agent Society (SAS) Trained Group Facilitator. For further information go to <http://www.taniamarshall.com> <http://www.aspiengirl.com> Vimeo at <https://vimeo.com/neurodiversityacademy> or YouTube at [https://www.youtube.com/channel/UCk\\_kFdaPkv4w0ieOgfR3IvA](https://www.youtube.com/channel/UCk_kFdaPkv4w0ieOgfR3IvA)

Source: <https://taniaannmarshall.wordpress.com/about/>

Access to pages 267-268 has been restricted at the request of the author

## Appendix M – Feedback on CASSIE tool

Hi Jill,

I've been meaning to check this over and make some recommendations, apologies its taken me so long.

Your wheel is really good. I can see early childhood teachers really liking this tool and using it. I would love to see it used to train student teachers too.

I think your wording of girly girl and tomboy is fine. I would be clearer about executive functioning (acedmia) and theory of mind (communication) issues as these are fundamentally what autistic people struggle with indefinitely.

I also think you could link C.A.S.S.I.E "the name" of your wheel tool to Cassandra's Disorder. Be careful though as this isn't a recognised condition under the DSM though it is widely argued that it is a real phenomenon developed by the neurotypical spouses trying to put their finger on their autistic spouses (with no diagnosis) "invisible" issues.

Its a great overview of the autistic girl. Shame about the number of participants that engaged in your case study. The only way you could have overcome this that I can think of is partnering with a preschool tailored to autistic children such as aeiou/ecdp and followed their girls into mainstream prep.

Short of achieving this, I recommend posting your tool online to the "Yellow lady bugs" fb group or similar and ask the page moderator privately if they would post on your behalf to gain parent feedback/survey/poll. It should also increase your study numbers and give you a good idea of a parents perspective (your harshest critics) if your tool. Overall I think it will support your thesis and reassure you that you have captured the autistic girl at prep age 5-6years.

Its so fantastic seeing research like this being undertaken for autistic girls and education. Your a champion for taking on the challenge.

Let me know if there's anything else I can do to support you further.

Best

Jill



Sun 2/06/2019 7:43 PM

To: Jillian Stansfield;

Hi Jilly

Thank you for sending us the CASSIE tool it will be a great resource to have as girls can be tricky. I particularly relate to girls often being very good a school but melting down at home and preferring to talk with adults. Their perfection at school can make it difficult for me to verify as there is nothing that is evident at school however parents report difficulties at home. It has reminded me to check on one of my students and to offer morning transition in to school at the unit if necessary.

Thank you for sharing. Great work and certainly needed.

Cheers

**Sent:** Wednesday, 3 July 2019 3:59:44 PM  
**To:** Jilly STANSFIELD  
**Subject:** RE: Research Findings - Girls on the Autism Spectrum

Hi Jilly,

I apologise for my delayed reply but I have only just returned to work following Long Service Leave. Thank you for your email and congratulations on your research to date. I am very impressed with your C.A.S.S.I.E wheel as it is a simple yet effective tool for teachers to use. Good luck at the conference, I'm sure you will be very well received. With your permission I would like to share your findings with some of the staff in our Learning Enhancement department as well as my classroom teachers as I'm sure they will find it very interesting.

Good luck with the next stage of your research and we are happy to help in any way we can.

Kind regards

~~CONFIDENTIAL, ALL RIGHTS RESERVED. ANY UNAUTHORIZED REPRODUCTION IS STRICTLY PROHIBITED.~~

Wow Jilly no wonder that was received so well. What a brilliant tool for teachers. I would love to give that to Georgia's educators so they can understand her better. Thank you for such an important contribution. Obviously as a mum it pleases me and as a researcher it pleases me. Wonderful job and so interesting! x

Access to page 271 has been restricted at the request of the author