



Evidence-based Practice to Develop Social Communication Competency:

Listening to the Voices of Teachers of Autistic Children.

by

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ABSTRACT

Evidence-based Practice to Develop Social Communication Competency: listening to the voices of teachers of autistic children.

Maria Dervan

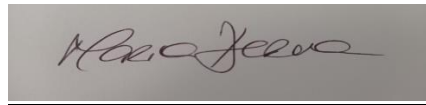
In education research, there is a firm belief that reflecting on inclusive pedagogy is imperative for teachers, as effective inclusion means considering the child's needs on all levels and adopting appropriate practices to meet these needs in schools (Lerner and Johns 2015). The appropriate practices, recommended for teachers of autistic children should have a research base, with evidence of their effectiveness to show what works to support learning. Such practices are termed evidence-based practices (EBPs). The 2016 Review of Autism Spectrum D[i]fference] (ASD) Provision, commissioned by the National Council for Special Education (NCSE), has identified that in Ireland there are 'significant gaps in our knowledge of interventions for supporting children and young people with ASD, at different ages and in different educational settings' (Bond *et al.* 2016, p.139). Despite global efforts, an upsurge in the availability of literature on ASD and the existence of high-quality experimental research, recommendations from empirical studies are not always transmitting into effective practice (Joyce and Cartwright 2020). The researcher sought to document the EBPs, that teachers report as most effective in early years' classrooms, to facilitate social communication competency (SCC), which is acknowledged, nationally and internationally, as significant for autistic children.

The research study utilised a detailed systematic literature review to provide an authentic evidence-based foundation that informed data collection, for teachers to use to reflect on their practice. The research adopted a cross-sectional survey as the data collection instrument, which was completed by a purposeful sample of teachers nationally across Ireland. A mixed methods approach to data analysis was embraced, whereby quantitative and qualitative analyses were combined to yield rich data (Creswell and Guetterman 2021). The study adopted Vygotsky's socio-cultural theory as its theoretical framework for analysis. It unveiled the perspectives of teachers in relation to EBPs, which they employ to teach SCC to autistic children in early years' classrooms. Emerging from the voices of the teachers, seen as key stakeholders in the provision of education for autistic children, several recommendations are suggested for policy and practice, nationally and internationally.

Declaration

I hereby declare that this thesis represents my own work and has not been submitted, in whole or in part, by me or any other person, for the purpose of obtaining any other qualification.

Signed:

A rectangular box containing a handwritten signature in cursive script, which appears to read "Maria Dervan".

Maria Dervan

Date: 9th May 2023

Dedication

To Eesha and The Big Guy, for everything!

*For the autistic children who I have been privileged to get to know- you taught me
to really listen! May you always be unstoppable in your endeavours through life*

Unstoppable

Unstoppable they called her
But I saw her stop
I saw her stop
Many many times.

Sometimes
I thought she had stopped
for good

but no
she always found a way
to resurrect.

To rise again.

Not the same
never the same.

Each time a little more determined
and a little less vulnerable.

Unstoppable they said
but I think it was in the stopping

That she found her power.

Donna Ashworth

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LIST OF ACRONYMS

ABA	Applied Behaviour Analysis
ADHD	Attention Deficit Hyperactivity Disorder
APA	American Psychiatric Association
ASD	Autism Spectrum Difference
CC	Central Coherence
CoS	Continuum of Support
CPD	Continuing Professional Development
CROÍ	Collaboration Research for Ongoing Innovation
CT	Class Teacher
DES	Department of Education and Skills
DNAs	Deoxyribonucleic Acids
DoE	Department of Education
DoH	Department of Health
DSM	Diagnostic Statistical Manual
DSM-3	Diagnostic Statistical Manual -3
DSM-4	Diagnostic Statistical Manual -4
DSM-5	Diagnostic Statistical Manual -5
EBPs	Evidence -Based Practices
EF	Executive Function
EPSEN	Education for Persons with Special Educational Needs
IEP	Individual Education Plans
MIREC	Mary Immaculate Research Ethics Committee
MKO	More Knowledgeable Other
NCCA	National Council for Curriculum and Assessment
NCSE	National Council for Special Education
PICOC	Population, Intervention, Comparison, Outcomes, Context
PLC	Primary Language Curriculum
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta -Analyses
RSB	Repetitive Stereotyped Behaviour
RTA	Reflexive Thematic Analysis
SCC	Social Communication Competency
SCT	Special Class Teacher
SEN	Special Educational Needs
SERC	Special Education Review Committee
SET	Special Education Teacher
SETAM	Special Education Teaching Allocation Model
SLD	Specific Learning Disorders
SNA	Special Needs Assistant
SPSS	Statistical Package for the Social Sciences
SSG	Social Skills Group

TEACCH	Treatment and Education of Autistic and Related Communication -Handicapped Children
ToM	Theory of Mind
TREX	Teacher Research Exchange
UNESCO	United Nations Educational Scientific and Cultural Organisation
UK	United Kingdom
USA	United States of America
WCC	Weak Central Coherence
WHO	World Health Organisation
WoE	Weight of Evidence
ZPD	Zone of Proximal Development

CHAPTER ONE

INTRODUCTION AND CONTEXT

1.1 Introduction

Autism Spectrum Difference (ASD) is the fastest growing developmental difference in the world (Christensen *et al.* 2016) and ASD research features two different models or schools of thought. The biomedical, or deficit, model describes autism as a cognitive disorder needing treatment (Kanner 1943; Baron-Cohen 2002), while the difference, or social, model views autism as a characteristic or attribute, as opposed to a medical problem (Dunn and Andrews 2015; Goodley and Runswick-Cole 2016). The difference or social model promotes looking at ASD from a strengths-based perspective and disputes the belief that autism is a disorder requiring prevention and cure, proffering ASD as a form of human diversity and placing value on difference (Silberman 2015; Leveto 2018). The term ‘Autism Spectrum Difference’ is adopted from the outset of the study in recognition of the difference or social model. In doing so, the author concurs with the sentiments described in the publication by Ring *et al.* (2018a), who, rather than approach ASD with the term *Disorder* in their research, found it more conducive to use the more celebratory *Difference* in the label. From a personal viewpoint, the researcher sees the term ‘difference’ as a move towards recognising the neurodiverse society in which we live today. Furthermore, the term ‘difference’ echoes inclusive practice and reflects the neurodiversity movement taking place globally (Silberman 2015; AsIAM 2021; Leadbitter *et al.* 2021). In addition, the researcher adopts the identity-first language approach throughout. According to the AsIAM autism advocacy group, many within Ireland’s autistic community have specified a preference

for using identity-first language when speaking about themselves and autism (AsIAM 2021). Internationally, a change in the trend to using identity-first language is also evident (Dunn and Andrews 2015; Goodley and Runswick-Cole 2016). Although the study does not engage in direct research with autistic children, the researcher believes it is important to reflect the voice of the autistic community in the research agenda (Ring *et al.* 2018a); henceforth, the research adopts the term ‘autistic children’ in respect of the identity-first movement.

The Diagnostic Statistical Manual-5 (DSM-5) (American Psychiatric Association [APA] 2013) states that ASD is attributed to persistent discrepancies in social communication and social interactions with restricted, repetitive patterns of behaviours and interests and modulated sensory processing (APA 2013). As a result of these dyad of differences, ASD impacts on how individuals think, feel, relate to others, and use and understand language (APA 2013). Such differences have a profound impact on the formation of meaningful social relationships, the use of appropriate social competence and engagement with peer interaction (Bolton 2012; Bavin 2014; Waugh and Peskin 2015). Autistic children often show a lack of spontaneity and can seem withdrawn or disengaged in social situations or the surrounding culture (Conn 2014; Anderson *et al.* 2018). Owing to these challenges, the onus is on parents, caregivers and teachers to address the social and linguistic differences experienced by young autistic children in order to enhance their life experience (Ingersoll *et al.* 2013). Autistic children may also experience differences adopting and engaging with the right social communication competency (SCC) or social skills required in different situations (Conn 2014). In conjunction, they may also struggle with their play or pretend imaginary play skills, peer interactions, imitation skills, changes or transitions in play

or creative play (O'Connor and Stagnitti 2011; Conn 2014; O'Sullivan 2018). Such shortfalls are identified as precursors to challenging behaviour, disengagement, social exclusion, feelings of anxiety, isolation and compounded communication challenges (Adams *et al.* 2004; Petticrew and Roberts 2006; Barnett 2018; Brock *et al.* 2020), which may continue into adulthood (Brain 2019). Subsequently, these outcomes impact on the life of the autistic children, their experience, and the culture and community with which they engage (Aldred and Green 2019). To address these needs, teachers and schools should adopt a proactive approach to the development of SCC to empower the autistic child (Feldman *et al.* 2019; Brock *et al.* 2020). Such an approach is considered important as increased communication opportunities in schools are said to help autistic children make sense of language, locate themselves and others, and form friendship communities; such opportunities also predict better outcomes for life-long learning (O'Sioráin *et al.* 2021).

1.2 Situating the Research

In the Irish education system, autistic children are supported in a range of different learning environments (Daly *et al.* 2016). In recent years, Ireland has seen a rapid rise in the number of special classes for ASD opened in primary schools (Department of Education and Skills [DES] 2020). The education of autistic children represents an ongoing journey towards inclusion undertaken by the stakeholders in education provision (Westwood 2015). Inclusive practice or inclusion refers to the principle that children with special educational needs (SEN) have a right to participate in society and education in settings with typically developing peers (Santrock 2018). In the United States of America, inclusive education centres around the idea of the 'least restrictive environment' (Lerner and Johns 2015, p.107), which evolved from the Individuals with

Disabilities Education Act (IDEA 2004). Under the ‘least restrictive environment’ remit, educational settings must make a conscious effort to facilitate learning for children with SEN in mainstream education (Santrock 2018). In Ireland, the Education Act 1998 states that legally all schools and teachers have responsibility for educating children with SEN (Griffin and Shevlin 2007). Despite the changes regarding inclusive practice internationally, the meaning of inclusion in special education is under debate and ‘a clear working definition has thus far proved elusive’ (Florian 2014, p.286). However, there remains a firm belief that reflecting on inclusive pedagogy is imperative for teachers, as effective inclusion means considering the child’s needs on all levels and adopting appropriate practices to meet these needs in schools (Lerner and Johns 2015). According to Winter and O’Raw (2010, p.24) successful inclusion in schools involves establishing educational settings that meet the requirements of all students and have a significant positive influence on their ‘social, emotional, physical, and cognitive development’. Moreover, they suggest that successful inclusion involves ‘identifying and providing the necessary support for teachers and other staff as well as pupils’ by reducing and removing any barriers that impact on children’s participation and learning (Winter and O’Raw, 2010, p.24). In order to facilitate inclusive education, collaboration and collaborative behaviours amongst teachers and school leaders are widely acknowledged as imperative (Ní Bhroin and King 2020). Furthermore, Rose and Shevlin (2020, p.51) emphasise that the provision of SEN support in schools is viewed as a ‘critical factor in the development of inclusive education’ and consideration for collaboration and communication between paraprofessionals and teachers is paramount to supporting inclusive practices. However, ineffective teaching methods, a professional learning framework and individualised planning continue to impact inclusion in Irish schools (Ní Bhroin and King 2020). The appropriate methods

recommended for teachers of autistic children should have a research base, with evidence of their effectiveness to show ‘what works educationally for children with autism’ (Conn 2014, p.129). Such methods are termed evidence-based practices (EBPs).

In the field of education research and, more specifically, special education, the importance of adopting EBPs is the cornerstone of education for autistic children (Goldstein *et al.* 2014; Egan 2018). Since the turn of the century, there has been an upsurge in the volume of literature describing EBPs, and interventions and strategies for teachers to draw upon when supporting autistic children (Parsons *et al.* 2013). In contrast, the 2016 research report, commissioned by the National Council for Special Education (NCSE), identifies that in Ireland there are ‘significant gaps in our knowledge of interventions for supporting children and young people with ASD at different ages and in different educational settings’ (Bond *et al.* 2016, p.139). The discourse on the knowledge–practice gap continues to challenge education systems, both in Ireland and internationally (Bond *et al.* 2016; Nelson and Campbell 2017). In the United States, the ongoing disjointed relationship in evidence-based education is recognised and the gap between research and practice is described as ‘a relentless adversary’ in education (Joyce and Cartwright 2020, p.1046).

However, the challenge for teachers continues as they attempt to use findings disseminated from research to improve learner outcomes and education practice (Brock *et al.* 2020). Despite global efforts and the existence of high-quality, experimental research, we see recommendations not transmitting into effective practice (Klingner and Boardman 2011; Joyce and Cartwright 2020). Many reasons have been cited for the difficulties, such as situational differences between clinic settings where research is

often conducted and real-world classrooms (Odom *et al.* 2010; Kasari *et al.* 2012; Ke *et al.* 2017). Another difficulty is over-reliance on particular research methodologies in special education research (Klingner and Boardman 2011). Findings from a systematic review of strategies that support the inclusion of autistic children by Petersson-Bloom and Holmqvist (2022). highlight important assumptions for the practice change needed. These include the need to integrate the entire school structure, strategies and attitudes with classroom-level practices and content in a holistic approach which is commensurate with Article Twenty-Four of the United Nations publication on the right to inclusive education (2016). Accordingly, this means ‘strengthening the capacity of the education system to reach out to all learners’ (United Nations 2016, p.3), which can be supported by creating more transparent links between research and practice (Guldberg 2017).

The Action Plan for Education 2016–2019 (DES 2016) notes that Ireland is fortunate to attract a high calibre of people to the teaching profession, which has a strong international reputation. A key manifesto pledge in the Action Plan 2016–2019 is the ongoing reform of professional development for teachers in special education:

to develop the collegial responsibility of the teacher, not only as an expert teacher, but also a participant in the collegial work of the school – in improving standards, in developing innovations, and in assessing, monitoring and improving students’ learning.

(DES 2016, p.35)

Capacity-building and the need for additional specific teacher professional learning and involvement in research is also highlighted (Brock *et al.* 2020; O’Sullivan and Ring 2021). One method proposed to address the research–practice gap is the identification of actual problems faced by teachers and planning for context-driven

solutions for those who will implement it (Joyce and Cartwright 2020). By respecting and valuing teachers' expertise, we can understand how EBPs are implemented in the complex setting of schools and classrooms (Parsons *et al.* 2013). Subsequently addressing the research–practice gap ‘requires more than topically relevant research or more detailed plans for implementation and adaptation – it requires research that is relevant to local effectiveness predictions’ (Joyce and Cartwright 2020, p.1073). These local predictions must be based on the views of professionals in schools who can reflect on their own journey towards inclusive education for autistic children. Such a sentiment is also reflected in the research report based on the evaluation of an initiative that promotes the development of autism-friendly schools across Ireland managed by the AsIAM advocacy group. The report highlights that supporting school-wide inclusive cultures, such as the Autism Friendly Schools Initiative, ‘has the potential to build universal collaborative expertise across the system, and develop flexibly responsive and reflective autism friendly schools’ (Fitzgerald *et al.* 2021, p.99). The importance of such schools employing research-based methods to improve outcomes for autistic children is central. The researcher is concerned with exploring interventions such as EBPs, employed by teachers, to facilitate SCC development in schools, as this is of considerable significance to the profile of autistic children (Baron-Cohen 2002; Conn 2014; Daly *et al.* 2016; Egan 2018). A rationale for the study is outlined in the next subsection.

1.3 Research Rationale

Autistic scientist and advocate Temple Grandin states that, regarding education, ‘I cannot emphasise enough the importance of a good teacher’ (Grandin 1996). Research has repeatedly shown that the ‘quality of teaching’ is the most crucial element that

fosters learning and capacity-building for children (DES 2017b, p.27). In order to support this practice, it is imperative that all teachers engage in appropriate professional learning to develop the capacity of schools to meet diverse learner needs (DES 2017b). A recent report by Rose and Shevlin (2021, p.6) states that teachers in Ireland have expressed the need for changes to ‘the resourcing of schools and the learning environment and focused training opportunities’ in relation to the development of inclusive schools. Meeting teachers’ needs across these fundamental principles is imperative to supporting the development of a knowledgeable and well-resourced workforce of teaching professionals who are confident that they can meet the learning goals of children with SEN (Rose and Shevlin 2021). According to Irish policy directive laid down in the Special Education Teaching Allocation Model (SETAM) circular (0013/2017) (DES 2017a), all teachers in Ireland must assume responsibility for the learners in their classes, including those with SEN (DES 2017a). Such instructions relate specifically to the role of the classroom teacher in supporting all learners in their classroom and reflect the earlier recommendation from ‘section 22 (1) of the Education Act 1998’ (DES 2017, p.16), which promotes the fundamental role of the teacher in children’s personal development and growth. The guidelines use a new model for special education teacher (SET) allocation which is based on a Continuum of Support (CoS) Framework (DES 2017b). Through this, schools ‘can identify pupils’ educational needs’; these ‘include academic, social and emotional needs, as well as needs associated with physical, sensory, language and communication difficulties’ (DES 2017b, p.7). The framework guides schools to look at children’s strengths and needs in context through a ‘problem-solving model of assessment and intervention’ (DES 2017b, p.6).

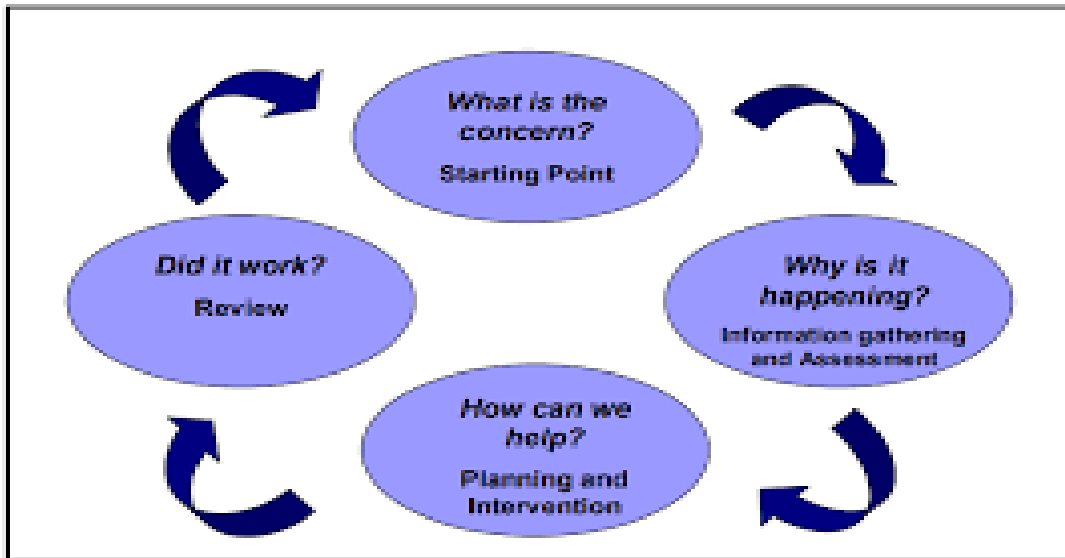


Figure 1: The Problem-Solving Process (DES 2017b, p.7)

The importance of all teachers, including SETs, mainstream class teachers (CTs) and special class teachers (SCTs) adopting the problem-solving process outlined in Figure 1 is advocated throughout the guidelines. These guidelines promote incremental support informed by ‘careful monitoring of progress’ (DES 2017a, p.6) and brings forth the premise that assessment plays a critical role in special education (DES 2007). School leaders are also encouraged to facilitate teachers to develop relevant expertise to support children with SEN (DES 2017b). Critically, the guidelines further ask that, where possible, recommendations to maintain a core team of SET support should be adhered to and that teachers should have the opportunity to engage with professional learning in order to support the diversity of learners in their contexts (DES 2017b). These policy guidelines are currently governing how schools support children with SEN, including autistic children in mainstream and special classes. The report from the DES (2020) Inspectorate regarding assessment in special classes in Ireland highlights that to establish more accurate baselines for recognising autistic children’s learning needs, particularly in areas of emergent learning, the significance of

conducting specialised evaluations and diagnostic testing needs to be given greater emphasis. Teachers in inclusive education are also asked to become ‘critical and reflective practitioners who are able to consider and adjust their own practice’ (Conn 2014, p.129) in order to facilitate specialist teaching based on evidence to meet the needs of autistic children (Griffin and Shevlin 2011; Brock *et al.* 2020). The NCSE-commissioned reports, Parsons *et al.* (2009), Bond *et al.* (2016), Daly *et al.* (2016) and DES (2020), all advocate that teachers adopt EBPs for autistic children. Investigating the implementation of EBPs to teach SCC for autistic children is the principal aim of the study, as communication is universally affected in ASD – the result of a ‘complex of shared and unshared’ contributory factors (Boucher 2012, p.219).

Additionally, ASD is characterised by ‘[differences] in social interaction and language such as impaired conversational patterns, and abnormal and limited spoken language’ (Chen and Kuo 2017, p.1); effective teaching to address such differences is imperative. Autistic children may present with complex sensory differences as well as learning styles and patterns that are different from those of their peers. As a result, they may require support to engage and participate in education and to be socially integrated into their peer group (O’Sioráin and Shevlin 2021). Significantly, the development of effective SCC is critical to cognitive, social and emotional development for each individual, as reported by the Irish Association of Speech and Language Therapists (Curry *et al.* 2017). Learning to communicate is a complex and dynamic skill; therefore, even minor problems in SCC can have a significant impact on other aspects of learning, development and social interaction (Rafferty 2014). Furthermore, the systematic review of literature pertaining to the education of autistic children by Bond *et al.* (2016) is adamant that interventions in ASD education should focus on key

features of ASD. Recommendations put forward delineate that the focus of interventions is placed on ‘social interaction and flexibility of thought with access to supplementary learning, communication and life skills interventions’ (Bond *et al.* 2016, p.8). Hence, it is imperative that teachers adopt EBPs in inclusive education to facilitate the best possible outcome for autistic children regarding their SCC development (Brock *et al.* 2020).

Facilitating inclusive education for autistic children is a key manifesto pledge of the Irish Government and the Department of Education (DoE 2021). In 2013, the NCSE was directed by the Minister for Education to prepare policy advice on education provision for autistic children. The report commissioned by Daly *et al.* (2016) highlights positive practices across a range of educational settings for autistic children, but also notes:

excellent practices, if appropriately documented, would provide a guide for new teachers and a support for those in the school new to working with autistic children.

(Daly *et al.* 2016, p.209)

At the time of the report, autistic children were being educated in ninety-five early intervention classes, 378 special classes in primary and 152 special classes in post-primary (Daly *et al.* 2016). By 2019 these numbers had increased greatly and the NCSE called on the DES inspectorate to provide current evidence, based on schools, to assist policy advice. The NCSE sought information in relation to school practices on the provision of education for autistic children, considering emerging inclusion trends internationally (DES 2020). Findings from the inspectorate once again highlighted positive practices taking place in relation to education provision for autistic children in

Ireland, coupled with more recommendations for improvement. The recommendations highlight teachers need to adopt:

the use of ASD-specific methodologies ..., particularly to assist pupils with structure, visual learning styles, social skills development, and communication needs ... [furthermore] there was scope for better sharing of specialist knowledge among teachers.

(DES 2020, p.58)

Considering the recommendations discussed by Daly *et al.* (2016) and the DES (2020), against the unfolding nature of the inclusive education landscape in Irish primary education, this study is timely. The relevance is further embedded by the Government of Ireland (2022) publication *Autism Good Practice Guidance for Schools – Supporting Children and Young People*, which draws on reports and international research to provide support for teachers meeting the needs of autistic children. The researcher seeks to document the EBPs that teachers themselves report as most effective in early years classrooms, in teaching SCC to autistic children. Parsons *et al.* (2013) promotes the need to involve teachers and their understanding of, and priorities for, research, especially relating to ASD and inclusion. Furthermore, Ring *et al.* (2018b) highlight that it is of critical importance that all educational leaders, policy makers and management ‘be convinced of the importance of supporting teachers in interrogating their practice’ (Ring *et al.* 2018b, p.55). Moreover, facilitating teachers to interrogate, share and reflect on their practice would help the assimilation of practical evidence gained at school level (Syriopoulou-Delli *et al.* 2012), which, it is argued, is central to improving learner outcomes and experiences for autistic children (Parsons *et al.* 2013).

As a teacher of young autistic children in both mainstream and special class settings, the researcher has a keen interest in pursuing teacher experiences in SCC

development as she has witnessed how differences in his area impact on the lives of autistic children and their families. By capturing good practice, as recommended by Daly *et al.* (2016) and the DES (2020), and by identifying challenges to using EBPs, it is believed that the outcomes from this timely study can positively affect autistic children, their families, teachers and education stakeholders, who all form the culture surrounding the children. The social setting and culture are part of the basis of the theoretical framework adopted to facilitate the study.

1.4 Theoretical Framework

Before capturing the lived experience of teachers, the study was grounded in literature. Through an extensive systematic literature review, the researcher sourced information about what has been published and researched, and current practice for supporting autistic children to develop SCC. Such a process provides insight into the wealth of interventions that research has promoted in the last decade for teachers to draw from (Parsons *et al.* 2009; Bond *et al.* 2016). Through the findings of the studies, a theoretical framework emerged that aligned with both the practice of using effective EBPs to teach SCC and the overall study. Grant and Osanloo (2014) describe how the adoption of a theoretical framework serves to give context to the meaning, significance and explanations of a phenomenon, enabling us to act in more knowledgeable ways. Drawing from sociocultural theory (Vygotsky 1978), the study observes how learning SCC for the autistic child must be driven by social experience, as influenced by the environment and the social network around them (Vygotsky 1978; John-Steiner and Mahn 2012; Conn 2014). The fundamental role of language and culture for human development is imperative in Vygotsky's sociocultural theory and serves as the essential component focused on in this study. Working in Russia in the 1930s, Vygotsky

designed his theory to examine ‘the psychology of art; language and thought; and learning and development, including a focus in special educational needs’ (John-Steiner and Mahn 1996, p.192).

The beliefs embedded in sociocultural theory reflect the social difference model of ASD adopted from the outset of the study (Leveto 2018). The distinctiveness of Vygotsky’s sociocultural theory approach lies in his understanding of SEN ‘not as a biological impairment having psychological consequences, but as a sociocultural, developmental phenomenon’ (Gindis 1999, p.335). Vygotsky’s sociocultural theory acknowledges that outside factors influence and impact on the cognitive transformation of individuals and how they interpret, perceive and experience the world in which they live (Vygotsky 1978). The Vygotskian theory emphasises that ‘children are capable of far more competent performance when they have proper assistance (scaffolded learning) from adults’ (Gindis 1999, p.334). Regarding inclusive education, Vygotsky (1978) recommends that effective instruction should adopt appropriate and suitable methods to educate, and to strengthen psychological functions, communication skills and social relationships. Such assertions are embedded in this study as it seeks the best practices to support SCC development for autistic children. Adopting the sociocultural theoretical framework in the research provides structure and support for the concerns of the study and scaffolds an explanation of why effective EBPs support the learning and teaching of SCC for autistic children and the overall significance of this. Sociocultural theory describes learning and development as being embedded within social events and as occurring as a learner interacts with other people, objects and events in the collaborative environment (Vygotsky 1978). The researcher adopts a pragmatic approach to seeking out the information in the study, in the belief that we

should understand and uncover what works in education for autistic children and base the study on the ‘what and how to research based on the intended consequences’ (Creswell and Creswell 2018, p.48). The research questions and subsequent embedded questions that facilitated such an investigation are detailed next.

1.5 Research Questions

Reports from Daly *et al.* (2016), DES (2020) document that effective EBPs are taking place in schools across Ireland but the reports do not elaborate on how teachers choose and implement these practices, nor do they document the effectiveness of the practices for teaching SCC to autistic children. The reports also implement evaluative frameworks to meet the specific criteria set down by the organisations that commissioned the research, limiting the scope of the report (Daly *et al.* 2016; DES 2020). Similarly, we see the implementation of a suite of EBPs across schools in the United Kingdom, following on from heavy UK Government investment in ASD education (Parsons *et al.* 2013). However, despite the investment, ‘there is limited research exploring whether these educational strategies are effective and a lack of involvement of teaching professionals in the research’ (Parsons *et al.* 2013, p.268). Through sociocultural theory and with a pragmatic paradigm, the researcher seeks to capture what the NCSE reports deemed effective EBPs, by teachers who implement such practices for SCC. Embedded within the study is the idea of emancipation for teachers. The concept advocates that, as teachers, we accept the recommendations of outside agencies and researchers, answerable to government departments, when we should adopt an objective research approach to new proposals to assess critically their practicality as we delve into the components of the proposals (Hopkins 2008). The study provides teachers with the opportunity to voice their opinions and experiences of using

EBPs, reflecting sociocultural theory, to show what works for teaching SCC development for autistic children. Parsons *et al.* (2013) argue that a collaborative relationship between researchers and teachers is crucial to achieving improved awareness of, and outcomes for, autistic children, which reflects the co-construction of knowledge. Guided by the principles of sociocultural theory and drawing on the intensive literature reviews, the overarching research question that underpins the study is based on exploring teachers' perspectives of effective EBPs that support SCC for autistic children in early years Irish primary classrooms. The embedded questions that feature throughout the study are as follows:

Embedded Questions:

- Are teachers familiar with effective EBPs to develop SCC for autistic children?
- How do teachers report that these EBPs are being implemented and used in schools?
- How do teachers measure the effectiveness of EBPs?
- What are the contributing factors that influence the adoption of EBPs for teachers?

Informed by evidence of what works best for teaching SCC to autistic children in schools, through a systematic literature review, the researcher engages in the pragmatic approach to gaining knowledge. Accordingly, the research can contextualise the information from literature with the evidence from practising teachers and make it accessible to other stakeholders who have an interest in the field, leading to 'greater usefulness and relevance of data collected in schools and an eventual narrowing of the research–practice gap' (Parsons *et al.* 2013, p.277). The chapters in the thesis detail

different aspects of the journey towards answering the research question and the embedded questions. These different aspects are laid out in the subsequent section.

1.6 Organisation and Structure of the Thesis

The study is firmly rooted in literature and involved an extensive literature review process or tapestry that pieces together a journey through literature, as illustrated in Figure 2 below. Initially, the researcher explored the multifaceted nature of the research questions under investigation to become more knowledgeable about important aspects of the study. The literature review explores the study topics extensively, providing both the description and critical evaluations of the information. The review traces the intellectual progression of the research study, evaluates the evidence and provides pertinent information regarding the central concerns of the study.

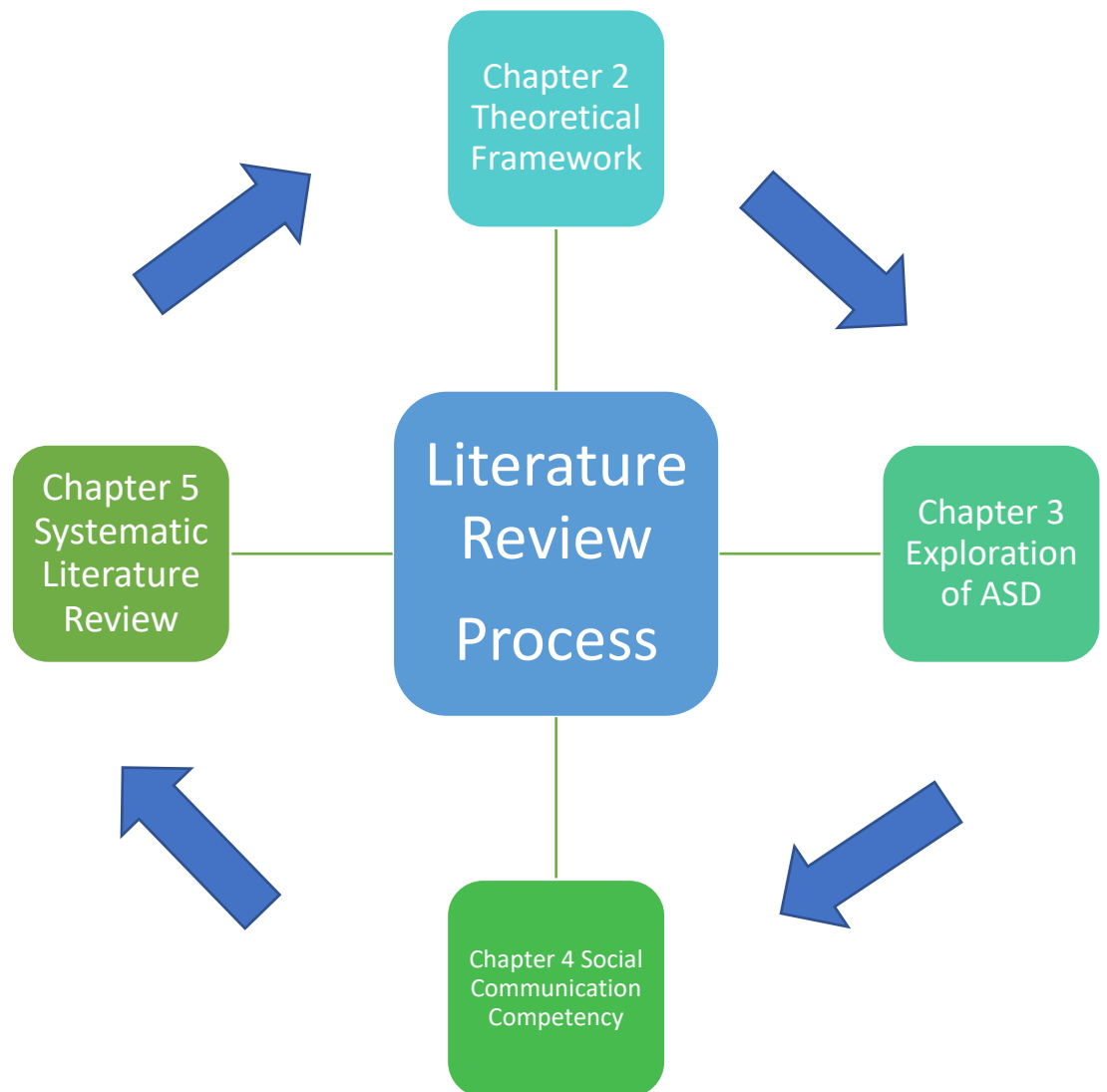


Figure 2: Literature Review Process

Chapter Two begins with the core foundation of the theoretical framework, based on the research variables, to anchor the study. Providing a strong theoretical framework helps explore the nature of the phenomena under investigation from an interdisciplinary perspective. Adopting the theoretical framework is important across all research designs; in social science, we should endeavour to have ‘a valid theoretical framework to justify the importance and significance of our work’ (Lederman and Lederman 2015, p.597). The chapter presents aspects of the journey taken that culminated in the choice of the theoretical framework to illustrate the significance of

sociocultural theory to this study. Framing the study with the sociocultural theoretical framework connects the research to existing knowledge and impacts on the research design overall. In doing so, sociocultural theory helps ‘explain why particular constructs were selected and the relationships between and among those constructs’ (Barczak 2014, p.878). The theoretical framework literature review provides evidence of the major constructs of sociocultural theory relevant to this study.

Chapter Three provides an exploration of ASD, highlighting characteristics, prevalence and key components relevant to teaching autistic children. Literature pertaining to specific core theories underpinning ASD characteristics provides important evidence relating to ‘current understanding of how autistic children think, feel and learn’ (Egan 2018, p.24). Exploration of such theories is warranted as it provides an insight into interventions and strategies that meet the learning needs of autistic children (Egan 2018). Cognitive theories that are of explicit importance to understanding ASD are discussed. According to Aspy and Grossman (2012), acquiring knowledge about ASD characteristics and etiology is helpful for designing interventions and developing understanding, but research must not overlook the underlying differences or theoretical perspectives. The Theory of Mind (ToM), Central Coherence (CC) and Executive Function (EF), and their potential to impact on SCC learning and teaching, are key elements in understanding how strategies and supports for interventions should be designed (Quill and Stransberry-Brusnahan 2017) and are addressed in this review. Following on from theory, the literature tracing the historical advancements of ASD provision through policy development is presented. Both judicial intervention and legislative policy provide a consolidated timeline of the development of ASD provision in Irish education.

Chapter Four scrutinises the next research element. Literature pertaining to the development of SCC and the different facets of this complex system are explored and presented. The chapter informs us of important theories relevant to SCC development. The importance of play and joint attention are noted. Key aspects of the Primary Language Curriculum (PLC), which serves as the guiding document underpinning teacher planning in primary schools, are highlighted (Shiel *et al.* 2012). Interpretation of the curriculum components regarding the formation and adaptation of the curriculum for children with SEN is put forward. Tracing the intellectual progression of the curriculum provides a clear picture of what information teachers use as the basis for teaching SCC for autistic children in schools.

Chapter Five completes the literature review process through a systematic review paper that draws out the EBPs recommended for teaching SCC to young autistic children and that have been proven to be effective in school settings. Engaging in the systematic review process ensures the researcher minimises bias, thus producing more valid and reliable outcomes (Krupinski 2019). Using the pre-specified method of the systematic process the researcher identified, collected and reported on studies that applied to the research question; this is key to the process as ‘authors should follow an established review guideline and use the study quality scoring guides’ (Krupinski 2019, p.199). The review adopted the Weight of Evidence (WoE) Framework, which provides a structure for making informed decisions (Gough 2007, p.223) and gives validation to the findings. The results of the systematic review serve as the basis of content and discussion in the data collection methods adopted in the study.

Chapter Six presents the research methodology. The mixed-methods research design reflects the theoretical framework and adopts a data collection procedure

deemed suitable to source answers to the research and embedded questions. Mixed-methods designs are highlighted as effective when one is attempting to scrutinise a problem from a complex educational or social setting (Tashakkori and Teddlie 2009), such as inclusive education. The research design applied permits the researcher to draw inferences from both quantitative and qualitative analysis to provide rich and rigorous findings (Mertens 2015). Documenting the epistemological perspectives and ethical considerations acknowledges any influences that could affect the study outcomes.

Chapter Seven provides a detailed report of the study findings from three phases of data analysis. Analysis of data from a comprehensive national survey is presented. The convergent mixed-methods research design adopted provides an interpretation of findings from national surveys, capturing a wide range of teachers' perspectives and experiences.

Chapter Eight uses the sociocultural theoretical framework as the lens to highlight findings in relation to the use and effectiveness of EBPs for teaching SCC to autistic children in school settings. The articulation of such findings with relevance to answering the research question is discussed. Conclusions and implications for future research, and the significance of the findings for education stakeholders, are considered.

1.7 Conclusion

Social communication competency is deemed imperative to our success in social interaction, learning, development, relationship formation and life experiences (Brock *et al.* 2020). The following chapters present an exploration of key components of SCC development as it is of considerable significance to the lives of autistic children (Barrett 2018). Such children present with challenges in this facet of learning and therefore

should have support to learn SCC competencies by teachers adopting EBPs that are proven effective to address the need (Quill and Stransberry-Brusnahan 2017). Through engagement in an extensive literature review, the researcher discusses and critiques literature specifically related to EBPs that support learning and teaching for autistic children. The literature reviewed provides an insight into the relevant aspects of ASD that impact on learning and the support needed by the children, who feature at the centre of learning and teaching interventions. Subsequently, the literature review maps out an account of the policies that have influenced how schools provide for the education of autistic children on both a national and international stage.

Recent reports from the NCSE in Ireland (Parsons *et al.* 2009; Bond *et al.* 2016; Daly *et al.* 2016) document the importance of using EBPs and, as a result, attest to the value of this study, which is both warranted and timely to enhance provision and inclusive education for young autistic children in Irish primary schools. The thesis documents the research journey undertaken. The theoretical framework that guides all the literature reviews and research in this study provides the backdrop and is therefore presented at the beginning of the literature review chapters.

CHAPTER TWO

LITERATURE REVIEW: THEORETICAL FRAMEWORK

2.1 Introduction

Adopting a theoretical framework in research is imperative for guiding the development of the study (Mertens 2015). Proposing the theoretical framework at the beginning of this study creates a structure determining what to look for and how to interpret data, facilitating a clearer discussion on the relevance of the research (Kivunja 2018). Understanding the intellectual structure of a theoretical framework guides the study and the interpretation of data through ‘a specially designed set of lenses that you use in order to see the world in a particular way’ (Troudi 2010, p.2). Chapter Two documents the journey undertaken towards the adoption of sociocultural theory, as outlined in the works of Lev Vygotsky (1978).

Sociocultural theory is founded on the belief that cognitive development is situated in social interaction and cannot be separated from the social and cultural context from which it originates (Mahn 2018). Vygotsky postulated that mental abilities in individuals emerged from social interaction, ‘first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the learner (intrapsychological)’ (Vygotsky 1978, p.57). The mental abilities, according to Vygotsky, are influenced by social and cultural engagement and are mediated by culturally created tools, such as language, materials, signs and symbols, that lead to personal forms of higher-level cognition (Mahn 2018). Through the sociocultural lens, researchers can explore and interpret how individuals learn social communication competency (SCC) as social development is fundamental in Vygotsky’s theory

(Hudson *et al.* 2016). Exploration of the main constructs of sociocultural theory provide a scaffold for the study and the means to map how teachers of autistic children use evidence-based practices (EBPs) to teach SCC. Although the research is underpinned by sociocultural theory, the researcher engaged in a review of literature to achieve clarity on the framework. This process is documented in the following section.

2.2 Journey Towards the Theoretical Framework

Adopting a theoretical framework from the outset provides sound underpinnings guiding all aspects of the research; this framework acts as a ‘map of how the research will be conducted and analysed’ (Bell 2010, p.106). A theoretical framework facilitates the design, implementation and evaluation of the effectiveness of the proposed study and provides plausible explanations of the researcher’s findings (Kivunja 2018). The journey towards sourcing such a framework came from a thorough literature review of the work of experts in the field of study (Mertens 2015). The major theories explored to inform the theoretical framework were identified as those influential in psychology and based on cognitive, language and SCC in early years.

There are several theories and concepts proposed in educational psychology to assist teachers’ understanding of critical aspects of classroom learning. While there are many theories to explain how children learn and how they learn to communicate, the researcher has selected three schools of thought that could be useful in explaining the EBPs that teachers adopt for teaching SCC to autistic children as these theories underpin much of the concepts behind EBPs. These are behaviourism, nativism and constructivism. The theories are outlined and critiqued below. Further analysis provides

a clear path to the choice of theoretical framework adopted in this study. Figure 3 illustrates the theoretical framework journey.

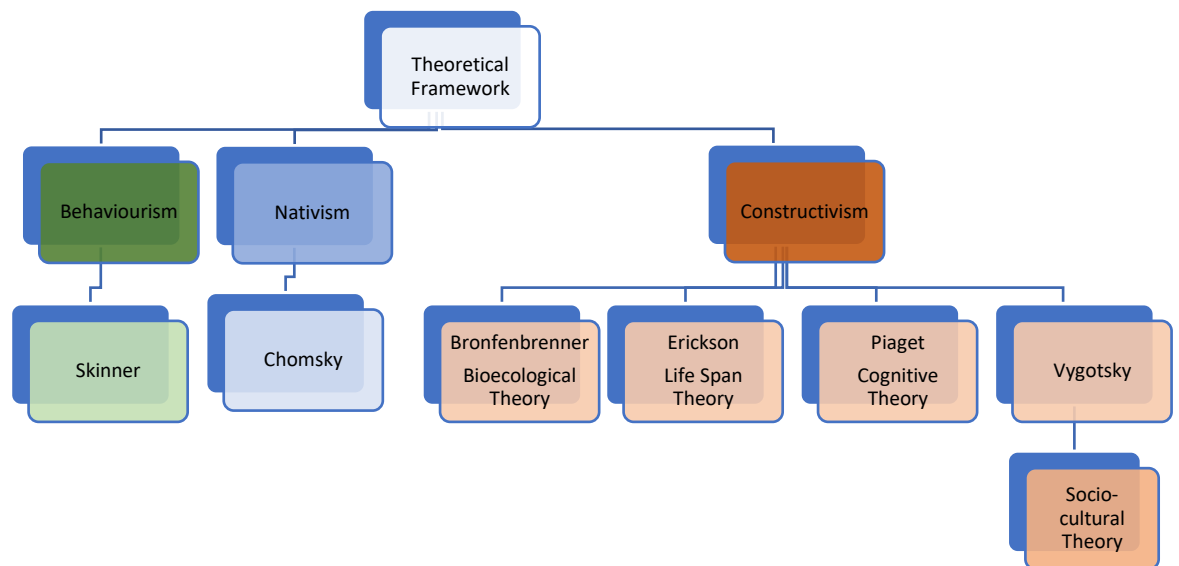


Figure 3: Theoretical Framework Journey

2.3 Behaviourism Theory

Behaviourism is a perception of learning that concentrates on changes in individuals' discernible behaviours and actions (Jones and Bawazir 2018). One of the pioneers of behaviourism was a Harvard professor named Burrhus Frederic Skinner. Skinner's behaviourism theory is based on the idea of conditioning and the use of reinforcement to shape behaviour (Skinner 1957) and is often referred to as 'radical behaviourism' (Staddon 2017, p.2). In his book *Verbal Behaviour*, published in 1957, Skinner also accounts for measurable and observable aspects of language, as they develop in children. Skinner (1957) proposes that through behaviourism, children develop the ability to produce functional units of verbal utterances. Moreover, the behaviourist theory proposes that people's communication is shaped by the response provided,

whether positive or negative in connotation (Johnson *et al.* 2017). Communication development, under Skinner's model, is heavily reliant on adult reinforcement of the child's language (Vargas 2014; Johnson *et al.* 2017). Despite being published in 1957, Skinner's book has seen an unprecedented revival due to the application of his theory to the teaching of autistic children in the 1990s (Vargas 2014). The behaviourist theory is the foundation of what is known as 'behaviour analysis' today and forms the basis for many of the behavioural tactics used in interventions (Johnson *et al.* 2017). According to Pound (2008), behaviourism permeates many of the teaching approaches evident in practices supporting children with special educational needs (SEN) and behaviour management.

Skinner's theory that language was an operant stood in opposition to the work of many thinkers in similar fields at the time and was criticised because it did not include internal processes (Jones and Bawazir 2018). One such critic was fellow theorist Noam Chomsky, who characterised behaviourism as shallow and basic because it did not include information about the 'internal structure of the organism, the ways in which it processes input information and organizes its own behaviour' (Chomsky 1959, p.49). Behaviourism has also been criticised as a clinic-based approach producing great results experimentally but one that is unsuccessful at explaining the results or promoting the generalisation of the skills learned for children (Staddon 2017). As a theoretical framework for this study, behaviourism lacks the necessary mechanisms for investigating classroom use of EBPs by teachers and is therefore deemed unsuitable.

2.4 Nativist Theory

As noted above, Chomsky found discrepancies in the behaviourism theory, specifically regarding a child's ability to communicate with words that adults have not exposed them to. Chomsky showed us that 'the challenges faced by the behaviouristic theories could be overcome by proposing a psychological system capable of representing, manipulating and interpreting stimuli' (Ó Siochrú 2018, p.72). According to Chomsky, a baby is born with an innate linguistic mechanism, called the Language Acquisition Device, which predisposes them to absorb and decode language (Woolfolk *et al.* 2013). For Chomsky, children are programmed with an innate capacity for language and are born with certain arbitrary language rules which are activated by the environment within which they develop (McGann 2018). The nativist perspective argues that the 'language faculty is part of a larger mental system' (Brock and Rankin 2008, p.115); Chomsky's 'universal grammar' is the label given to the innate characteristics that children bring to acquiring a language and developing communication (Evans and Levinson 2009; Woolfolk *et al.* 2013). Critics of the nativist theory propose that children cannot be exclusively biological learners and aspects of the theory have been deemed unrealistic (Margolis and Laurence 2013; Santrock 2018). The concept of innate Universal Grammar is described as unacceptable and debated by many renowned scholars (Gregg 2003). The innate theory is described as failing because:

it is said to be unscientific and theoretically lazy (in avoiding the real work of explaining where psychological capacities come from), overly intellectualist (for positing too many complex psychological processes), and excessively speculative.

(Margolis and Laurence 2013, pp.693–694)

However, despite their shortcomings, aspects of Chomsky's proposals have shaped our current perspectives and merit respect for the paradigm change that the

theory generated (Margolis and Laurence 2013; Woolfolk *et al.* 2013). The theory is not robust enough to sit as a theoretical framework for the current study as the innate characteristics of nativism are unable to explain many known traits of autism (Bushwick 2001). One further suggestion that has been highlighted as essential is the aspect of social learning (Bushwick 2001) which is part of constructivist learning.

2.5 Constructivism

Behaviourist and nativist theories of learning clarify and shape what children do, but this study is concerned with how teachers enrich learning for autistic children acquiring SCC. Constructivism is a perspective on learning centred on how children actively construct knowledge out of their experiences (Bada and Olusegun 2015). Constructivism has different models of learning, proposed by several theorists, who share contrasting views on how a child constructs knowledge independently, compared to the influence of others in their environment. Four major theories in psychology that feature aspects of constructivism are outlined in the subsequent sections. These are: Bronfenbrenner's ecological theory; Erickson's life-span theory; Piaget's cognitive theory; and Vygotsky's sociocultural theory. Shedding light on each of the theories in turn provides context for the adoption of the sociocultural theory in the study.

2.5.1 Bronfenbrenner's Bioecological Theory

Bronfenbrenner's (1979) bioecological systems model was developed as a framework conceptualising the relationships between different existential environmental levels and their impact on human development (Onwuegbuzie *et al.* 2013). Originally developed in the 1970s, the theory was revisited numerous times, right up to Bronfenbrenner's death in 2005 (Rosa and Tudge 2013). The foundations of the theory reflect five

environmental levels – the microsystem, the mesosystem, the exosystem, macrosystem and the chronosystem – with each level influencing development in different ways (Bronfenbrenner and Morris 2006). The bioecological theory addresses the interconnectedness between children’s development and the influential people around them, ‘examining the social contexts on both micro and macro levels’ (Santrock 2018, p.72). Within these levels, Bronfenbrenner’s (1979; 1986) bioecological theory cites the powerful role of the family in childhood development (Ring *et al.* 2018b). The bioecological model is not without criticism. Elliot and Davis (2020, p.1119) describe the theory as ‘a deeply anthropocentric model of human development’, one focused on the centrality of humankind, to the detriment of human–nature connections important in early childhood philosophy and education. Others criticise the theory because it is prone to misinterpretation, which leads to misappropriation of its use as a theoretical framework (Elliot and Tudge 2007). In relation to this study, Bronfenbrenner’s theory provides many relevant theoretical underpinnings but was deemed inappropriate as it would necessitate parental and family input in addition to relevant others in the child’s environment (Darling 2007), which are acknowledged, but do not feature, as key elements of this research programme.

2.5.2 Erickson’s Life-Span Theory

Erik Erikson developed a theory outlining eight stages of human development in 1968. Like Bronfenbrenner’s view on the social contexts of human development, Erikson proposed a staged process for development (Santrock 2018). Erickson’s theory is fundamentally psychosocial, placing importance on social and cultural influences across the lifespan of the individual (Syed and McLean 2017). The theory meshes with

our current belief in the trajectory of human development throughout life, as opposed to confining it to childhood (Santrock 2018). The stages outlined in the theory represent developmental milestones that individuals must pass as they go through life (Syed and McLean 2017). Critics of Erikson's life-span theory highlight its rigidity and question the interconnectedness of each milestone (Côté 2019). Jordan and Tseris (2018) challenge the belief that individuals with SEN experience poor development through the stages and are therefore fundamentally perceived as diminished in adulthood. Although Erikson's theory has some valuable contributions to make in terms of human development, it is believed to be more appropriate for understanding older children (Santrock 2018). Therefore, the overall scope as a theoretical framework is deemed inappropriate for the study.

2.5.3 Piaget's Cognitive Theory

The Swiss psychologist Jean Piaget is championed as a pioneer of psychology for his contributions to understanding children's intellectual development (Lerner and Johns 2015). Children's means of constructing knowledge is centred on 'schemas, assimilation and accommodation, organisation, and equilibration' (Santrock 2018, p.40) in the theory. Like both Erikson and Bronfenbrenner, Piaget outlined stages in development of cognitive growth in children; these are known as maturational stages of development (Lerner and Johns 2015). Specifically, Piaget's theory nuances the role of the child as an active participant in his or her development, crediting the secondary role of the adult and the importance of peer social relationships in a child's development (Ring *et al.* 2018b). Although the critical focus is placed on the individual in Piaget's theory, he acknowledged adult and peer interaction as having a role in children's cognitive development (Tudge and Rogoff 1999). However, criticisms of the theory

stress the rigid thinking around the uniformity of children's development (Santrock 2018) and state that the theory was 'non-experimental, non-statistical and relied upon description and interpretation' (Ó Siochrú 2018, p.135); this contrasts with the aims of this study, which is focused on EBPs used by teachers to support autistic children. As a result, the theory was ruled ineligible as a theoretical framework.

2.5.4 Vygotsky's Sociocultural Theory

Derived from the seminal work of Lev Vygotsky in 1978, sociocultural theory was cultivated on the premise that children's cognitive development hinged greatly on social influences and instruction (Vygotsky 1978). Sociocultural theory views development as a socially mediated procedure within which people are able to develop their 'cultural values, beliefs, and problem-solving strategies through interactions with more knowledgeable members of society' (McLeod 2020, p.1). Vygotsky's theory proposed that there is no unified principle attributable to an individual's learning and development; instead, learning is derived from concepts such as the Zone of Proximal development (ZPD), the More Knowledgeable Other (MKO) and culture-specific tools (Pressick-Kilborn *et al.* 2005; Daniels 2009; Ó Siochrú 2018). Although the theory has similar constructivism attributes to Piaget's, Vygotsky's sociocultural theory is steeped in social constructivism, that is, it focuses on the generation of knowledge and learning through social interaction (Santrock 2018).

In conceptualising an approach to investigating EBPs that teachers use to teach SCC to autistic children, the constructs found within sociocultural theory were viewed as a favourable framework. Vygotsky argues that teaching interventions should target the differences of the child with SEN, seeking to minimise the occurrence of further

challenges (Daniels 2009). Vygotsky's sociocultural theory highlights the importance of pedagogical activity or teaching interventions, not as applications of sociocultural theory, but as a means of understanding human cognition and the way that the mind develops (Van Compernelle and Williams 2013). Vygotsky (1997) uses the term 'praxis' to describe the merging of theory and practical activities and through this he proposes that 'theory provides a basis to guide practical activity, but at the same time practice informs and shapes theory' (Lantolf and Poehner 2011, p.12). By using the sociocultural theoretical framework, this study is able to focus research on the teachers' use of EBPs, to support learning of SCC for autistic children, concentrating 'not only on individuals, but also on the interactions between them, and on the broader settings in which these interactions occur' (Pressick-Kilborn *et al.* 2005, p.27). Vygotsky's sociocultural theory is concerned with 'relationships between individual and collective dimensions of social practice' (Hudson *et al.* 2016, p.28), as seen within the dynamic of the classroom (Daniels 2009) and represents core elements of the research study. Sociocultural theory challenges us to move away from the deficit focus when SCC is impaired for a child and to focus interest on capabilities instead. Adopting such an approach promotes an interrogation of 'what individuals understand, believe and do within a social context, whether socially effective or not' (Conn 2014, p.2), reflecting the shift from a deficit to a difference model in Autism Spectrum Difference (ASD) research. Vygotsky suggests that 'a child whose development is impeded by a disability is not simply a child less developed than his peers; rather, he has developed differently' (Vygotsky 1993, p.30). Even though his work took place in the 1930s, Vygotsky had the progressive belief that we must amend negative societal viewpoints towards individuals with SEN; and as special education teachers, this should be a priority of our remit (Vygotsky 1995), a facet proposed from the outset of this study.

The perspective of the socioculturalist is described as ‘holistic and ecological’ (Conn 2014, p.7), focusing attention on the influences upon a child’s learning and social development from the environment. Vygotsky proposed certain constructs which influence the learning and social development of children. These include the concepts of ZPD, the role of the MKO and tiers of culturally created tools (Daniels 2009). Each of these constructs is discussed individually to highlight their significance for the study.

2.5.4.1 The Zone of Proximal Development

Rooted within sociocultural theory is the rudimentary concept of the ZPD, which Vygotsky uses to account for the developmental and learning changes that occur in children (Shabani 2016). In Vygotsky’s writing, he defined the ZPD as:

the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under guidance or in collaboration with more capable peers.

(Vygotsky 1978, p.86)

In addition, through the ZPD, the socioculturalist believes ‘the social becomes manifest at the level of the individual ... [and] that learning impacts upon and contributes to development’ (Pressick-Kilborn *et al.* 2005, p.27). The theory emphasises social interaction and the concept of the ZPD guides us towards focusing on how ‘individual cognitive and affective processes originate in actual human interactions’ (Eun 2019, p.18). Adopting the sociocultural theoretical framework is a recognition that studying a child’s development involves understanding that ‘individual, interpersonal and cultural processes are not independent entities’ (Rogoff 1998, p.687). As a result, sociocultural theory is concerned with outlining the relationship between learning and development, and the teaching interactions within these two pillars in the ZPD (Shabani

2016). According to the theory, an individual's current level of performance, or ZPD, can be exceeded through mediation from others, which then encourages further development (Vygotsky 1978; Poehner 2008). In this mode of mediation, assessment and instruction are interlinked in the same activity; this activity reveals challenges to a learner's performance and provides an opportunity to overcome the challenges with the mediator (Poehner 2008).

Learning SCC within the ZPD is particularly relevant as the window of interaction provides an insight into what a person is 'able to perform independently and the ability to perform a more difficult task with assistance, yet without frustration' (Semmar and Al Thani 2015, p.2) – a necessary component of communication. The core characteristics of sociocultural theory are relevant in research for autistic children and how SCC are taught using EBPs, as learning in the ZPD is driven by the processes and sociocultural experiences of each individual (Conn 2014). It is noteworthy to mention that, according to Vygotsky, such capacity within the ZPD exhibited by children with others' help is believed to be the purpose of teaching (Wang 2009). In effect, teachers should strive to maximise the time that autistic children are facilitated to learn with peers and their teachers (Sulaimani and Gut 2019). As documented by Semmar and Al Thani (2015), Vygotsky believed that children could capture their individualised thinking to transfer to the next zone when supported by others. Furthermore, as the child learns through social interactions, this learning becomes internalised or self-regulated (Vygotsky 1978) and used to enhance subsequent development (which the child cannot attain independently) (Poehner 2008). Vygotsky's theory of the ZPD impacts upon how teachers predict and influence the learning ability

of each individual child, the decisions regarding their teaching pedagogies and the assessment approaches (Wang 2009).

The pursuit of positive abilities and qualitative attributes in children with SEN is the hallmark of Vygotsky's approach; his work emphasises the need to look at SEN 'from the point of strength, not weakness [and] he labelled this positive differentiation' (Gindis 1999, p.335). Vygotsky stipulates that all children learn from the people and environments within which they are situated. As a result, the relationships between these situations and the individual impact on the social processes and the ZPD in increasingly sophisticated ways (Conn 2014). Through such relationships, Vygotsky highlights the significant impact of the MKO (Vygotsky 1978).

2.5.4.2 The More Knowledgeable Other

Within the promotion of his theory, Vygotsky proposed another mitigating factor for child development of particular significance for the study: the role of the MKO (Vygotsky 1978). The Vygotskian approach details that 'learning is social in origin, and it happens in the presence of others that are more knowledgeable' (Abtahi *et al.* 2017, p.275). According to sociocultural theory, the establishment of an individual's realisation and cognition requires relations with others in a socially driven activity, which can shape the person's make-up (Gindis 1999). Vygotsky believed that only through interactions and the support of an MKO will a learner operating in their ZPD be enabled to reach their learning potential (Abtahi *et al.* 2017; Eun 2019). The MKOs are described as agents of change; these can be as teachers, adults or peers, all of whom can impact the child's learning (Roth and Radford 2010; Semmar and Al Thani 2015). These agents of change influence how children engage with social processing as they

develop their understanding of the social norms around them (Daniels 2009; Eun 2019). According to sociocultural theory, teachers must therefore strive to develop engaging pedagogical approaches and activities that facilitate child interaction with peers and teachers (Putnam 2009).

Vygotsky describes how children's psychological function will transpire twice, first on a social level (interpsychological), and secondly on a personal level within the child (intrapsychological) (John-Steiner and Mahn 1996; Wang 2009; Ring *et al.* 2018b). Autistic children are particularly susceptible to interpsychological/intrapsychological interaction. By their nature, the children draw from the social worlds of significant adults; their 'own interests, ideas, beliefs and perceptions' (Conn 2014, p.7) are applied to the interactions to make sense of them. Through their teachers, children in schools engage in activities related to classroom lessons and instructional practices. Such social interactions cause their normal thought processes, based on experience, to change from the scientific to the true context (Shabani 2016, p.10), as outlined in sociocultural theory. When beginning a learning experience, children depend on others who have more experience; as the process continues, they begin to assume more responsibility for their part in the joint activity (John-Steiner and Mahn 2012). The relevance of the theory for the study is evident, as through sociocultural theory we can explore how teachers and peers use EBPs to influence the individual capabilities of autistic children, and therefore provide knowledge extension, which takes place in the right contexts for social learning to occur (Vygotsky 1978). According to sociocultural theory, such learning contexts may include 'adult or peer tutoring; cognitive apprenticeships between an expert's and a

novice's understanding and use of a cultures skill; and cooperative group learning' (Putnam 2009, p.87).

The process of supporting learning within the sociocultural theory perspective has also been described with different terms, such as 'modelling', 'mentoring' and 'cognitive scaffolding'. Modelling is described as a support mechanism and sociocultural theory promotes the role of the teacher as vital to the practice: 'a good teacher gently prompts the child to deepen his or her thought processes through modelling' (Semmar and Al Thani 2015, p.2). Through the construct of modelling, Vygotsky (1978) believed the MKO could provide clarity and guide the learner to new thinking and expansion of their knowledge. Shabani (2016) interprets Vygotsky's theory, using the term 'mentoring' or 'scaffolding' to discuss how the MKO must simultaneously lead a learner into an activity, while participating in the interaction themselves – just like the mother–child dyad. The interchange between an observed teacher and a mentor shows they can improve their learning through feedback; at the same time, the expert can address their teaching aspects and pedagogical approaches (Shabani 2016). In sociocultural theory, teachers then become seen as 'facilitators or guides' (Putnam 2009, p.87) to move beyond talking and lecturing as their pedagogical approach and concentrate on active learning for children in their ZPD. Both the principles of ZPD and MKO outlined are heavily influenced by a key aspect in Vygotsky's theory: the role of language.

2.5.4.3 The Role of Language

Vygotsky's sociocultural theory proposes that language is cultivated by social interactions and is driven by communicative purpose (Vygotsky 1987). In his accounts,

Vygotsky (1987) alludes to the dual roles of language that are imperative to cognitive functioning, meaning language is the primary means by which information is transmitted to developing children and language is a tool of intellectual adaptation. According to Vygotsky's theory, 'the acquisition of language of such dual nature is the foundation of all our verbal and higher mental thinking' (Liu and Matthews 2005, p.393). The theory emphasises that the principle and distinctiveness of human development lies in our facilitation by material tools and social language and that knowledge and cultural competence is obtained through the incorporation of social signs, beginning with language (Gindis 1999). Social language is the key to Vygotsky's theory regarding human cognition and is seen as a foundation of his theoretical framework, which is especially applicable for those involved in the reception and construction of real communication through symbolic representation (Mahn 2018).

Vygotsky (1962) discusses a trio of language forms: social speech, which happens in communication with others; private speech, which is an early expression of inner speech used by an individual to guide themselves and has a cognitive function; and inner speech, which happens as children get older, and 'is to a large extent thinking in pure meanings' (Vygotsky 1962, p.149) and has a self-regulating purpose. For Vygotsky, the importance of private speech was imperative as it represented the 'transition point between social and inner speech, the moment in development where language and thought unite to constitute verbal thinking' (McLeod 2020, p.8). Through private speech, Vygotsky believed children can plan out strategies to actively participate in their own development, influenced by the social culture around them and indeed the teaching approaches adopted (Putnam 2009). Private speech is therefore of vital importance to learning, experience and behaviour regulation (Vygotsky 1962).

Vygotsky's view of communication and language in cognitive development recognises immediate sensations and perceptions that are associated with learning, which he sees as tools of intellectual adaptation (Daniels 2009). Current research indicates that for people to function well, the brain must 'receive, integrate, and respond to an ongoing stream of external sensory information [that] is critical for adaptive responses to the environment (Tavassoli *et al.* 2018, p.73). While Vygotsky's sociocultural theory acknowledges the roles that perception and sensation have in our development, he is concerned with 'language-mediated thinking that he calls the higher mental ability, for the transition from the immediate sensation to thinking' (Liu and Matthews 2005, p.394). Recognising the impact that sensation and sensory processing have on people is important as challenges with processing sensations affect 70–80% of autistic children in many ways (Aspy and Grossman 2012; Tavassoli *et al.* 2018). Through sociocultural theory, we see what Vygotsky deems private speech, championed as a means for children to self-regulate behaviour, process sensory information and structure their activities, which is significant for autistic children (Aspy and Grossman 2012). According to sociocultural theory, the role of language in such social interaction is further impacted by tools of intellectual adaptation.

2.5.4.4 Culture-Specific Tools of Intellectual Adaptation

Vygotsky proposes that children are born with innate tools for cognitive development, calling these 'elementary mental functions ... [of] attention, sensation, perception and memory' (Vygotsky 1978, p.90). Through such functions, new learning and development happens as individuals are nurtured in their societal setting or community (McLeod 2020). In their community, 'enculturation occurs as learners participate in practices in collaboration with more capable others, or with experts' (Pressick-Kilborn

et al. 2005, p.27), through a nurturing process of cognitive scaffolding. Moreover, the social enculturation process hinges on the ZPD because ‘only what is within the very next developmental zone can be internalised via mediation from others, through social interactions’ (Eun 2019, p.20). Within children’s society, ‘human relations with the world are not direct, but mediated by physical and symbolic tools’ (Shabani 2016, p.3). From mediation in the ZPD, the learning can be internalised and become independently acquired by the learner, at which point the support can be withdrawn (Eun 2019, p.20). Eventually, through the enculturation process, the elementary mental functions develop into more effective ‘higher mental functions’ (Vygotsky 1978, p.90). The higher mental functioning features attributes including ‘abstract reasoning, logical memory, language, voluntary attention, planning, decision making’ (Gindis 1999, p.335), which appear gradually because of the transformation of the elementary functions (Vygotsky 1978).

Each culture and society influence the tools that young children have to move from elementary to higher functioning cognitive development. The tools of intellectual adaptation (Vygotsky 1978) are the thinking and problem-solving strategies that children develop in the ZPD and interactions with the MKO (McLeod 2020). The society and environment surrounding the learner affects the tools that the child uses, including the skills they learn and the education they receive and are therefore socioculturally driven (Daniels 2009). Vygotsky mentions numerous tools which mediate individuals through learning experiences. Examples of these culturally specific tools include ‘language, various systems of counting, mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps and mechanical drawings; [and] all sorts of conventional signs’, all of which feature symbolic representations (Vygotsky 1981, p.137). Formation of the tools of intellectual

adaptation derive from the culture to which the child belongs and, because of their active engagement and community participation, the children themselves learn to use these tools (John-Steiner and Mahn 1996). Such specific cultural use of tools is significant for autistic children; Vygotsky emphasises that as a society,

we have already adapted tools to support children who learn through different means such as sign language and communication systems, providing accommodations for learner's unique needs.

(Gindis 1999, p.335)

Vygotsky also warns that the expectations and mindsets of social milieu and circumstances created by a culture may hinder the access of a child with SEN to 'sociocultural learning experiences, and prospects to acquire both types of psychological tools' (Gindis 1999, p.335). Therefore, sociocultural theory emphasises that society has a responsibility to understand that human cognitive development cannot be disconnected from the social, cultural and historical settings in which it takes place (Johnson and Golombek 2011). We must be mindful of this with regards to learning for children with SEN and the practices we adopt to support access to tools of intellectual adaptation.

2.5.4.5 Sociocultural Theoretical Framework and Evidence-Based Practices.

The sociocultural theoretical framework is also pertinent to the use of EBPs. The theory assumes the 'view that human thought processes ... are shaped by the demands of the practical activities in which people are regularly engaged' (Hudson *et al.* 2016 p.28), such as the EBPs used to teach SCC. Throughout his writings, Vygotsky (1978) postulates that to develop our understanding of learning and development we must intervene in the process. In the classroom, 'this entails designing pedagogical

programmes that create the conditions under which developmental processes may be set in motion and observed' (Van Compernelle and Williams 2013, p.278). Sociocultural theory stresses that learning must be socially situated in real-life relationships to facilitate learning for all those involved (Conn 2014). The relationship between the MKO and the child forms a basis for communication and language mastery. Through the relationship process in the classroom, the child may engage in 'transmission, construction, transaction and transformation [of learning] in a continuing, complex interplay' (John-Steiner and Mahn 1996, p.192). As teachers, we must therefore adopt the most appropriate methods to ensure children can access these processes.

Others have noted, however, that participation in social practices and pedagogies, used to design learning, are mitigated by the resources and constraints of the abstract tools available (Scribner 1997; Shabani 2016), such as the characteristics and use of EBPs in educational settings. Vygotsky believes that, based on a child's strengths and differences, specialised interventions may be required in appropriate settings where the child would not develop further challenges (Vygotsky 1993). However, if teachers do not intervene appropriately with such EBPs to teach SCC to autistic children, we may see what Vygotsky called 'progressive divergence in social and natural development', whereby children's needs are not met, leading to social deprivation and the emergence of further delays (Gindis 1999, p.335). The progressive and inclusive features of sociocultural theory have highlighted the theory as the most appropriate to underpin this research.

2.6 Conclusion

Applying the sociocultural theoretical framework to the study will facilitate a particular perspective to analyse the social and organisational conditions within which teachers choose and apply EBPs, which has ‘been reflected in much of the extant research on the problem of implementation’ (Hudson *et al.* 2016, p.28). In this chapter, the researcher highlighted the journey undertaken that led to the choice of sociocultural theory as the overarching framework for the study. However, it is noteworthy to reflect that all the theories mentioned shed light on different aspects relevant to the study and feature as part of the formation of the theoretical framework. According to Jones and Bawazir (2018), immersion in different theories provides a focus and context for researchers on key aspects so that they can filter these down to develop a balanced outlook on relevant debates and perspectives for their study. The sociocultural theoretical framework orientates the study in social interaction, recognition of diversity, the importance of the role of language, the MKO, the ZPD and cultural tools of intellectual adaptation. Situating the study in sociocultural theory helps the researcher position teachers using EBPs at the centre of these core elements for autistic children learning SCC. To develop an understanding of ASD, the key characteristics which influence SCC development are outlined in detail in the next chapter.

CHAPTER THREE

LITERATURE REVIEW: AUTISM SPECTRUM DIFFERENCE

3.1 Introduction

Chapter Three presents a literature review pertaining specifically to Autism Spectrum Difference (ASD). In doing so, the researcher delivers a synopsis of the evolution of our understanding of ASD, from the first use of the term to our current understanding. The chapter will present detail specific to the history, characteristics and prevalence of ASD. An overview of the legislative framework in relation to ASD in Ireland, is also provided; this is followed by a description of the key cognitive theories related to ASD which impact on how autistic children think and learn. Through the exploration of the literature on ASD, the spectrum of neurodiversity and the complexity of differences are illuminated. The literature reviewed provides key detail as the journey continues for more knowledge, building from the previous chapter of the theoretical framework. This ongoing journey through literature presents an ever-evolving tapestry that is interconnected overall.

3.2 History of Autism Spectrum Difference

The conceptualisation and development of ASD terminology has its foundations in the early 1940s and in the seminal works put forward by American psychiatrist Leo Kanner in 1943 and Austrian paediatrician Hans Asperger in 1944 (Baron-Cohen 2015). Apparently unaware of each other's work, both men documented aspects of what we relate to as autism today (Wing 1997; Santrock 2018). Leo Kanner worked at Johns Hopkins Hospital in the United States and his paper '*Autistic Disturbances of Affect*

Contact', written in English, describes early infantile autism (Baron-Cohen 2015). Since its publication, Kanner's work has been widely received and referred to around the world (Baron-Cohen 2015; Harris 2016). In contrast, Hans Asperger's paper, written in German, did not receive international acclaim until it was translated and brought to the world's attention by child psychiatrist Lorna Wing in 1981 (Baron-Cohen 2015; Harris 2016). Asperger described adolescents he observed as 'autistic psychopaths' (Czech 2018, p.1), but today his name is associated with Asperger Syndrome, which was assigned posthumously, in recognition of his work (Czech 2018). Controversially, Silberman (2015) disputes the coincidence of both Kanner and Asperger recording autism within a year of each other and postulates that a visiting professor may have been the link between both papers. Furthermore, Wing (1997) alludes to many earlier accounts by different authors of individuals whose behaviour is suggestive of autism, but notes that the foundations of ASD research are often attributed to the period when Kanner and Asperger were writing (Wing 1997).

The evolution of ASD terminology has seen the shift from childhood schizophrenia in the Diagnostic Statistical Manual (DSM) (1952) to current understanding, which acknowledges a spectrum of differences (DSM-5 2013). The journey to such an evolution, over approximately 60 years, is marked by a myriad of conflicting treatments and theories, originating back as far as the first official recognition of autism. The theory of 'refrigerator mothers' or 'bad mothers' emerged in the 1950s in psychoanalytic theories (Douglas 2014, p.94). Lack of parental affection and a breakdown in the parent-child relationship was framed as responsible for ASD, a theory proposed by Kanner in (1943). Observing that a high proportion of the children in his studies had career parents, Kanner suggested that the children's autism was

exacerbated, or even caused, by lack of affection from cold, detached parents (Wing 1997). Bruno Bettelheim, a leading postulator of the ‘refrigerator mother’ theory, proposed the idea of ‘parentectomy’, where a child would be placed in what Bettelheim termed a more nurturing environment away from the parents (Crowell *et al.* 2019, p.22). Around the time, Hans Asperger was controversially linked to childhood euthanasia for children who were further along the autism spectrum (Czech 2018). These theories and treatments were subsequently challenged, eventually disproved and stopped (Crowell *et al.* 2019).

Subsequent to the refrigerator mother theory was the introduction of ‘holding therapy’, which emerged in the 1970s (Mercer 2014, p.188). Proposed as an alternative therapy and used on autistic people, holding therapy employed the use of physical restraints (Fitzpatrick 2006). The procedure has since been deemed ‘potentially harmful’ and ‘unsupported in effectiveness’ (Mercer 2014, p.188), as was the acceptance of ‘punishment as a therapy for stereotypical behaviours’ (Ratnakaran 2017, p 121). The emergence of the association between the measles, mumps and rubella vaccine and ASD in 1998 saw Andrew Wakefield discredited as fraudulent for the inflammatory and untrue claims he published (Flaherty 2011). Many of these controversial theories have been challenged and dismissed through the influence of parental power and research (Wing 1997; Fitzpatrick 2006; Mercer 2014; Czech 2018). Interventions for autistic children have changed exponentially and current theories related to ASD feature two prominent disciplines – the biomedical and the social model, both of which report on individual characteristics of ASD.

3.3 Characteristics of Autism Spectrum Difference

The characteristics of ASD and indeed ‘the field of autism studies is interdisciplinary, contentious, and heavily disputed terrain’ (Leveto 2018, p.2). Many conflicting views exist within the discourse on ASD. The biomedical model imposes a view that ASD is a dysfunction caused by abnormalities and problems in the brain (Lerner and Johns 2015; Amaral 2017; Santrock 2018). The model therefore takes the view that such a disorder needs a remedy, treatment or cure, or to be defeated (Hart 2014). The neurodiverse movement, however, has shifted its view towards a social or difference model, preferring to see autism as a naturally occurring brain difference as opposed to a disorder (Kapp *et al.* 2013; Ring *et al.* 2018a). From a sociocultural perspective, ASD is observed as being ‘concerned with the dynamic and unfolding nature of social contexts with which individuals with [ASD] must engage’ (Conn 2014, p.2). The ASD community proposes that the neurological variation in people requires more acceptance. It is for this reason that many have chosen to adopt the difference approach in their discourse (Silbermann 2015; AsIAM 2021).

The recent evolution of social media has given previously unheard voices in the models of ASD debate a chance to have their say (Conn 2014; Baron-Cohen 2015). For the first time, autistic people, parents, family members and those directly linked to ASD have had the opportunity to propel the neurodiversity model (Silberman 2015). Presently, society is being encouraged to move away from seeing ‘disorders’ to looking at cognitive difference as a variant of human development and not a medical pathology (Cascio 2012; Conn 2014; Baron-Cohen 2015). The movement encourages interventions that help people, as opposed to changing them (Cascio 2012). Silbermann

(2015) describes populations of autistic people, and those with attention deficit hyperactivity disorder (ADHD) or specific learning disorders, as ‘neuro tribes’ and promotes the means of integrating these tribes into our society – as opposed to looking for a way to make them atypical. Leveto (2018) concurs and reiterates that research and teaching must draw on the community of scholars and especially on those on the autism spectrum or those caring for autistic people.

Members of the autistic community and stakeholders in the ASD debate do agree that the characteristics of ASD include differences in ‘sensory processing, communication, social interaction and repetitive behaviours’ (Leveto 2018, p.3). It can be viewed as a complex neurobehavioral difference and is often noted in children before the age of three years (Bernier and Dawson 2016; Boutot 2016; Craig *et al.* 2017). However, some state that this age-bound timeframe is not reflective of the experience of all autistic people (Boyd *et al.* 2010). Daniels and Mandell (2013) reported that the mean age bracket for identification is more typically ages three to ten, depending on the level of need and sometimes socio-economic status. Sometimes documented as a ‘gene-based condition that manifests as social [difference] [ASD], affects how people relate to one another, communicate and interact’ (Conn 2014, p.2). Evident in the ASD discourse is the importance of understanding the myriad of characteristics as a spectrum of difference, one which account for the variations in the individual experiences of each autistic child (Frederickson and Cline 2015; Santrock 2018). The differences identified in social interaction, communication, sensory processing and restricted, repetitive patterns of behaviour have been consistent across the ever-evolving diagnostic criteria.

3.4 Recognising Autism Spectrum Difference

Since the first official findings documented in the work of Leo Kanner (1943) in the United States and Hans Asperger (1979) in Vienna, criteria for identifying ASD have been subject to much debate and change (Baron-Cohen 2015). Both Kanner and Asperger attempted to marry the disciplines of psychiatry and paediatrics to identify the intellectual and behavioural characteristics of ASD (Leveto 2018). Following the work of Kanner and Asperger, it is universally accepted that ASD is not subject to a medical examination as such and that its identifiers are rooted in psychiatry, making it typically observed through an individual's behaviour and development (Lerner and Johns 2015; Santrock 2018). As such, if we are to fully understand the complexities of ASD, input from multi-disciplinary agents, including experts in child psychology, health, and medical sociology, is critical (Strunk *et al.* 2017). Furthermore, it is argued that 'autism does not belong to one discipline; by its nature, the complexity of the definition of autism is an interdisciplinary endeavour' (Leveto 2018, p.5). Developing an understanding of ASD through the different disciplines facilitates improved inter-professional co-operation and a recognition of the growing complexity of autism. According to Strunk *et al.* (2017), such inter-professional collaboration is imperative to providing effective initiatives to best support autistic children from an early age. The relationship between multi-disciplinary teams also has an impact on the identification process (Strunk *et al.* 2017).

As research in ASD continued from the 1940s, a consensus was formed that there was a need for an official means of identifying it (Santrock 2018). The DSM is one commonly used tool for clinicians to assist in the identification of ASD and was adopted by the American Psychiatric Association [APA] (2013) in 1980. Parameters

for recognising ASD and for several related conditions, such as Asperger Syndrome, Rett's Syndrome and Pervasive Developmental Disorders Not Otherwise Specified (Woolfolk *et al.* 2013; Frederickson and Cline 2015; Santrock 2018) are set down within the DSM. The manual continues to evolve with the publication of many revised editions, each based on emerging research findings. However, it 'remains a significant clinical and research tool to identify autism in many countries' (Leveto 2018, p.6).

The most recent edition, DSM-5, published in 2013, revised its predecessors, the DSM-3 and DSM-4, to include a reformulation of ASD terminology, in terms of both its structure and content (APA 2013). According to Lobar (2016), the revision has, rather controversially, made significant changes to the classification of ASD from three domains to two under the broad umbrella term of ASD. Both the third and fourth editions of the DSM defined characteristics of ASD as a 'triad of impairments' that included challenges in social communication, social interaction and social imagination (APA 1980; APA 1994). The evolved DSM-5, however, 'hypothesises an [ASD] dyad, comprising social communication differences and repetitive, stereotyped behaviour' (Mandy *et al.* 2014, p.46). Significantly, the component of the repetitive use of language as a communication impairment (DSM-4) is now mentioned as a form of repetitive, stereotyped behaviour (RSB) in DSM-5 (Mandy *et al.* 2014).

The revised edition, DSM-5, also includes reference to, and acknowledgement of, sensory differences which have long been highlighted as relevant in many lives of autistic children (Daly *et al.* 2016). Differences of 'sensory perception, previously designated as a peripheral feature of ASD, are considered a core feature in DSM-5 classified as a type of RSB' (Mandy *et al.* 2014, p.45). Campaigners seeking to acknowledge that distorted sensory processing is an experience of many autistic people

have welcomed this criteria amendment (Howe and Stagg 2016). Research has shown how sensory differences are also not uniform across ASD. Findings from previous research and anecdotal accounts from autistic people have shown that although the prevalence of sensory differences is high in the autistic community, this varies significantly among people (Brown and Dunn 2010; Green and Ben-Sassoon 2010; Middletown Centre for Autism 2013). Furthermore, it is notable to highlight that even though the DSM-5 added sensory symptoms to its criteria, these are not associated with ASD alone and individuals can present with sensory processing disorder as a standalone condition (Tavassoli *et al.* 2018). According to Hazen *et al.* (2014), providing teacher professional learning to evaluate and provide support for sensory differences is increasingly important now that these are part of the DSM-5. Research and anecdotal evidence have shown that autistic children can struggle to regulate their own sensory experiences and therefore it is important that as a society we learn to make adaptations and environmental changes to suit individual needs (Middletown Centre for Autism 2013; Hazen *et al.* 2014).

As referred to earlier, the term ASD classifies the types of experiences of different individuals along the spectrum from mild to severe (Lerner and Johns 2015). The DSM-5 includes level specifiers – traits of ASD, cognitive skills and adaptive functioning – and these give an indication as to the level of support that an individual may need (APA 2013). The overarching label of autism spectrum disorder to all ASD terms supersedes the predecessors, Asperger Syndrome, Pervasive Developmental Disorders Not Otherwise Specified and Rett’s Syndrome, as well as autistic disorder under the DSM-V classification system (Lerner and Johns 2015), collapsing them into a single term. The label change was developed in order to facilitate earlier detection

and classification of ASD, to improve outcomes for individuals and provide for early intervention (Hazen *et al.* 2014; Craig *et al.* 2017).

Despite the advances made since the 1940s, recognising ASD has proven difficult. One argument that is widely accepted is that ‘no two people with ASD are alike’ (Griffin and Shevlin 2011, p.218), which is reflective of the neurodiverse population in which we live (Leveto 2018). However, despite what is already known, the etiology of ASD continues to invite much research (Taylor *et al.* 2020) as it is of interest to many of the stakeholders involved in the lives of autistic people (Kaufmann *et al.* 2017; Stichter *et al.* 2016). Further research into the neurological underpinnings of ASD could help us to better understand the experiences of autistic children and may impact on our teaching pedagogies and designs for learning (Stichter *et al.* 2016). Addressing ASD through Vygotsky’s sociocultural framework lens involves distinguishing between the many ‘tensions, including the individuals’ disability versus their ability, their social versus their non-social selves and the degree to which they are the same as and different from people without [ASD]’ (Conn 2014, p.6).

3.5 Etiology of Autism Spectrum Difference

Research focused on the characteristics of ASD has developed and evolved over time (Wing 1997; Santrock 2018). One source of debate and controversy within the research has been determining the root cause of ASD. Some studies allude to genetic foundations as the principal source of ASD (Losh *et al.* 2008; Taylor *et al.* 2020). Genetics refers to the study of separate deoxyribonucleic acids (DNA) that encrypt precise traits and are inherited through family biological lines (Leveto 2018). Researchers using genetics have cited studies of twin children as a source of evidence (Taylor *et al.* 2020), and

through these studies estimates of ASD-heritability in twins are as high as 90% (Bailey *et al.* 1995). Researchers gathering observations and statistics from families of autistic children have also stated that recurrence probability exists in siblings and estimates that 20% of siblings can have ASD (Ozonoff *et al.* 2011). According to Briskman *et al.* (2001) and Taylor *et al.* (2020), there is considerable research evidence to support claims of a genetic component in autism.

The purely genetic component differs in some degree from the dawn of new research into genomics, ‘which refers to an entire set of genes that exist on 23 pairs of chromosomes (or a genome)’ (Leveto 2018, p.4). Researchers in the discipline, such as Singh (2014), argue that ASD research must include the detection and inspection of many thousands of interconnected genes, rather than a single gene for autism. Such a scientific concept also gives rise to the idea that environmental factors may influence the genomic relationships, and within this interaction, the etiology of ASD may be found (Singh 2014). Taylor *et al.* (2020) have investigated the association between environmental factors which ‘tend to occur during the prenatal period, such as air pollution exposure, paternal age, and maternal psychotropic medication use during pregnancy’ (Taylor *et al.* 2020, p.937). Their study concludes that environmental factors do not explain the increasing prevalence of ASD, thus emphasising the ‘enduring importance of genetic factors’ as a more likely answer (Taylor *et al.* 2020, p.942). Other studies have also suggested that ASD could manifest from multiple causes and environmental impacts, with different signs found in different individuals (Freitag *et al.* 2008; Ratajczak 2011; Amaral 2017). As research in this field continues, Germain *et al.* (2015) encourage more investigations and studies that look at the interactivity of genes with environmental factors, as opposed to viewing these as separate entities.

The debate on autism etiology is ongoing but one aspect that has been agreed upon is that ASD occurs globally, irrespective of culture, geography or degree of industrialisation (Onaolapo and Onaolapo 2017). Therefore, calls for global studies are warranted; according to Lyall *et al.* (2017), these would require investigation into the relationships between ‘gender, race, ethnicity, socio-economic status on autism’s distribution’ (Lyall *et al.* 2017, p.63). Through extensive research over the last 50 years and the evolution of the diagnostic systems previously noted, we have seen a direct impact on the overall prevalence and the numbers of individuals identified as ASD globally (Griffin and Shevlin 2011; Stichter *et al.* 2016). Educational provision for autistic children in Ireland is influenced by the increased research knowledge that has emerged but is also founded upon the culmination of international and national legal changes that have come about over the last 50 years (Banks and Shevlin 2021). The next section illustrates the journey that educational provision for autistic children has undergone, underlined by the principle of inclusion, which guides teachers’ work in special education.

3.6 Legislative Journey Towards Inclusion

Recognition and provision of support for the diverse education landscape in Irish schools is the culmination of a significant journey that the Irish education system has undergone since the last century (Rose and Shevlin 2021). The journey to inclusion is still evolving (Florian 2014) but has been heavily influenced by changes across international treaties, policies and laws, buttressed by concerns for human rights (Perry and Clarke 2015). The nature of inclusive education has been likened to an ‘island considered as a separate territory from mainstream education, with its own discourses, policies and practices’ (Thomas 2013, p.475). Some of the significant treaties and

policies that have been developed in the inclusive education discourse are outlined here to provide a representation of the agreements and statements of intent which have helped shape the nature of inclusive education as we know it today, seen as ‘a product of the systems of belief’ (Thomas 2013, p.475).

3.6.1 International Perspectives

For many years, education provision for children with special educational needs (SEN) has been approached as a separate system of education. The appropriateness of such an approach has been challenged from a human rights perspective (Ainscow *et al.* 2000). Indicative of a move towards the integration of those with SEN in the broader education system, was the United Nations’ Declaration of the Rights of Disabled Persons (1975) and the Implementation of the World Programme of Action Concerning Disabled Persons (1982). Both iterate the rights of those with special needs and call on societies to support integration into economic and social life (Ainscow 2003; Smyth *et al.* 2014; Spandagou 2018). The United Nations’ Convention on The Rights of The Child (1989) called for each child to be afforded the opportunity to reach their full social and individual development through education (Ainscow *et al.* 2000; Griffin and Shevlin 2007). The rights-based movement has perpetuated the advancement of inclusive education and heavily influenced the momentum that led to the publication of the Salamanca Statement on Special Needs Education, United Nations Educational, Scientific and Cultural Organization (UNESCO 1994) (Ainscow *et al.* 2000). Outlined at an international convention, the pivotal statement proposed that all schools could accommodate children with SEN, regardless of diagnosis or need (Priestley 2005; DeBruin 2019). The Salamanca Statement and the Framework for Action (UNESCO 1994) is rooted in the rights-based perspective of education and, according to Winter

and O’Raw (2010, p.14), is ‘arguably the single most important international document in the field of special education’. The Salamanca Statement called on governments to prioritise inclusive education as well as to reform education systems in terms of value and applicability for all learners (UNESCO 1994). The statement called for more time and money to be put into early identification and intervention techniques, as well as inclusive education's vocational components (UNESCO 1994). The statement proffered a series of ‘Principles, Policy and Practice in Special Needs Education and a Framework for Action’ that was underpinned by inclusion to promote schools that would ‘include everybody, celebrate differences, support learning, and respond to individual needs’ (UNESCO 1994, p.2).

Propelled by the Salamanca Statement, the United Nations Convention on the Rights of Persons with Disabilities (2006) is the ‘culmination of the concerted effort by the United Nations to promote and guarantee the right of people with disabilities to full participation’ in society and education (Smyth *et al.* 2014, p.435). The Statement is perceived as a vital international document recognising and promoting the education of children with SEN from a rights perspective (Winter and O’Raw 2010). Although the Salamanca Statement is recognised as initiating international policy reform, it is also seen as an ‘aspirational document rather than a binding one’ (DeBruin 2019, p.812). Regardless, the impact of the statement means that inclusive education is perceived as a human right ‘and a priority policy objective of liberal democracies’ (Winter and O’Raw 2010, p.3), promoting education at all levels within the school system (Smyth *et al.* 2014).

The impact of the United Nations’ declarations is seen across international policies. The policy and educational changes that followed were heavily influenced and

highlighted by litigation and by several influential court cases driven by parents such as those in the United States (Westling *et al.* 2015) and Ireland (Banks and Shevlin 2021). In the United States, The Rehabilitation Act of 1973, the result of landmark legal cases, and the Education for All Handicapped Children Act of 1975, both prohibited educational discrimination on the grounds of disability and promoted the use of the least restrictive environment for all children with SEN (De Bruin 2019). The Education for All Handicapped Children Act was renamed the Individuals with Disabilities Education Act (IDEA) in 1990, which further strengthened the rights of children with SEN and their parents (Westling *et al.* 2015). Interestingly, the Individuals with Disabilities Education Act also specifically mentioned autistic children and their rights to suitable educational programmes (De Bruin 2019). The act promoted the education of children with SEN alongside their peers in mainstream education and had a profound influence on school placements for autistic children (De Bruin 2019). The Individuals with Disabilities Education Act was revisited in 2004, adding additional protocols for education of children with SEN, and aligned its legislation with the No Child Left Behind Act 2002 (Santrock 2018). Signed into law in January 2002, the Act sought to ‘improve child achievement and otherwise reform elementary and secondary educational programs in the United States’ (Simpson *et al.* 2004, p.68). Although the No Child Left Behind Act was met with criticism, it has had a significant impact on teachers and children (Simpson *et al.* 2004; Westling *et al.* 2015; Santrock 2018).

The reforms promoted by the United Nations also had an influence in Europe, where policies to improve opportunities for those with SEN evolved. The 1980s saw the introduction of the Recommendation on the Employment of Disabled People in the European Community, which was concerned with the rights of employment for those

with SEN (Priestley 2005). The promotion of rights to education and social models, however, did not feature until the 1990s (Smyth *et al.* 2014), when Europe introduced a number of plans and policies. The European Community Disability Strategy (1996), The European Disability Action Plan (2006) and The European Disability Strategy 2010–2020 promoted the removal of barriers to education for those with SEN, as well as a reiteration of the earlier right to employment opportunities (Priestley 2005; Smyth *et al.* 2014). Responsibility for education provision for children with SEN is, however, determined and managed by each state within the European Union. Consequently, the implementation of recommendations from Europe and international influences is not managed uniformly by each state (Priestley 2005; Smyth *et al.* 2014) and much disparity still exists (Smyth *et al.* 2014). Ireland, as a member state, has undergone significant policy shifts due to the impact of international and national recommendations. Of particular importance was the United Nations Convention on the Rights of the Child, to which Ireland was a signatory. Participation means the Irish Government was called upon to reflect on the rights of all children, including those with SEN, in the state (Rose *et al.* 2017).

3.6.2 Irish Context

International trends regarding education provision, integration and inclusion began to filter into Irish debate in the 1980s and 1990s (Winter and O Raw 2010; Smyth *et al.* 2014; Banks and Shevlin 2021). At this time, Ireland operated a separate system of special education and general education, one which often developed along polarised lines (Rose *et al.* 2017; Kenny *et al.* 2020), with special education provision featuring very little in general education policies and decisions (Smyth *et al.* 2014). The 1990s brought about change from a multitude of influential factors, including: international

policies and debate on inclusive education; litigation taken by parents against the state on behalf of their children with SEN; and a shift in policy direction to a rights-based perspective (Smyth *et al.* 2014; Rose *et al.* 2017; Kenny *et al.* 2020). Evidence of such change is seen in relation to education provision for autistic children and/or intellectual disabilities that came to fruition through the influence of parents and took place in the court system. Two legal cases, *O'Donoghue vs Ireland* (1993/1996) and *Sinnott vs Ireland* (2001/2001), were very influential in their challenges in the High Court against the Irish state concerning education provision for children with SEN (Redmond 2006; Banks and Shevlin 2021). Strong arguments were put forward that the state had systematically failed to provide adequate and suitable education provision for children with SEN (Banks and Shevlin 2021). Media attention, public interest and a favourable outcome in the court for both cases pressurised the Government into reviewing education provision for children with SEN (Redmond 2006).

These court cases took place against the backdrop of ratification of the United Nations Convention on the Rights of the Child in 1992 (Winter and O'Raw 2010). Following the landmark convention, the Irish Government produced a report by the Special Education Review Committee (SERC 1993). The report recommended the integration of children with SEN into mainstream schools and introduced a continuum of provision (Kenny *et al.* 2020; Banks and Shevlin 2021). The SERC report promoted 'as much integration as is appropriate and feasible, and as little segregation as necessary' (DES 1993, p.22). The SERC Report put forth a number of guiding principles for the future growth of special education in Ireland. These guidelines specified that;

1. All children, including those with special educational needs, have a right to an appropriate education.
2. The needs of the individual child should be the paramount consideration when decisions are made concerning the provision of special education for that child.
3. The parents of a child with special educational needs are entitled to and should be enabled to play an active part in the decision-making process; their wishes should be taken into consideration when recommendations on special education provision are being made.
4. A continuum of services should be provided for students with special educational needs, ranging from full-time education in ordinary classes, with additional support as may be necessary, to full-time education in special schools.
5. Except where individual circumstances make this impracticable, appropriate education for all students with special educational needs should be provided in ordinary schools.
6. Only in the most exceptional circumstances should it be necessary for a child to live away from home in order to avail of an appropriate education.
7. The state should provide adequate resources to ensure that students with special educational needs can have an education appropriate to those needs.

(Government of Ireland 1993, pp. 19- 20)

The guiding principles from the SERC report coupled with the Report of the Commission on the Status of People with Disabilities 1996, came to have a noticeable bearing on educational provision for children with SEN (Smyth *et al.* 2014). At the same time, the European Charter of Rights for Persons with Autism was signed in May 1996 in the European Parliament. Spearheaded by Dr Pat Matthews, of the Irish Society for Autism, the Charter aimed to influence quality-of-life measures for autistic individuals throughout Europe and represented further development for the SEN movement.

The changes to policy in Europe and the influence of the SERC report was visible in the subsequent years, as the Irish Government provided the statutory basis for SEN provision through the Education Act 1998 (Government of Ireland 1998) and the Education for Persons with Special Educational Needs Act (EPSEN) (2004) (Smyth *et al.* 2014; Kenny *et al.* 2020). The Education Act sought to enshrine the constitutional right of children to education (Winter and O’Raw 2010; Banks and Shevlin 2021) and, embedded within it, the definition of disability and the first legal definition of ‘special educational needs’ (Rose and Shevlin 2020). The roles and responsibilities of teachers,

management, inspectors and the Minister for Education were all outlined for the first time, as were the criteria for SEN-centred support services (National Council for Special Education (NCSE) 2014).

The law was then cemented by the EPSEN Act (2004), which provided a legislative framework for education provision for children with SEN in an inclusive environment alongside their peers (Shevlin *et al.* 2013). Inclusive education evolved to mean ‘ensuring that the system adjusts to meet children’s needs, rather than expecting children to “fit” into the system’ (NCSE 2014, p.12). The EPSEN Act (2004) imposed discernible changes focused on providing education for children with SEN in inclusive settings, advocating for Individual Education Plans (IEPs) and assessment, as well as providing state-funded educational support (Kenny *et al.* 2020). The NCSE was established following the EPSEN Act and is responsible today for the provision of services, resources and continuing research for children with SEN (Winter and O’Raw 2010; Banks and Shevlin 2021). The EPSEN Act (2004) has been deemed a hugely significant piece of legislation (Rose and Shevlin 2020), one that has ‘radically changed the education landscape in Ireland’ (Kenny *et al.* 2020, p.3). The Act adopts the core values and attributes of inclusion but, due to fiscal constraints and a changing socio-economic landscape in Ireland, all the elements have not been fully enacted (Smyth *et al.* 2014; Rose and Shevlin 2020). Such constraints have impacted on the development of inclusive provision (Rose and Shevlin 2020) but, overall, the legislation places the responsibility to support school staff in their provision of education support for children with SEN (Curtin and Egan 2021), including autistic children, on the state. In December 2021, the Minister of State with responsibility for Special Education and Inclusion announced a full review of the EPSEN Act, commencing in January 2022. The aim of

the review is to ascertain if the legislation on education provision for children with SEN is current and relevant and addresses the experiences of children with SEN and their families (Government of Ireland 2022).

3.7 Education Provision for Children with Autism Spectrum Difference

Internationally, inclusion is seen as a reform that embraces learner diversity (Ainscow 2005) and challenges those policies and systems that exclude children from education (Winter and O’Raw 2010). Recently, Rose and Shevlin (2020, p.18) describe how inclusive education ‘entails radical restructuring of all aspects of the education system’ to facilitate all learners in the mainstream school. They also recognise that such an assertion is not without its challenges and that the implementation of special education policies and practices ‘has proved problematic’ (Rose and Shevlin 2020, p.19). Despite the challenges, according to Thomas (2013 p.2), the policies and practices rooted in inclusive education must ‘build more firmly and conspicuously on knowledge about the benefits of social connection, communities of learning and social capital’, a sentiment encapsulated in sociocultural theory (Vygotsky 1978). Understanding inclusion from such a perspective involves a significant move, one from the separation and integration of those with SEN (Thomas 2013) to facilitating all learners together and believing in the richness associated with diversity (Winter and O’Raw 2010). The journey towards inclusion is ongoing but has had a huge impact on the education landscape for autistic children in Ireland since momentum began in the 1990s (Banks and Shevlin 2021).

Changes to policy and law reforms in Ireland have meant that in more recent times we have seen a significant increase in the number of autistic children supported in the education system (Daly *et al.* 2016). Teachers are guided by legislation and

policies driven by the Department of Education. The current policy manifesto from the Department dictates that in relation to priorities in schools, ‘pupils with the greatest needs are supported by teachers who have the relevant expertise, and who can provide continuity of support’ (DES 2017a, p.49). As part of its remit, the NCSE is charged with ensuring that a continuum of education provision is provided to cater for the diverse needs of children with SEN (Banks *et al.* 2016), including autistic children. Such a continuum ranges from mainstream classes to special classes and special schools. Recent reports show that there are 3,240 primary schools, 746 special classes and 134 special schools (DES 2020) which provide the continuum of education for autistic children in Ireland.

Questions have been asked of this provision and whether it represents the most effective model of education provision to support all learners and inclusion (DES 2020; O’Sioráin and Shevlin 2021). Current reports from the school inspectorate (DES 2020) highlight the significant changes made in special class provision for autistic children in Ireland. This is particularly true in primary schools and, as a result, ‘many primary schools have had the opportunity to develop their expertise and practices in this area over a longer period of time’ (DES 2020, p.5). Furthermore, the evaluation report commended the role of mainstream primary special class teachers (SCT), with ‘almost all primary [SCTs] demonstrating the requisite subject knowledge, pedagogical knowledge and classroom management skills’ (Department of Education and Skills [DES] 2020, p.5). However, not all have seen such evidence and concerns have been raised in regards to the increase in special class provision (O’Sioráin and Shevlin 2021). International and national trends have shown a marked increase in the prevalence of

ASD in Irish society and this has also had an impact on how education provision is shaped in Ireland (DES 2020).

3.8 Prevalence of Autism Spectrum Difference

The prevalence of ASD in our society has seen a seismic increase since the turn of the century (Department of Health [DoH] 2018). The report of the Task Force on ASD regarding '*Educational Provision and Support for Persons with ASD*' in 2001 estimated that the number of autistic children and adolescents in Ireland, aged between three and twenty years, was approximately 2,398 (Department of Education and Science 2001). A report commissioned by the Department of Health (DoH) has produced a comprehensive review of ASD prevalence, which includes Irish and international perspectives. According to the report, the Department of Education and Skills (DES) in Ireland uses a prevalence rate of 1.5%, based on the number of autistic children who are currently accessing special education services (DoH 2018). Estimates from the Health Research Board in Ireland in 2020 show that there were 5,753 autistic people registered on the National Ability Supports System. Their statistics show that 47% of those registered were between five and twelve years (Health Research Board 2020).

The dramatic increase in the prevalence rate of ASD is mirrored internationally. The Autistic Developmental Disability Monitoring Network in the United States (US) has reported the estimated number of autistic children at one in thirty-six (Centres for Disease Control and Prevention 2023). This rate was based on data collected from eleven states across the US. Similar prevalence rates can be seen across Europe (Boilson *et al.* 2016), with recent estimates published as 1.4% of the population (Sacco *et al.* 2022). The World Health Organization (WHO) indicates that epidemiological studies

confirm an increase in ASD worldwide. Figures from the WHO database state that one in one hundred children worldwide has ASD (WHO 2023). In July 2018, Autism Spectrum Australia reported a rise in the prevalence of ASD, to approximately one in seventy (DoH 2018, p.31). There has been much debate concerning the reasons for the rise in prevalence of ASD globally since the early 2000s. Advances in identification systems and greater awareness have been cited as significantly impacting on the increased prevalence (Griffin and Shevlin 2011; McPartland *et al.* 2012; Lerner and Johns 2015; DoH 2018).

Embedded within these prevalence rates are the ratios of ASD reported between boys and girls. It is believed internationally that this figure lies at four to one or, possibly, five to one (Rivet and Matson 2011; Christensen *et al.* 2016; Daly *et al.* 2016). The gender question has been subject to long-standing debate, even before the rate surge in ASD prevalence. Kopp and Gillberg (1992) suggest that ASD is under-identified in girls because the diagnostic and behavioural criteria were drawn from male cases of ASD. According to Ernsperger and Wendel (2007), the tools used to identify ASD come from a generic model and do not account for gender differences. More recently, a meta-analysis of prevalence studies conducted since the introduction of the DSM-5 and the International Classification of Diseases, Tenth Revision by the University College London, proposes that the ratio of four to one between boys to girls is more accurately represented as three to one (Loomes *et al.* 2017). Different reasons have been explored and cited, with a recent study in the United States that utilised behavioural imaging finding that, through their language use, girls ‘camouflage their [differences] wherein social behaviours appear superficially typical, complicating diagnosis’ (Parish Morris *et al.* 2017, p.2). The ‘camouflage’ described is often referred to in dialogue regarding

ASD as ‘masking’, whereby an autistic individual conceals some of their defining characteristics when they are aware of their differences (Dean *et al.* 2017). Girls have naturally more proficient social skills and can be adept at covering the underlying characteristics associated with ASD (Ernsperger and Wendel 2007). Having such an awareness of their differences depends largely on the cognitive function and ability of each autistic individual (Ernsperger and Wendel 2007). As the research into ASD prevalence and gender differences continues, it is important that teachers are equipped to meet the needs of the increasing numbers of autistic children in schools (DES 2020). Understanding the cognitive theories associated with ASD can help reveal the bigger picture in relation to strategies best designed to support teaching and learning for autistic children (Egan 2018). Research through the frame of sociocultural theory facilitates an understanding of the symbiotic relationship between ‘cognitive, affective and social features’ (Conn 2014, p.4), which are inextricably linked in children’s development. A theoretical understanding of how children learn and experience the world is critical and provides a rationale for the adoption of a sociocultural perspective to inform the development of social communication competency (SCC) for autistic children.

3.9 Cognitive Theories and Autism Spectrum Difference

Current research indicates that is imperative to account for the key cognitive theories that impact on how autistic children think, feel and learn (Egan 2018) in order to prepare and adopt dynamic teaching approaches (Parsons *et al.* 2011). Early identification has been recognised as an intervention approach that is crucial for autistic individuals and their communities (Lerner and Johns 2015; Santrock 2018). A key component of early intervention success is the identification of the specific learning needs and capabilities

of each autistic child. According to Parsons *et al.* (2011), the signpost of ASD is a precursor to the need to identify the specific needs of the child and to account for their individual characteristics and cognitive processes.

The literature reviewed in Section 3.3 points to the core characteristics that are part of the make-up of autistic children. Intellectual functioning and language level determine the severity levels of ASD for the child and are therefore considered imperative in the ASD identification process (Mahjouri and Lord 2012). Metacognition is the ability to understand how the mind processes information, which includes ‘factual knowledge ... about the task, one’s goals, or oneself and strategic knowledge, such as how ... to solve problems’ (Santrock 2018, p.280). Metacognition differences in ASD impact on the processing of information and the cognitive theories, which underpin these differences, are framed as the Theory of Mind (ToM), the Theory of Executive Function (EF) and the Theory of Weak Central Coherence (WCC) (Delli *et al.* 2017). Further investigation into cognitive concepts and ASD has led to the formulation of further theories in relation to Context Blindness, Double Empathy and Monotropism (Rutherford and Johnston 2022), detailed in sections 3.9.1 and 3.9.3.

In order to understand the classification system and experiences of autistic people, many researchers have correlated the key descriptors of ASD to the cognitive theories (Cumine *et al.* 2009, Delli *et al.* 2017). According to Jordan (2005), rather than only viewing autism at a behavioural level, it is better understood at a psychological level. Understanding these theoretical perspectives allows for the ‘fine-tuning of intervention strategies’ (Aspy and Grossman 2012, p.23), as well as helping children perform social, academic and problem-solving tasks better (Santrock 2018). Knowledge of the theories encourages us to think of the factors that affect autistic

children and how these can present challenges in participation and learning. It is noteworthy to mention that the theories are not all mutually exclusive to ASD but understanding them can contribute to furthering our knowledge of the best practices to support children and reduce their anxiety and challenges (Rutherford and Johnston 2022). The main cognitive theories are explored further below.

3.9.1 Theory of Mind

According to Irish researchers Griffin and Shevlin (2011, p.218), ‘what makes ASD so unusual are the obstacles to processing and interpreting social experience by reason of an anomaly in what is known as Theory of Mind’. The ToM is present in young children and refers to metacognitive knowledge about oneself and others (Santrock 2018). Empirical studies by Baron-Cohen *et al.* (1985), Leslie and Frith (1988) and Reed (1994) developed the concept of a ToM deficit in ASD. An evolved definition of ToM explains that it is concerned with the:

ability to understand mental states, including beliefs, thoughts, desires, perceptions, intentions, and feelings and to adapt this understanding to predict the actions of others.

(Aspy and Grossman 2012, p.26)

Such abilities are attributed to a well-functioning social brain or mind (Mohammadi 2011). In their seminal work, Baron-Cohen *et al.* (1985) describe the ToM in relation to ASD as ‘mind blindness’ or ‘meta-representation’. Through the Sally–Ann experiment and their research, Baron-Cohen *et al.* (1985) find that autistic children struggle to ‘understand stories that depended on mental events but not those that depended on physical events’ (Frith 2012, p.2078). Baron-Cohen (2000) postulate that because of ‘mind blindness’, individuals may not have the ability to enter into an interaction involving the beliefs, thoughts, knowledge, desires and intentions of others.

Williams *et al.* (2008) proposes that as a direct consequence of ToM, autistic people find interpreting emotions and communicative interchanges difficult. Understanding the disturbance in the development of ToM is important as it is believed that ‘nothing captures the essence of ASD so precisely as the idea of mind-blindness’ (Happé 1997, p.25). Such an awareness of ToM is useful in understanding the communicative, social abilities and differences experienced by autistic children (Baron-Cohen. 2000). According to Hale and Tager-Flusberg (2005), the relationship between ToM and social communication is a dynamic, shared association that may be strongly arbitrated by language. Theory of Mind development forms part of the ‘psychological architecture of the brain’ (Conn 2014, p.46), which deals with the separation of self, others and objects.

Vygotsky’s sociocultural theory, highlighted in Chapter Two, describes how children need tools of intellectual adaptation to enable them to use symbols and mature to higher mental functioning (Vygotsky 1978). Mohammadi (2011) illustrates that autistic people may have a simplistic, one-dimensional view of the world, one that is concrete in nature and driven by literal thinking. Social interaction differences are documented as challenging for understanding the thoughts and feelings of others and are directly associated with ToM (Aspy and Grossman 2012). The relationship between social interaction and social language can be exposed further as ‘problems understanding symbolism, fiction, irony, humour, metaphors, double meanings, deception, and proverbs’ (Mohammadi 2011, p.221). Mastery of these skills is deemed critical for social language understanding and for a functioning ToM (Santrock 2018). Problems with ToM are reflected in a reduced ability to understand the perception of others and is considered by some to be independent of intellectual level or ability

(Baron-Cohen 2000). According to Eigsti *et al.* (2011), problems in recognising and interpreting the contents of other people's minds are fundamental to our understanding of the way in which we provide support for SCC learning in autistic children. Aspy and Grossman (2012) emphasise the importance of understanding the ToM for those who wish to help autistic people. Autistic children must possess these innate skills (Conn 2014) and the importance of the enculturation process and appropriate support can impact on their development of perception – and therefore on their ToM.

The ToM does not, however, go unchallenged. A lack of formal tests of meta-representation and ToM is the primary reason for different results being reported in the literature (Sparrevohn and Howie 1995). Critical commentary proffered by Gernsbacher and Frymiare (2005) states that the assessment of ToM uses tasks that rely on linguistic ability and claims that autistic people, who characteristically experience social communication challenges, are disadvantaged in these assessments. Based on that premise, assertions of a key link between ToM and ASD are inevitably flawed (Gernsbacher and Frymiare 2005). Contradictory research findings by Brewer *et al.* (2017), based on assessment of ToM in autistic adults, states that the variability of ToM performance within their sample was substantial. The study calls into question whether 'ToM deficit should be considered a core feature' of ASD (Brewer *et al.* 2017, p.11). Gernsbacher and Frymiare (2005) outline that, in order to include ToM as a core deficit of ASD, it must be universally absent from the profile of every autistic person and must be innate. According to Santrock (2018), studies have shown that challenges in ToM are not unique to ASD and are evident in some individuals with specific speech and language disorder, and with attention deficit disorder. Mohammedi (2011) asserts that assessments of meta-representation, communicative functionality and social

cognition favour the more verbally able, which is applicable to both neurotypical and neurodiverse children, again calling into question the universality of ToM as a core component of ASD. From a sociocultural perspective, ToM is narrow in its view of autistic children as the tests are often controlled scientific tasks that provide little explanation for the social, emotional, or cultural influences experienced by the child (Conn 2014). Comparatively, Melis-Yavuz *et al.* (2019) detail that although autistic children can generally display differences with ToM tasks and assessments, some display better performance. Autistic children can acquire social language irrespective of their ability to engage in joint attention, which is a significant component of ToM (Melis-Yavuz *et al.* 2019). According to Akhtar and Gernsbacher (2007), we cannot assume that ToM is a vital component to language learning. Consideration should be given to the idea that a delay in ToM development, linked to delayed language development and not a full deficit, may account for the lack of performance in ToM assessments (Brewer *et al.* 2017). Furthermore, Frith (2012) describes how the emergence of the ToM has enabled researchers to see that autistic children are not impaired in all aspects of social interaction and language and has provided a basis for further understanding of ASD variability.

Despite the contradictory evidence outlined, Griffin and Shevlin (2011) highlight that it is ToM that presents the most significant challenge for the greatest number of autistic people. Part of the challenge is the need to have developed basic skills for social function and interaction, including joint attention or a shared interest with another person, interpreting other people's emotions from faces or stories, and imitating other people (Fletcher-Watson *et al.* 2014). While the exclusive applicability of ToM to autistic children is subject to much debate, it is postulated that autistic people

experience differences in relation to this cognitive theory (Ponnet *et al.* 2004; Santrock 2018).

Analysis of the aspects of communication and meta-representation in autistic children may provide important information for the ‘determination of therapeutic processes, when related to the functional communicative profile and social-cognitive performance’ (Mohammedi 2011, p.18). Through developing an understanding of theories such as ToM, as related to ASD, and through engaging in research we can help with the identification of each child’s differences and strengths to subsequently provide the right support and teaching strategies (Egan 2018). However, it is important that such an understanding of ToM comes from both players in an interaction, neurotypical and autistic individuals, so that the values of reciprocity and mutuality (Milton 2012, p.884) are not in conflict, as highlighted by the emergence of the double empathy problem.

3.9.1.1 Theory of Mind and Double Empathy

‘Double empathy’ was coined in 2012 by Dr Damian Milton as a collective term relating to differences in social understanding between autistic and neurotypical individuals. The idea is reflected in the similar works of authors Luke Beardon (2017) and Professor Ian Hacking (2009). The double empathy theory queries the original ToM position; according to Milton (2012), when individuals with very different experiences of the society intermingle, they will struggle to empathise with one another. Therefore, the difference leads to a breakdown in reciprocity and mutual understanding between autistic and neurotypical individuals, as opposed to an inability of one group to understand the other – both parties share the challenge (Chown 2014). The disparity derives from the discourse regarding the biomedical versus social models of autism

(Milton 2012; Mitchell *et al.* 2021), as discussed in Chapter One. According to Heasman and Gillespie (2019) the discrepancy in understanding autistic individuals' social world lies in the fact that the means of studying autism come from neurotypical definitions of social interaction whereas 'autistic people are neurologically divergent' (Heasman and Gillespie 2019, p.910). Regarding social understanding, it has been argued that autistic individuals have gained greater insight into neurotypical society than non-autistic people have gained into autism, as they have endeavoured across their lives to acclimatise to societal norms (Milton 2012; Chown 2014). However, there may be subsequent negative implications on the mental health of autistic individuals as they often must hide their difference to achieve what is perceived as social success by society (Mitchell *et al.* 2021). To understand autistic individuals' social interaction in a situation consideration for 'interactional substrate' is useful as according to Solomon (2015, p.323) it supports an understanding that in certain situations autistic children might be more social than they are in different situations. The ongoing misunderstanding and misconception of autistic individuals' SCC has led to barriers across society. Social difficulties can happen not just because of autistic individuals themselves but also because of how others perceive, judge and make social choices about them (Sasson *et al.* 2017). In turn both sides are inhibited from having opportunities to learn from each other, which would ultimately enrich society (Mitchell *et al.* 2021) by having a positive impact over time on the mental health of autistic individuals (Lopez 2022). Developing an awareness and promoting a wider understanding of differences in social situations for autistic individuals that accounts for autistic individuality as well as social partner prejudices, is favourable (Sasson *et al.* 2017). In addition, Heasman and Gillespie (2019, p.919) advocate for exploring

‘neurodivergent intersubjectivity in cross-neurological contexts...to understand the nature of the double empathy’ dilemma.

The implications of understanding double empathy for teachers is discussed by Milton (2012, p.887), who notes ‘an increasing complacency around the idea that lead professionals and practitioners have a good understanding of what “good autism practice” entails’. Double empathy has the potential to support reframing autism from a SCC disorder to a ‘description of a broad range of developmental differences and embodied experiences and how they play out in specific social and cultural contexts’ (Milton *et al.* 2022, p.1902). This then has far reaching consequences and potential influence on what we can perceive as best practice for supporting autistic children. According to Milton *et al.* (2022) such practice should rely heavily on relationship and rapport building to promote understanding as opposed to the preconceived idea of lack of capacity, social deficit and correction. Furthermore, Sasson *et al.* (2017) advocate that teaching approaches which include autistic children and their typically developing peers are likely to create a more comprehensive approach for improving SCC. The double empathy theory has implications for what is perceived as good practice as the theory not only considers ‘differing cognition and interests, but the social context within which interactions take place’ (Milton 2012, p.887). Such consideration leads to shaping how we perceive autistic individuals and what learning we advocate for. A lack of understanding by teachers and professionals supporting autistic children when they advocate for reducing autistic traits may have unethical and unfavourable outcomes (Milton 2012). Such sentiment is consistent with findings from Sterponi and Shankey (2014) who from their study on echolalia in autism conclude that a phenomenon like echolalia that is often thought to be an unmistakable indicator of an impairment, can, in

reality, have many different meanings and purposes both within and between subjects. This, in turn, has potential implications for intervention programs which should prioritise a participation framework, the reciprocal attunement of interactants, and interpersonal dynamics rather than the unique skills or deficits of each autistic child (Sterponi and Shankey 2014). Ultimately, we must be mindful that the ‘ontological status of both the autistic and non-autistic neurotypes is partly dependent upon the nature of the society’ (Chown 2014, p.1674); for young autistic children, this is directly affected by the classroom culture. Double empathy has shed a light on a different theoretical perspective and further research from autistic individuals and teachers would facilitate more empathetic interventions (Milton 2012). The double empathy problem relates specifically to mind blindness in the context of the more widely used ToM, which is multifaceted in its desire to explain autism (Kouklari *et al.* 2018) and has been linked with the Theory of EF.

3.9.2 Theory of Executive Function

The EF Theory refers to the higher-order control processes that are necessary to guide behaviour in a constantly changing environment (Jurado and Rosselli 2007). These processes ‘orchestrate resources like memory, language, and attention to achieve a goal’ (Lerner and Johns 2015, p.97). Control and cognitive processes in EF facilitate the change and transfer between activities and contexts in order to proceed with another activity (Leung *et al.* 2016) and have a pivotal role in school and life skills (Santrock 2018).

Executive function has a proposed role in contributing to specific challenges in ASD with links to ToM, social cognition and impairment, and restricted and repetitive

behaviour patterns, all of which impact on an individual's quality of life (Demetriou *et al.* 2018). Variants in EF such as inhibition, working memory, information recall, executive memory, flexibility (Santrock 2018) and the ability to monitor, update and select socially appropriate responses have been discussed as contributors to 'the social traits associated with ASD' (Leung *et al.* 2016, p.344). The EF differences in autistic children are also attributed to 'poor performance monitoring, task initiation, self-regulation and mental flexibility' (Aspy and Grossman 2012, p.24). These differences lie within the remit of characteristics of restricted repetitive behaviour. It is widely accepted that no two autistic people display identical characteristics (Griffin and Shevlin 2011), and EF may comprise strengths as well as weaknesses for autistic people (Russell 1997). Sometimes these strengths and weaknesses cannot be successfully accounted for by the ToM deficit hypothesis (Happé 1994). The EF differences are attributed to both the social and non-social symptoms of ASD (Leung *et al.* 2016) and therefore have been linked to lack of social reciprocity, for example, where participants cannot engage in the reciprocal relationship that occurs within a conversation (Aspy and Grossman 2012). Rajendran and Mitchell (2007) suggest that EF for autistic people can explain the impulsive, restricted behaviours and the strong desire for sameness which must be helped through the behaviour management approach.

In Section 2.5.4.4, sociocultural theory explains how, through the enculturation process, children can move from basic to higher mental functions. The possibility of such a move is omitted in the EF discourse, which gives little attention to 'interpersonal experience as an ongoing feature of human development and that all learning should be viewed as cognitive, affective and social' (Conn 2014, p.41). Vygotsky (1978) refers to the functional systems approach through the MKO, as described in Section 2.2.2, which

is the precursor of the EF label (Bodrova *et al.* 2011). Within the logic of sociocultural theory, it is believed support should be provided by MKOs to facilitate:

the emergence as well as the developmental progression of primary deficit of EF by engaging children in social interactions that enable them to acquire specific cultural tools.

(Bodrova *et al.* 2011, p.16)

The literature notes that, in comparison to ToM research, less work has been done exploring the relationship between EF and SCC for autistic children (Leung *et al.* 2016). It has also been argued that deficiencies in EF are not attributed to ASD alone and may be linked more with intellectual ability (Robinson *et al.* 2009). Pellicano (2010) argues that EF and ToM cannot be separated as evidence exists of a relationship between ‘individual differences in tasks tapping ToM and tasks tapping several components of EF, including mental flexibility, inhibitory control and working memory’ (Pellicano 2010, p.531). Another explanation for the relationship between the two cognitive theories is that sufficient EFs are essential for coping with ToM tests, which are cognitively demanding by design (Jones *et al.* 2018).

Significantly, discourse regarding EF differences in autistic children highlights ‘the impact on all areas of learning and behaviour, particularly social competence’ (Quill and Stransberry-Brusnahan 2017, p.10). For that reason, it is deemed acceptable to adopt ‘a multidimensional notion of executive functions, with [differences] in planning, inhibition and self-monitoring across the childhood appearing to reflect autistic symptomology’ (Robinson *et al.* 2009, p.368). Furthermore, Leung *et al.* (2016) propose a link between behavioural control and social functions that feature in both neurodiverse and neurotypical populations. However, they also acknowledge that some

of the EF challenges in metacognitive aspects and the social communication domains can be attributed solely to the ASD community (Leung *et al.* 2016). Subsequently, a theoretical understanding is suggested as fundamental when developing effective interventions and instruction strategies (Leung *et al.* 2016). Teachers need to be aware of the main processes of EF, such as language, memory and behavioural control, to achieve a goal and plan for learning through structured and visual pedagogical approaches to support individual EF needs in autistic children (Egan 2018). The individuality of ASD attributes also features in weak central coherence.

3.9.3 Theory of Central Coherence

The term central coherence (CC) was first suggested by Uta Frith in response to the need for a cognitive theory outside ToM that related to the features of ASD and how individuals process information (Frith and Happé 1994). In a reflective account, Frith describes the origins of the theory and proposes ‘that in an autistic brain, while the ability to discern a wide variety of things about the world around is strong, the drive to make these various things cohere is weak’ (Frith 2012, p.2080). The proponents of WCC in ASD relate to poor task performance (Happé 1994) but also exceptionally good performance on tasks that require no perception of a person’s thoughts and experiences considered as a whole (Shah and Frith 1993). The detail-focused processing style proposed to characterise ASD is described as WCC. Within this theory, the autistic person processes information in detail-focused ways that may be fragmented and is often at the expense of the ‘big picture’ (Quill and Stransberry-Brusnahan 2017). Challenges in social interaction have a direct correlation to WCC, as autistic children must process information through verbal, body and pragmatic language use

simultaneously and then respond in the appropriate social manner (Quill and Stransberry-Brusnahan 2017).

The theory of WCC is not without its critics. According to Pellicano (2010), the original WCC theory is unconfirmed and is misplaced without the other cognitive theories of EF and ToM. In her research, Pellicano (2010) suggests that CC and EF contribute to the emergence of ToM in autistic children and that these theories cannot be separated from each other. Syriopoulou-Delli *et al.* (2016) believe that CC is more a preferred style of information-processing, as opposed to a universal cognitive theory of ASD designed to explain the different cognitive processing of autistic people.

Nevertheless, according to Frith and Happé (1994), WCC is the cognitive element that was attributed as the foundation of ASD features, including ToM. In their work, Frith and Happé originally proffered the explanation that CC was the information-processing component of the brain; if this was impaired, it results in a direct countering effect on the other cognitive functions (Frith and Happé 1994). That argument has engendered many revisions and, in turn, the authors have distanced themselves from the idea that WCC was the root of the ToM features of ASD. In answer to the debate, the original WCC theorists put forward the belief that it was not possible to source a single explanation for ASD (Happé *et al.* 2006). Some argue that ASD is better understood as ‘fractionable, such that each of the features of the [difference] represent separate, but sometimes co-occurring, outcomes of a modular cognitive system’ (Skorich 2016, p.864). It has been stated that, even without promising adherence to the belief in WCC, there must be an acknowledgement that autistic children prefer detail-driven processing and may struggle with the more global-processing requirements that exist in social interactions (Rajendran and Mitchell 2007).

From an educational perspective, WCC impacts upon the ability of the autistic child to generalise their learning across contexts (Aljunied and Frederickson 2011). In relation to SCC, the detailed-driven processing and challenges generalising skills across contexts are strongly influential factors for autistic children and their social engagement (Conn 2014). Tasks that require children to draw conclusions or infer and interpret information globally may be affected by WCC skills, which are in constant demand in social and academic settings (Aspy and Grossmann 2012). Teachers may also have seen the effects of WCC in children's resistance to change, their rigidity and their experiences in transitions (Daly *et al.* 2016). Indeed Happé (1997) suggests that autistic children that possess ToM skills, but still struggle socially, are likely to have significant WCC. Autistic children may find the typical classroom teaching styles more demanding on their CC capabilities (Aljunied and Frederickson 2011). However, teachers who use stimulating and motivating teaching instructions and break tasks into explicit and clear steps, such as in task analysis, may find that children with WCC 'can attend to tasks for extended periods' (Egan 2018, p.22). The discourse in the literature has also presented the need to address the context blindness component of WCC as its own separate cognitive theory removed from the detail-focused global interpretation feature of CC (Vermeulen 2015).

3.9.3.1 Central Coherence and Context Blindness

The concept of 'context blindness' in ASD is advocated in the literature as taking a considered, in-depth look at how autistic children have difficulties applying context to 'constructing meaning rather than their detail focused style of perception' (Vermeulen 2015, p.183). Considering this concept as its own entity, separately from WCC, has been highlighted as more conducive as it can 'explain some of the cognitive and

behavioural characteristics of ASD, and explore its relationship with the other neurocognitive theories of ASD' (Vermeulen 2015, p.182). At its core, context blindness in ASD means that the individual processes detail with less sensitivity to the relevant situation, losing sight of the overall meaning, which therefore becomes fragmented (Chapman 2019). Possessing a lack of sensitivity to the context can result in too much focus and attention being placed on irrelevant environmental information at the detriment of the significant stimuli that is pertinent (Westby 2017). This also has implications for the characteristics of rigidity and lack of flexibility (Westby 2017), as noted in Chapter Three. According to Vermeulen (2015), the impact of context blindness is most profound in relation to social skills for autistic individuals. Navigating social situations requires reading contextual information appropriately and this information is ever changing. As a result, the landscape of social interaction is confusing and difficult to mediate for those with context blindness (Adamowycz and Parker 2013). Studies by Ishikawa *et al.* (2017) have also corroborated the sentiment and highlighted that, for autistic individuals, context blindness has an impact on social cognition and the ability to successfully mediate social situations. Understanding context blindness in relation to social skills is very important for teaching and learning. Vermeulen (2015) emphasises this point and advocates for the individualised, explicit teaching of context, stating that, for those with ASD and context blindness, general social skills teaching will not suffice. Another theory related to attention and detail is noted as monotropism.

3.9.3.2 Central Coherence and Monotropism

The idea of monotropism was first outlined by Murray *et al.* (2005) and is another extension and further explanation of the concepts noted within CC or WCC. For Murray

et al. (2015), WCC aligns with their proposal as it looks at the attention to detail that features in global and local processing. The detail-oriented facet of ASD means that the amount of attention available for individuals processing social contexts is largely limited (Milton 2012). For Murray *et al.* (2005), social competency, language use and refocusing attention requires an individual to have broad attention and are directly affected by narrowly focused interests. The hypothesis proposed in monotropism suggests that the difference between autistic individuals and neurotypical individuals is that they employ different methods to distribute attention. Murray *et al.* (2005, p.140) state that ‘it is the difference between having few interests highly aroused, the monotropic tendency, and having many interests less highly aroused, the polytropic tendency’.

Furthermore, the authors describe the specifics of how monotropism affects someone. The individual has an ‘attention tunnel’ and struggles to be aware of others or anything of value outside that tunnel (Murray *et al.* 2005, p.147); this makes it difficult to pay attention or change focus. Such detailed perception means that autistic individuals can be ardently interested in a task, or show no interest at all, or can be adversely affected when change is demanded of them in that tunnel where they feel content and secure (Milton 2012). Monotropism is referred to as an interest system and ToM is noted as a feature of this, as opposed to a core deficit or theory in ASD (Murray *et al.* 2005). The monotropic system can cause a disjointed worldview, which, in turn, makes it a challenge to understand social interactions (Milton 2012).

The cognitive theories and further concepts offer explanations for some of the differences experienced by autistic children and provide a backdrop for how

interventions and pedagogical approaches should be altered, given the characteristics outlined. A summary is provided in Table 1 below.

Cognitive theory	Origin	Characteristics	Challenges for autistic children
ToM	Baron-Cohen <i>et al.</i> (1985)	ToM refers to the ability to attribute mental states to other people and recognise these in oneself (Baron-Cohen <i>et al.</i> 1985).	Differences in social communication and social interaction, lack of imaginative pretend play, and false beliefs.
Double Empathy	Milton 2012	The theory of the double empathy problem suggests that when people with very different experiences of the world interact with one another, they will struggle to empathise with each other; there can be a breakdown in reciprocity and mutual understanding (Milton 2012). (autismtoolbox.co.uk)	Miscommunication between autistic and non-autistic people. Mutual lack of understanding between the autistic learner and the educator.
EF	Luria <i>et al.</i> (1966)	EF refers to the ability to maintain an appropriate problem-solving skillset for the attainment of a future goal (Ozonoff 1991).	Challenges in planning, organising, working memory, control, self-regulation, inhibition.
CC	Frith (1989)	CC refers to the ability to recall an overall impression or ‘gist’ of something such as a story or event (Frith 1989).	Overly focused on details. Difficulty using information from specific context. Poor global processing.
Context Blindness	Vermeulen (2015)	Peter Vermeulen describes ‘context blindness’ as a reduced spontaneous use of context when giving meaning to a stimulus. He suggests that difference seeing and	Not use seemingly obvious contextual information. Think in an ‘over-literal’ or ‘concrete’ way. Be overly formal or over-familiar.

		understanding context can explain why autistic individuals have different experiences with communication, social interaction, flexible thinking and behaviour (autismtoolbox.co.uk).	Be overwhelmed by new people or places. Oversharing of personal information. Find it hard to see things from the perspective of other people.
Monotropism	Murray, <i>et al.</i> (2005)	In monotropism, fewer interests are aroused in the person at any one time and those that are take up most of the processing resources the person has available to them. This makes it harder for the person to pay attention to other things or change the focus of attention. Monotropism has been described as ‘being in an attention tunnel’ (autismtoolbox.co.uk).	Preference for sameness. Restricted, repetitive and stereotyped behaviours. Difficulty shifting attention from one thing to another. Good attention and focus for some things and not others. A lack of preparedness for change – the learner has not picked up cues that change is about to happen. A focusing on detail rather than the whole picture.

Table 1: Summary of Cognitive Theories

An understanding of these cognitive theories and their impact on how autistic children learn is crucial for their social and academic education. The theories have been presented individually, though some believe that they are ‘not necessarily mutually exclusive’ (Aspy and Grossman 2012, p.31) and that they impact upon one another in different ways (Pellicano *et al.* 2005). Regardless of the details involved in the theory interrelationships, understanding and being aware of each theory is vital for developing interventions suitable for autistic children (Aspy and Grossman 2012).

3.10 Conclusion

Chapter Three has presented an overview of the various aspects related to ASD, to provide an understanding of the differences that may be experienced by autistic children. Literature pertaining to the characteristics and etiology of ASD helps us to understand the basis for its identification. An account of the historical evolution of ASD terminology, as well as the relationship of inclusion and educational provision for autistic children internationally and in Ireland, is also discussed. The interrelationships among the theoretical perspectives outlined – ToM, double empathy, EF, CC, context blindness and monotropism – provide an insight into ASD characteristics and differences. The sociocultural theoretical framework that underpins the study has featured as a point of reference throughout the chapter as the researcher develops knowledge and understanding of the social complexities that feature in the discourse on ASD.

The subsequent chapter will explore the development and key features of social competence and social language learning. Challenges in social competency are evident in autistic children from an early age and impact on daily life and long-term outcomes (Stichter *et al.* 2012) which is of significance to this study and the research question. Therefore, general principles will be explored and then more specific research into SCC for autistic children will be reviewed to extrapolate pedagogical approaches suitable to enhance the learning and teaching in this area.

CHAPTER FOUR

LITERATURE REVIEW: SOCIAL COMMUNICATION COMPETENCE

4.1 Introduction

Chapter Four is concerned with exploring the journey towards social communication competency (SCC). In this chapter, social competence is defined and its relationship to Autism Spectrum Difference (ASD) is outlined. Joint attention, social skills and play are studied against the backdrop of social competence and ASD. The Primary Language Curriculum (PLC), used in all schools across Ireland, is examined as a reference source for teachers to plan for SCC development for autistic children. Theories related to the development of social competency and embedded communication competency are also explored, providing an insight into the role of evidence-based practices (EBPs), promoted for SCC learning and teaching, used by teachers. The chapter provides evidence of the importance of committing to using EBPs to support SCC for autistic children and reflects and embeds the key components derived from chapters two and three as the journey through literature continues.

4.2 Social Competence

Social competence is the development of robust social skills and social understanding so that the individuals possess the ability to ‘continually monitor and flexibly accommodate, adapt and adjust to ongoing social interactions’ (Quill and Stransberry-Brusnahan 2017, p.33). The development of social competence and the formation of successful interactive relationships are considered key components of child development (Fenning *et al.* 2011), which are embedded within Vygotsky’s

sociocultural framework (see Section 2.5.4.5). Possessing social competence allows individuals to enter positive social interactions and manage and manoeuvre within social environments (Westwood 2015), drawing on their ‘emotional knowledge, affective perspective taking, and understanding of mental states’ to do so (Fenning *et al.* 2011, p.718). Social competence can be defined as one’s capacity ‘to successfully and independently engage in social interactions, establish and maintain relationships with others, and get needs and wants met across contexts’ (Stichter *et al.* 2012, p.354). Social competence impacts on every aspect of a person’s life and is a critical component of school-readiness and academic engagement (Birch and Ladd 1997; Lerner and Johns 2015; Campbell *et al.* 2016; Stack 2018); it is also necessary for dealing with the basic demands of everyday life (Fenning *et al.* 2011; Lerner and Johns 2015). Possessing social competency is measured through the observation of others and has a significant impact on ‘children’s social interactions, peer acceptance, and friendships’ (Walker and Barry 2018, p.18).

Social competence in early childhood scaffolds the ‘mastery of a range of skills important to successful academic behaviours and achievement’ (Campbell *et al.* 2016, p.20) and is seen as the foundation of these skills. A person who is socially competent, can appropriately respond to the emotions and thoughts of others, and can demonstrate these skills in accordance with social conventions (Stichter *et al.* 2012). The importance of developing social competency should not be underestimated as it impacts on every aspect of an individual’s daily life. Quill and Stransberry-Brusnahan (2017) discuss how necessary it is, for children to function at home, in school and in the wider community.

The acquisition of social competence is reliant on social cognition. Acquiring social cognition is a complicated process, to the point where ‘an individual acquires, understands, and uses social knowledge to quickly and accurately respond to social information’ (Waugh and Peskin 2015, p.2961). Social skills, along with social understanding and cognition, are attributed to the development of social competence (Quill and Stransberry-Brusnahan 2017). Social competence is not only an individual’s ability to process information and knowledge; it also involves the capability to apply necessary conditional skills and procedures (Topping *et al.* 2000, p.28). Indeed, conceptualising social competence is comprised of three primary domains: cognitive, emotional and social skills (Campbell *et al.* 2016). Figure 4 below highlights a conceptual model for the inter-relationship of the three domains and illustrates their inter-dependence and the individual skillset of each.

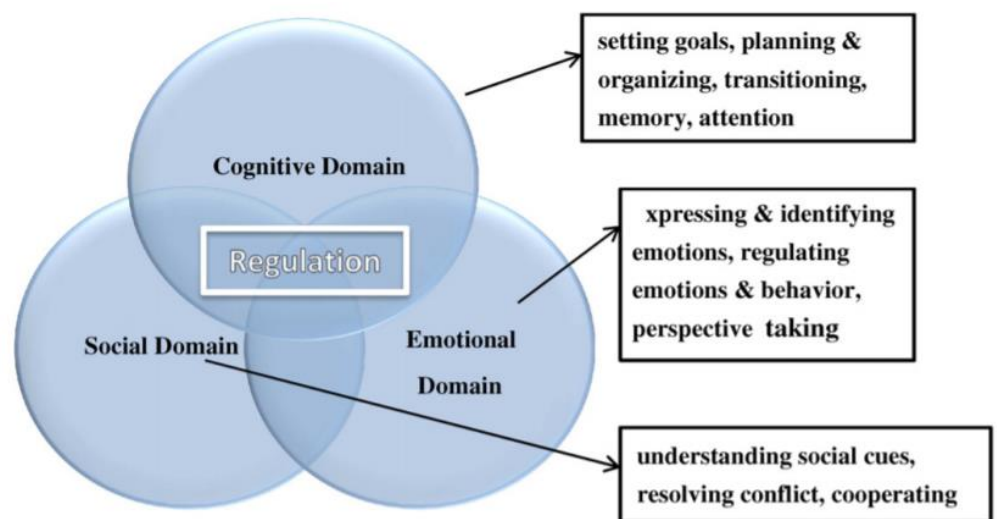


Figure 4: Domains of Social Communication Competence and Examples of Component Skills (adapted from Campbell *et al.* 2016).

As the model in Figure 4 suggests, these domains are distinctive in certain aspects, but their relationship is fundamentally dependent and influenced by each other.

Soto-Icaza *et al.* (2015, p.1) see social competence as a phenomenon that involves the interaction and crossover between the ‘social brain, social cognition, social behaviour and social functioning’. Studies by researchers such as Denham (1986), Dunn and Cutting (1999) and Reichow and Volkmar (2010) have linked children’s social competence development from an early age to specific aspects of pro-social behaviour that include ‘sharing, cooperation, and pro-social responses to others’ emotions’ (Fenning *et al.* 2011, p.717), and each reiterates the impact this has on relationship formation and peer acceptance. According to Chester *et al.* (2019), ‘social competence’ is an umbrella term that incorporates elements of social, emotional and cognitive skills. Social skills feature throughout but represent part of the journey towards achieving social competence (Chester *et al.* 2019). Social competence is context-driven by social interactions which can demand immediate interpretation and digression of dynamic factors, such as social cognition, social language and cultural experiences (Quill and Stansbury-Brusnahan 2017).

4.3 Social Communication Competence

Communication and language learning have been the source of debate among theorists, from Vygotsky, Piaget, Bruner and Skinner in the 1950s and 1960s to more modern-day thinkers such as Nelson (1993), Bishop and Leonard (2000) and Owens *et al.* (2018). These theorists have discussed the intricacies and complexity of language learning and provided many explanations and theories. One such explanation is that ‘language is a socially shared code or conventional system for representing concepts through the use of arbitrary and rule governed combinations of those symbols’ (Owens *et al.* 2018, p.419). Language involves the sender encoding messages via expressive language to a receiver, who receptively decodes the messages (Hallahan *et al.* 2019).

Language exists because users have agreed on a linguistic code which governs the sounds, words, sentences, meaning and use of language in their communicative set-up (Bernstein and Tiegerman-Farber 2009). According to Bloom and Lahey (1978), this rule system of language can be divided into three overlapping components, all of which are necessary for communication competence. This system is represented in Figure 5 below.



Figure 5: Components of Language (adapted from Bloom and Lahey 1978)

The social context provides the reason for communicating and the choice of codes used (Bernstein and Tiegerman-Farber 2009). Based on the social context pragmatics is therefore the ‘driving force behind all language [and] is the purpose of our utterance ... [it] primarily determines its form and content’ (Owens *et al.* 2018, p.19).

Communication encompasses the tools of both speech and language, facilitating exchange between a sender and a receiver. To clarify, ‘communication requires

encoding (sending messages in understandable form) and decoding (receiving and understanding messages)’ (Hallahan and Kaufmann 2006, p.288). Furthermore, communication is embedded with both symbolic and non-symbolic information such as ‘facial expressions, body language, and gestures’ (Kaderavek 2011, p.2). The most common way of communicating for people is speech, which involves ‘the neuromuscular activity of forming and sequencing the sounds of oral language’ (Hallahan and Kaufmann 2006, p.288). When one discusses speech, it relates more to the mechanics of making sounds, as opposed to the language used, and involves the ability of a person to articulate at the correct rate, relying on their own voice quality (Kaderavek 2011). As stated, speech is the most common form of communication; however, it is not the only means by which we communicate and while we focus on sending and receiving a message, our communication does not always require speech (Shiel *et al.* 2012; Santrock 2018).

The mode used to communicate can differ greatly among children and this is a core aspect of the pragmatics or the use component of language (Shiel *et al.* 2012). Children engage in communication through many different means. These may include ‘facial expressions, gestures, body movements, sounds, language and for some children, through assistive technology’ (National Council for Curriculum and Assessment [NCCA] 2009, p.34). Discussions on the development of the social-pragmatic aspects of language, which include ‘sharing affect and social orienting’ (Shiel *et al.* 2012, p.23), have also recognised the important role of non-verbal forms of communication, which play a significant role in everyday life experience (Ernsperger and Wendel 2007). Non-verbal communication and pragmatic language skills often emerge in early language development, are perceived as communicative in nature and continue to develop as

structured language is learned (Parsons *et al.* 2017). Understanding the role of communication in developing social competency is important as we know it is at the ‘heart of education experience’ (Ernsperger and Wendel 2007, p.108). Differences with social communication feature across the autism spectrum (Ernsperger and Wendel 2007; Aspy and Grossman 2012), with approximately 30% of autistic children developing minimal verbal communication (Tager-Flusberg and Kasari 2013). Furthermore, the areas of pragmatic language and non-verbal communication are universally affected (Parsons *et al.* 2017). Without these skills, autistic children risk losing out in many social interactions (Quill and Stransberry-Brusnahan 2017), which can further inhibit their language development (Aspy and Grossman 2012) and impact on their everyday experience (Ernsperger and Wendel 2007). It was therefore considered important in this study to adopt the term ‘social communication competency’ (SCC) to reflect all the core components relevant for autistic children.

4.4 Social Communication Competence and Autism Spectrum Difference

The development of effective SCC is critical to cognitive, social and emotional development (Curry *et al.* 2017). Language development, a core component of communication, described in Section 4.2.1, is a hugely complex system that requires the user to develop arbitrary systems of both verbal and non-verbal cues to engage with the world around them (Owens *et al.* 2018). Hence, languages are communicative systems that encode meaning through combinations of arbitrary symbols (Weisberg *et al.* 2013). Within this communication system, pragmatics, or the use component of language, can pose a significant challenge for many autistic children (Melis-Yavuz *et al.* 2019). Social communication is universally affected in ASD, because of a combination of shared and unshared contributory factors (Boucher 2012). For autistic

children, language and communication present a substantial barrier to social integration and participation (O'Sioráin and Shevlin 2021). Language is an intricate and dynamic system; therefore, even small problems in language can have a significant impact on social communication and other aspects of learning, development and social interaction (Rafferty 2014). According to Shiel *et al.* (2012, p.14), 'ASD is conceptualised in terms of deviations from the expected course of language development within and across modes'. Such deviations for autistic children mean that they have individual challenges relating to peers, transitioning in daily life and manipulating social and contextual cues (Stichter *et al.* 2012; Yager and Iarocci 2013). Communication skills, within the domain of language skills, are described as an important contributor to social skills and psychological understanding in autistic children (Melis-Yavuz *et al.* 2019). As a result of the difficulties posed by social communication and interaction, studies point to differences in social competence and social motivation in autistic children (Ryan *et al.* 2012; Martinez *et al.* 2021; Devine and Apperly 2022). Research has described how autistic children may need support with non-verbal communication, gestures and whole-body movements (Fulceri *et al.* 2018; Romero *et al.* 2018), challenges with social motivation (Ryan *et al.* 2012) and differences understanding the communicative intentions of others (Devine and Apperly 2022). According to Melis-Yavuz *et al.* (2019, p.17), having competence in 'pragmatic use and understanding of non-verbal communication' is essential for social competence and should be a focus for autistic children's learning. Possessing good SCC is hugely important as 'social functioning is a global measure of whether adults with autism are employed, have friends, and live independently' (Gillespie-Lynch *et al.* 2012, p.162). Social communication competencies in autistic children manifests with 'varying modalities that people use to communicate' (Egan 2018, p.33). Autistic children may initiate interaction, but their

communication attempts may appear unusual to peers, resulting in miscommunications or misinterpretations (Barnett 2018).

The challenges with SCC that autistic children encounter may be understood in relation to the Theory of Mind (ToM), the Theory of Executive Function (EF) and the Theory of Weak Central Coherence (WCC) (Aspy and Grossman 2012; Conn 2014; Egan 2018) (see Chapter Three), which contribute to a distinct manifestation of social competency challenges (Stichter *et al.* 2012). As expressed by the differences noted in the theories, autistic children can display variations in their social communicative experiences, with some children actively attempting to engage others socially with variable levels of success, and others seeking to avoid social interaction where possible (Barnett 2018). According to Devine and Apperly (2022), variability in autistic children's SCC can be linked to their unique differences in ToM ability. Melis-Yavuz *et al.* (2019, p.10) present a new investigation of how 'the social competence of autistic children might be related to early insights into others' mental and internal states', insights described as ToM. Further studies carried out by Berard *et al.* (2017) highlight the relationship of two domains within EF, cognitive and emotional regulation, which correlate with social competence. Outcomes from the study show that EF in autistic children plays an important role in SCC (Berard *et al.* 2017). Romero (2017) discusses how social competence can be linked to a combination of challenges in social and complex visual processing that are correlated to WCC. As discussed in Section 3.9.3, WCC is linked to a detailed style of processing at the expense of the big picture in social situations (Frith and Happé 1994). Autistic children with WCC may 'have difficulty extracting overall meaning or emotion from facial expressions of others' (Romero 2017, p.36), leading to challenges in social interaction, predicting and responding to

others. It is therefore important that the three cognitive theories are understood and incorporated in interventions; this is because the triad of ToM, EF and WCC are often interrelated and unique for autistic children, and ‘for social competence instruction to be effective for this sub-population, these core deficits must be addressed’ (Stichter *et al.* 2012, p.354).

Addressing the core SCC areas and targeting specific social skills is deemed imperative to enhance the social interactions and SCC of autistic children (Cotugno 2009; Kasari and Smith 2013; Silveira-Zaldivar and Curtis 2019). According to Stichter *et al.* (2012), there is a dearth of interventions for autistic children that target ‘their combination of core social competence deficit areas: ToM, emotional recognition, and executive functioning’ (Stichter *et al.* 2012, p.354), and many question the effectiveness of the interventions to facilitate generalisation of the learned skills to real life (Cotugno 2009). Lack of appropriate intervention in SCC can lead to different experiences for autistic children. Without appropriate support autistic children may experience less positive social outcomes, such as being excluded from peer groups, poor academic outcomes, difficulty forming relationships, sustaining employment and a lack of outside interests, which impact on their social competence (Stichter *et al.* 2012; Syriopoulou-Delli *et al.* 2016). Research by Cotugno (2009, p.1274) into group-based interventions is keen to highlight that ‘interventions which address the social competency needs and concerns of [autistic children] appear critical’. Romero (2017) furthers this argument and proposes that if interventions are well planned and designed to target specific areas and skills for development, they can lead to improvement in social competency. Providing appropriate social engagement opportunities is considered vital to developing

social competency; failure to do so has led to a lack of generalisation of learning across settings (Charman *et al.* 2003; Williams *et al.* 2008; Romero 2017).

There is a consensus across research that challenges in SCC are a core feature of ASD (Cotugno 2009; Kasari and Smith 2013; Berard *et al.* 2017), but we must also bear in mind that there is diversity within the ASD community in relation to their differences in SCC (Silberman 2015). Adopting a sociocultural perspective is therefore important as it is through this theoretical framework that one can ‘seek to understand the social contexts in all their complexity’ (Conn 2014, p.24), thus recognising the impact of the culture existing around the child, as Vygotsky understood, and the impact on the specific tools for the development of the individual.

Social competence involves the integration of social, emotional and cognitive skills (Chester *et al.* 2019) ‘to build, manage, and maintain social relationships’ (Devine and Apperly 2022, p.1). Learning these skills begins in the home, before it transfers to school settings, where much of a child’s approach to language and communication is interrupted and requires realigning in this new context as they transition between the environments (O’Sioráin *et al.* 2021). Such learning has particular relevance for autistic children; teachers are compelled to consider how the child’s knowledge and competence grow in this new communicative environment (O’Sioráin *et al.* 2021). One vital component that features in the formation of social competence during these early stages of development is the acquisition of joint attention skills, which serve as a scaffold for the development of effective SCC (Parsons *et al.* 2017). Understanding the importance of joint attention in SCC has relevance for the development of social motivation, self-regulation and executive processes (Mundy and Sigman 2015). Joint attention is known as a particularly relevant competency, one required in shared

communication and social interactions (Cotugno 2009). Moreover, better performance in joint attention exchanges in young autistic children is linked to better SCC in adulthood (Gillespie-Lynch *et al.* 2012). To understand the social exchanges and pragmatics of communication, one must also possess social or joint attention skills (O’Sullivan 2018), which is explored in greater detail in the following section.

4.5 Social Communication Competence and Joint Attention

The social competence domains illustrated in Figure 5 all possess another common underlying feature: the necessity of social attention, or joint attention. To function within each social competence domain, a person must be able to attend to a stimulus – either people or an object – and engage in reciprocal exchanges (Campbell *et al.* 2016). The ability to attend is called ‘joint attention’; this ‘refers to coordinating attention between social partners and objects or events to share awareness and experiences’ (Quill and Stransberry-Brusnahan 2017, p.10). Possessing joint attention skills means that an individual has the ability to reciprocate attention with another while both attend to the same object (Mastrangelo 2009; O’Sullivan 2018). Such exchanges then provide opportunities to learn social skills and social cognition, leading to social competence. Indeed, joint attention is seen as ‘vital to social competence at all ages’ (Mundy and Newell 2007, p.269). Studies conducted by Mundy *et al.* (2007) find that joint attention in young children is directly correlated to the later development of language, cognition and social competence. Joint attention experiences teach conventions of turn-taking and understanding roles, with the contributions made by the participants influencing the meaning of the exchange (Shiel *et al.* 2012). For young children, a joint attention exchange is often instigated by the adult leading the child and the child then tracking the cue to source a visual target (O’Madagain and Tomasello 2021).

Challenges in joint attention, however, can lead to differences in achieving ‘success in many pedagogical contexts’ and further impact on an individual’s ability to engage with on-time reactions in social exchanges, leading to relationship differences (Mundy and Newell 2007, p.269). Furthermore, autistic children have unique differences in the areas of joint attention combined with the sharing of positive affect, which has direct implications for their social learning and SCC (Lawton and Kasari 2012). The differences in joint attention observed in autistic children are described as differences in their ‘quantity and quality of joint attention’ (Lawton and Kasari 2012, p.307), and such differences are blamed for limiting necessary interactions that facilitate SCC (Adamson *et al.* 2019). Inhibited joint attention is described as a precursor to differences in ToM, emotion regulation, language development and SCC (Tomasello *et al.* 1995; Charman *et al.* 2003; Lawton and Kasari 2012; O’Madagain and Tomasello 2021). Such challenges are often seen during play, where autistic children may struggle with the reciprocal nature of the interactions with others (Melis-Yavuz *et al.* 2019) while sharing attention to the same item (O’Sullivan 2018). Intervention in joint attention for autistic children is perceived as critical as ‘improvement is linked to better developmental outcomes’ (Wong and Kasari 2012, p.2153). Melis-Yavuz (2019) reiterate this sentiment and provide assurance that autistic children can acquire joint attention skills and understanding through appropriate intervention, which in turn affects SCC.

The imperative role of the adult or More Knowledgeable Other (MKO) in supporting engagement is compatible with sociocultural theory highlighting the key roles that both child and adult possess in the early social competence acquisition process (Shiel *et al.* 2012). The important relationship between a child and parent/caregiver, or

indeed teacher, has been described as a foundation from which children can learn social competence and social play (Ring *et al.* 2018b). Play is often cited as a hugely important mechanism to develop joint attention and SCC in young autistic children (NCCA 2009; O’Sullivan 2018). In his work, Vygotsky (1978) illustrates the importance of play to facilitate social learning in a young child. Through play, the child can use imaginary language to understand symbolic relationships; when play is entered into with an adult, it provides opportunities to develop joint attention skills in a naturalistic setting (O’Sullivan 2018). Play for young children has been emphasised in the school system in Ireland in the last decade (NCCA 2009) and the importance of play for SCC is explored in the following section.

4.6 Social Communication Competence and Play

Play was the subject of much debate by thinkers in the last century, including in the works of Piaget (1967) and Vygotsky (1978); it has also been the focus of work by more recent researchers, such as Whitebread and O’Sullivan (2012) and Gray (2015). Play has been described as a continuum, one which is believed to reflect the outcomes that emerge from each type of play as it serves as an opportunity for social interaction and pleasure (Zosh *et al.* 2018). Play is also highlighted as critical for children’s well-being, resilience, learning and development (O’Keeffe and McNally 2021), which has meant that there has been a resurgence of the recognition of play in government policies (Whitebread and O’Sullivan 2012; Zosh *et al.* 2018).

The Department of Education and Skills in Ireland commissioned a series of research papers to investigate the importance of, and the children’s right to, learning and development opportunities based on their interests, strengths, culture

and specific needs (French 2007; Hayes 2007; Kernan 2007; Dunphy 2008). The outcomes of the research were compiled and formed the basis of *Aistear: The Early Childhood Curriculum Framework* (NCCA 2009), which advocates children’s rights throughout its themes and principles, and emphasises a play-based approach to learning. The Aistear Framework (NCCA 2009) is based on twelve principles, which guide the practice. These principles are coordinated into three groups, as outlined in Table 2.

Group categories	Guiding principles
Children and their lives in early childhood	<ul style="list-style-type: none"> • the child’s uniqueness • equality and diversity • children as citizens
How children learn and develop	<ul style="list-style-type: none"> • relationships • parents, family and community • the adult’s role
Children’s connections with others	<ul style="list-style-type: none"> • holistic learning and development • active learning • play and hands-on experiences • relevant and meaningful experiences • communication and language • the learning environment

Table 2: Aistear: The Early Childhood Curriculum Framework (NCCA 2009)

The Aistear Framework (NCCA 2009) advocates play as a hands-on experience, through which children can learn social competency. The framework promotes children’s experiences in play as a process, one which lays the foundation for developing effective communicators and learners (NCCA 2009). One of the many benefits of children acquiring social skills through play is that it offers a natural language setting (Beyer and Gammeltoft 2000; Whitebread and O’Sullivan 2012; Lerner and Johns 2015; Santrock 2018). Westwood (2015) highlights that

social communication should be developed, where possible, in such a setting and that naturally occurring opportunities for social communication should be encouraged throughout the day in the classroom. When it comes to inclusive education and play, the onus is on the teacher to model and encourage appropriate peer interactions to promote the best outcome for all children involved (Brock *et al.* 2009; O’Sullivan 2018; O’Keeffe and Mc Nally 2021).

The communication theme of the Aistear Framework (NCCA 2009) states that in the classroom, the adult must ‘provide an environment which motivates the children to interact’ (NCCA 2009, p.34). When children engage in play, the language used is reflective of the people involved:

inclusive play offers opportunities for friendship with normal developing peers, opportunities to interact with competent peers that promote social and communication skills and realistic life experiences

(Brock *et al.* 2009, p.133).

Play affords the opportunity to develop communication and social skills in a meaningful way (Ernsperger and Wendel 2007; Westwood 2015). It must also be noted that these opportunities are not equivocal in nature. Beyer and Gammeltoft (2000) illustrate that for many children today both social factors and psychological functions can limit their engagement in play, as is discussed in the following section.

4.7 Autism Spectrum Difference and Play

Research has highlighted and reiterated the social benefits and rich experiences that are key characteristics of play (NCCA 2009). However, it is evident that all children do not universally access these benefits (Stack 2018). According to Wong and

Kasari (2012) and (Øzerk *et al.* 2021), children with socio-communication differences, such as those experienced by autistic children, may have less experience with symbolic play and joint attention. Autistic children demonstrate more repetitive and restrictive mannerisms, and less flexible, imaginative, diverse and social play (Baranek *et al.* 2005; Christensen *et al.* 2010; Wilson *et al.* 2017). Beyer and Gammeltoft (2000 p.57) highlight that teaching an autistic child to play means that the adult must consciously ‘arrange situations that the child will find amusing and where they will be motivated to interact’ and should be mindful of the child’s interests and motivations (O’Sullivan 2018). Barnett (2018, p.665) stresses that intervention in social skills is important to help autistic children ‘benefit from the interactions that occur during play and to continue to progress developmentally in play skills’.

Aistear: The Early Childhood Curriculum Framework (NCCA 2009) emphasises the inclusive nature of its guiding principles and recognises that not all children can engage in play in the same ways (NCCA 2009). The framework endeavours to provide an opportunity for all children to exercise their right to play in a child-centred way based on their learning capabilities and the sociocultural perspective of ZPD. To have this opportunity, intervention is often necessary on the part of the teacher, to enable SCC development through play for all children (NCCA 2009). The framework (NCCA 2009) recognises that even though there is potential for each child to play, some may require scaffolding from an adult to profit from the play experience.

Mastrangelo (2009) discusses how the possibilities for play and its potential benefits for autistic children are underestimated in terms of their capacity to engage.

According to the American Psychiatric Association (APA) (2000), the play of autistic children often lacks creativity and imagination and has a persistent sensory-motor or ritualistic quality. Scott (2013) challenges this thinking and acknowledges that even though autistic children have portrayed differences in their imagination, that does not mean they cannot think imaginatively. In addition, Wong and Kasari (2012) discuss how the lack of focus given to play and joint attention for autistic children may be due to teachers' lack of knowledge regarding the importance of these skills. Furthermore, O'Sullivan (2018) recognises that due to the rigidity and resistance to change that are common characteristics of ASD, teachers are often reluctant to facilitate play experiences. Stack (2018) tells us that autistic children often find 'making sense of their social worlds' problematic due to differences in the components of social competence or 'social understanding' (Stack 2018, p.90). Shared practice and collegiality among teachers of autistic children is promoted as a mechanism for overcoming such barriers (Parsons *et al.* 2013). Teachers' experience and professional learning are argued to be critical factors that have profound implications on the education provision for autistic children (Mesibov and Shea 2010). *Aistear: The Early Childhood Curriculum Framework* and its potential benefits have been highlighted as underutilised in relation to teaching autistic children (Daly *et al.* 2016). Another aspect is that a common basic component underlying social competence is acquiring the necessary social skills to engage and develop the interdependent relationships described in social competence (Campbell *et al.* 2016).

4.8 Social Communication Competence and Social Skills

Social skills have been deemed imperative to growth and development from young children to adults (Fenning *et al.* 2011; Waugh and Peskin 2015). Social skills consist of ‘a set of learned behaviours that allow one to successfully initiate and perpetuate positive social interactions’ (Berry and O’Connor 2010, p.2). From the neurological perspective, the interaction of these learned behaviours ‘encompasses a complex interaction between neural, behavioural, and environmental elements’ (Soto-Icaza *et al.* 2015, p.1). From the psychological perspective, such behaviours are the basic skills deemed necessary to have positive interactions with others and the world (Ernsperger and Wendel 2007; Lynch and Simpson 2010; Stack 2018). It is argued that possessing social skill norms equips children with the ability to solve social situations through forecasting and essentially to read others’ behaviours (Fenning *et al.* 2011). Both the neurological and psychological perspectives agree that social skills are imperative for the accomplishment of positive progressive outcomes, including academic success, peer acceptance and mental health (Fenning *et al.* 2011; Soto-Icaza *et al.* 2015; Campbell *et al.* 2016; Stack 2018). Researchers present arguments for different components that are each considered fundamental to social skillsets. For some, to be socially competent, a child must possess the basic skills to:

(1) develop positive relationships with others, (2) coordinate and communicate her actions and feelings with social partners, and (3) recognize and regulate her emotions and actions in social settings and interactions.

(Campbell *et al.* 2016, p.20)

Berry and O’Connor (2010, p.2) stipulate that ‘showing empathy, participation in group activities, generosity, helpfulness, communicating with others, negotiating, and problem solving’ are the core capabilities of social skills. Haven *et al.* (2013, p.292)

discuss how typically developing children draw on a range of social skills, including ‘gestures, speech, social referencing, and facial expressions’, when interacting with others. Proficiency in ‘sharing, helping, initiating relationships, and controlling one’s temper’ are considered to lie within the parameters of good social skills (Berry and O’Connor 2010, p.2). Social skills can be considered dynamic and fluid, in that they change as they demand in-the-moment interpretation and the ‘integration of contextual factors such as socio-emotional understanding, language, and prior experiences’ (Quill and Stransberry-Brusnahan 2017, p.33). These writers all present very similar, sometimes overlapping, details of what should be encouraged, taught and observed as fundamental social skills. Westwood (2015) has provided an extensive list that pulls together many of the recommendations. He reports that teaching of all these social skills is fundamental and stresses the key component of early intervention where possible. His recommendations are listed in Table 3 below:

Social skills
Making eye contact
Greeting others by name
Gaining attention in appropriate ways
Talking in a tone of voice that is acceptable
Knowing when to talk, what to talk about and when to hold back
Initiating a conversation
Maintaining conversations
Answering questions
Listening to others and showing interest
Sharing with others
Saying ‘please’ and ‘thank you’
Helping someone
Making apologies when necessary
Being able to collaborate in a group activity
Taking one’s turn
Smiling
Accepting praise
Giving praise
Accepting correction without anger
Coping with frustration

Table 3: Social Skills for Learning, As Listed by Westwood (2015, p.98)

Westwood (2015) describes how the list in Table 3 draws together many programmes used to guide the teaching of social skills. Along with others in the field, including Webster Stratton (2012) and Conn (2014), he discusses the importance of teaching children social skills at an age and ability-appropriate level, one that is relevant to their current repertoire of skills. Such an assertion is reflective of sociocultural theory in which Vygotsky recommends working with children within their ZPD, as discussed in Section 2.5.4.1. It is worth noting that these social skills are relevant to all children, both neurotypical and neurodiverse; however, different children may present at different levels and abilities regarding social skill competency (Haven *et al.* 2013). As mentioned, social competence dictates how well children are perceived and accepted by their peers in social situations; therefore, the need for social competency instruction is vital for children with challenges in social skills (Walker and Barry 2018). In Section 3.3, social interaction and communication were highlighted as being of considerable significance to the profile of many autistic children. However according to Heasman and Gillespie (2019) the importance of understanding unconventional forms of social interaction that feature in some neurodivergent communication encounters with others needs to be highlighted. Sasson *et al.* (2017) describe how a difficulty can lie in the interaction between both parties in a communication exchange when the autistic individual struggles to comprehend and interpret the mental state of the partner and likewise the neurotypical individual struggles to understand and interpret the processes of the autistic partner, leading to a ‘bidirectional problem’ (Sasson *et al.* 2017, p.1). Further detail in relation to social competence in autistic children and social skills are are discussed in detail here as they are important elements in this study.

4.9 Social Communication Competence, Social Skills and Autism Spectrum Difference

Social competence and ASD have a symbiotic relationship: one impacts heavily on the other (Aspy and Grossman 2012). Challenges in the area of social communication and interaction are noted in the very identification of ASD (see Section 3.4). Descriptors for ASD use differences in social interaction, verbal and non-verbal communication, repetitive behaviours and unusual sensory experiences as observable characteristics (Westwood 2015; Bernier and Dawson 2016; Boutot 2016; Santrock 2018). According to Melis-Yavuz *et al.* (2019), social skills are mentioned and feature in the dialogue on ASD from the outset. Autistic people manifest social differences in many ways and this represents a central feature of ASD (Barnett 2018). O’Sioráin *et al.* (2021) indicate that adults supporting autistic children may find that such children’s motivation to engage can be a challenge in their interactions and should therefore reflect upon the social reality in which autistic children live. This entails going beyond the procedure involved in encounters and setting up situations that will increase the significance and meaning of the interactions (O’Sioráin *et al.* 2021). Further explanations of this phenomenon are found in the education discourse on ASD:

[Individuals have frequent] trouble forming and maintaining relationships with peers, understanding subtleties of social communication (e.g., interpreting nonverbal cues including facial expressions and gestures), and participating in symbolic/dramatic play.

(Barnett 2018, p.666)

Challenges with social competence in children increase the probability of future negative consequences (Walker and Barry 2018), so it is imperative that children with differences in social skills are afforded the opportunity, continuity and support (Westwood 2015) to have positive social experiences. Evidence of the strong

association between inactive social skills and adverse life outcomes for autistic people means ‘that it is crucial to identify factors that may contribute to the development of more effective social skills’ (Haven *et al.* 2013, pp.292–293).

Vygotsky’s sociocultural theory has taught us the importance of the role of social interactions for the development of a child. According to Potter and Whittaker (2001), to promote such interaction will require teachers and caregivers – the MKOs – to foster a communication environment that promotes success, as based on the individuals’ strengths, rather than tailoring experiences to their disabilities. Teachers in the role of More Knowledgeable Other (MKO) are urged to look at ‘what we are doing and why we are doing it’:

[I]t is better to reflect on our own practice and to question ‘Am I doing the “right” thing or doing things right?’

(O’Sioráin *et al.* 2021, p.33)

Understanding the intricacies associated with social competence for autistic children will assist those working in this area to use the knowledge of what the child can do rather than their deficits (Westwood 2015), as in the Zone of Proximal Development (ZPD) (Vygotsky 1978). The Vygotskian sociocultural theory was influential in the development of the curriculum used today in Irish classrooms, which guides the learning and teaching of SCC for children nationally (Shiel *et al.* 2012). Further details are explored in the following section.

4.10 Social Communication Competence and the Primary Language Curriculum

In September 2011, research commissioned under the direction of the National Council for Curriculum and Assessment (NCCA) informed the development of a

new Primary Language Curriculum (PLC) in Ireland. The previous curriculum (DES 1999) was reported as ‘not suitable to meet the needs of diverse learners’ (Ó Duibhir and Cummins 2012, p.16), as schools moved towards inclusion. The research conducted explored the theoretical understandings of how children learn language internationally and reported findings in three significant Irish reports on oral language and literacy, drawn up by a team of thirteen experts (Shiel *et al.* 2012; Kennedy *et al.* 2012; Ó Duibhir and Cummins 2012). A new curriculum emerged with sound theoretical underpinnings; it highlights the varying progression continua that children may be on in their language learning journey (Kennedy *et al.* 2012; Ó Duibhir and Cummins 2012; Shiel *et al.* 2012). The PLC has three strands: oral language; reading; and writing. Within these strands, teachers can observe children’s language learning stage (NCCA 2015a). Each of the strands has three elements that divide up the learning outcomes within. According to the writers, there was a shift from an individual language curriculum to

a language learning pathway that individual learners can traverse at different rates according to their contact and engagement with the language both within the school and outside of it

(Ó Duibhir and Cummins 2012, p.15).

The new curriculum recognises the differences between individual children’s progression in language and social competence from the early years. Vygotsky’s sociocultural theory was an influential element throughout the development of the curriculum (Shiel *et al.* 2012) and is evident in the promotion of the ZPD, where children are taught language from their specific level (Vygotsky 1978). Shiel *et al.* (2012) assures teachers that the PLC approaches the learner from the developmental perspective, accounting for the learner’s strengths, needs,

cognition and diagnosis. The PLC contains *Learning Outcomes* and related *Progression Continua*, which describe a two-year expected language learning cycle for children (NCCA 2015a). The *Progression Continua* break down the learning outcomes across several milestones, plotting children of all abilities on their individual course to a learning outcome. The curriculum document states that in doing so, ‘they recognise the progress and achievements of all children’ (NCCA 2015a, p.12). The PLC (NCCA 2015a) strives to be inclusive of all learners and seeks to enable teachers to have the relevant autonomy and professional expertise, to facilitate children’s learning of language, and to be confident they understand their capabilities and areas of challenge (NCCA 2015a). Through the new curriculum, the role of the teacher is stressed as a facilitator of change for the children (NCCA 2015a).

Within the PLC, it is evident that SCC is an integral part; it is indeed one of the core elements where children are taught to ‘develop communicative relationships through language (communicating)’ (NCCA 2015a, p.9). The PLC recognises that children’s communicative competency develops as they are taught to socially interact and engage in communicative relationships, where they learn to understand and interpret the communication of others (NCCA 2015a, p.18). Indeed, one of the goals of the curriculum writers was for children to develop communicative competence from the early years of their language learning journey (Shiel *et al.* 2012). The PLC encourages teachers to maximise potential communication development by creating a language learning environment that is inclusive of all methods of communication, especially for those with special

educational needs (SEN) (NCCA 2015a), which is explored in the next section with a specific focus on ASD.

4.11 The Primary Language Curriculum and Autism Spectrum Difference

To assist teachers implementing the PLC, a toolkit was designed with support material; this outlines the *how-to* of practice elicited from research (NCCA 2015b). The toolkit contains guides, sample plans and videos of children, and shows teachers how to plot children on the language progression continua (NCCA 2015b). However, materials and practices to support the teaching of language for autistic children have not been exclusively identified or made available for teachers in this support material. Conversely, Parsons *et al.* (2013) discusses the potential pitfall of the term ‘research–practice gap’, discussed in Chapter One, which highlights that teachers are not afforded enough opportunity to engage with sharing practice in relation to applying the curriculum and interventions for autistic children. Callahan *et al.* (2017) argue that one contributing factor to such a gap is the lack of social validation research, which would afford teachers an opportunity to discuss what they find acceptable in terms of intervention objectives, pedagogies and outcomes. The shortfall was highlighted as a potential issue prior to the roll-out of the PLC by Ó Duibhir and Cummins (2012) in their report:

[A]lthough a revised language curriculum might specify learning outcomes for children there is no guarantee that suitable activities to achieve these outcomes would be enacted by teachers or experienced by children.

(Ó Duibhir and Cummins 2012, p.78)

It is noteworthy to state that some efforts have been made to amend the shortfall in terms of application of the PLC to children with SEN. In 2017, the

National Council for Special Education (NCSE), produced guidelines to support the implementation of the PLC for teachers of children with SEN, including autistic children. The guidelines created seven pathways that teachers could follow, to mark children's development on the progression continua (NCSE 2017). The seven pathways recognised that children with more complex needs, especially in communication, including those with ASD, might acquire the skills and knowledge outlined in the learner outcomes at a slower pace than their typically developing peers. According to the guidelines, the pathways provide a scaffold for teachers to use to monitor this progress (NCSE 2017). Furthermore, the recent publication of the Primary Curriculum Framework from the Department of Education (2023) is highlighted as applicable to all children in all contexts.

The PLC and the SEN pathways provide exemplars of children's language learning. However, there is limited guidance in the support documents and the curriculum itself, in their recommendations on how teachers should provide the support for autistic children, who may present with greater differences in language and communication (Ó Duibhir and Cummins 2012). Comparatively, Syriopoulou-Delli *et al.* (2012, p.756) highlights that harnessing the special education experience of teachers can have a huge impact on how future teachers use education curriculums for autistic children. Potter and Whittaker (2001, p.166) criticise curricular documentation 'that have not included the use of specific teaching approaches in the areas of communication' for autistic children. The literature has promoted capturing the teacher's voice and experience through 'a flexible educational feedback mechanism [which] would assimilate practical evidence gained at school level' (Syriopoulou-Delli *et al.* 2012, p.756).

In summary, the literature suggests that many autistic children are at considerable risk in their social development as they find it difficult to understand others' mental states, verbal and non-verbal communication channels, and nuances of conversation (Syriopoulou-Delli *et al.* 2016). Teachers have adopted different approaches and methods to facilitate the learning and teaching of SCC for autistic children. Many of these strategies are rooted in cognitive theories that underpin communication. Table 4 below outlines these theories in further detail.

4.12 Learning and Teaching Social Communication Competence

The development of SCC has generated much debate and research, spanning many decades. In recent times, there has been a shift in the one-dimensional views presented by different theorists to more integrative theoretical propositions (Shiel *et al.* 2012). Through exploration of the different theories, we can learn to piece together the contributions and see the integrative nature of communication development, and apply our understanding to SCC for autistic children. Language acquisition theories that relate to language and communication can be loosely described as opposing hypotheses: nativism vs. empiricism, or nature vs. nurture (Santrock 2018). Disaggregating the components of these theories allows us to develop a better understanding of their individual properties, as this knowledge is incorporated into many of the teaching and learning strategies teachers apply in classrooms today.

Cognitive Theories that Underpin Communication

<p>Cognitive Theory: Piaget (1952)</p>	<p>This introduced the idea that language development was based on a cognitive theory and that language depended upon the development of cognitive structures. Piaget approached child psychology from a constructivist perspective in that individuals learn best when they are actively constructing knowledge (Santrock 2018). According to Piaget, intellect grows through interaction ‘with and acted upon our environment’ (Brock and Rankin 2008, p.115). The cognitive theory suggests that specific cognitive milestones must be met and that these form the basis for linguistic learning. The theory describes the linkages between children’s motor development, play behaviour and language learning (Kaderavek 2011); in other words, language acquisition is viewed as part of a holistic development. Piaget’s theory has been applied to learning and teaching autistic children. Sheehan <i>et al.</i> (2007) find evidence that comparing cognitive indicators of ASD to Piaget’s beliefs of cognitive change would place characteristics and traits in a developmental context and could serve to inform interventions and pedagogical approaches.</p>
<p>Behaviourism Theory: Skinner (1957)</p>	<p>In the book <i>Verbal Behaviour</i> (1957), Skinner stated that behaviourism, which looked at the measurable and observable aspects of language, explained the ability to produce functional units of verbal utterances in children (Skinner 1957). He postulated that people’s communication was shaped by the response, either positive or negative, from the communicative partner. Communication development, in Skinner’s model, is heavily reliant on the adult reinforcement of the child’s language. Despite being published in 1957, Skinner’s book saw an unprecedented revival due to his theory being applied to teaching autistic people in the 1990s. His theories were applied to what is known as behaviour analysis today and form the basis for many of the behavioural tactics used in this form of intervention (Johnson <i>et al.</i> 2017).</p>
<p>Nativist Theory: Chomsky (1965)</p>	<p>This theory proposed a more linguistic rule theory and suggested that language acquisition is derived from an innate ability, or <i>device</i>, which is triggered by the environment a child is exposed to. According to Chomsky a baby is born with an innate linguistic mechanism called the Language Acquisition Device, which predisposes them to absorb and decode language (Woolfolk <i>et al.</i> 2013). The nativist perspective argues that the ‘language faculty is part of a larger mental system’ (Brock and Rankin 2008, p.115). Chomsky proposed that we possess ‘a psychological system capable of representing, manipulating and interpreting stimuli’ (Ó Siochrú 2018, p.72). Chomsky’s work is seen in generative grammar, which often features as part of sentence structures, which are part of teaching strategies that use familiar language to develop skills in autistic children (Kohler and Mallot 2014).</p>

<p>Social Interaction Theory: Bruner (1968)</p>	<p>This theory proposes that language should be viewed through the social interaction lens, where it is a tool, developing from, and because of, social encounters and an innate desire in people to communicate and interact (Bradford 2009). According to Bruner’s theory, children learn language to socialise and direct the behaviour of others. Bruner’s theory introduced the idea of a Language Acquisition Support System. For Bruner, the Language Acquisition Support System structures the language of the child like Chomsky’s Language Acquisition Device; it is the interaction between both systems that enables children to enter the linguistic community (Bradford 2009). The social interaction theory was further moulded by suggestions put forward by Vygotsky (1978), who concurred with different aspects of the theory but who argues for collusion between cognitive and social development, which features heavily throughout interventions for autistic children.</p>
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Table 4: Cognitive Theories that Underpin Communication

It is evident that understanding the differences associated with the characteristics of ASD and SCC has permeated the works of some of the most influential thinkers in the field, as set out in Table 4. Knowing the theoretical backdrop of language development, which is the basis for SCC, helps to inform our understanding of teaching strategies that can be used to support autistic children.

Stakeholders in education research have documented many of the teaching approaches and methodologies that teachers have engaged with throughout the years to promote successful SCC development in autistic children. Two categories of EBPs, as discussed in Section 2.1, have been identified in research as Comprehensive Treatment Models and Focused Intervention Practices (Odom *et al.* 2010). Instructional practices such as Comprehensive Treatment Models have been organised to teach an array of skills and are highly evaluated and comprehensive packages, such as Applied Behaviour Analysis (ABA) and the Treatment and Education of Autistic and Related Communication-handicapped Children (TEACCH™) programme (Egan 2018). On the other hand, Focused Intervention Practices are individual teaching strategies that

teachers can use to teach specific educational targets and skills to autistic children (Odom *et al.* 2010). Education reports and reviews have produced some recommended strategies to support teachers and autistic children, which include strategies such as prompting, reinforcement, modelling, naturalistic interventions, peer training, pivotal response training, scripting, social narratives and social skills training (Bellini *et al.* 2007; Wang and Spillane 2009; Reichow and Volkmar 2010; Wong *et al.* 2015). Other strategies that have been advocated to promote SCC are antecedent-based interventions, cognitive behavioural interventions, discrete trial training, functional communication training, picture exchange communication systems, response interruption/redirection, self-management, structured play groups, task analysis, time delays and visual supports (Bondy and Frost 1994; Koegel and Koegel 2006; Quill and Stransberry-Brusnahan 2017; Daly 2019). Details pertaining to each of these strategies are provided in Table 5 as they are advocated as interventions which teachers can draw on and are underpinned by the theories outlined in Table 4.

Focused Intervention Practices	
Name	Practice
Prompting	Prompting involves giving a cue or reminder before a child engages in a behaviour or task to increase the likelihood that a specific response will occur at that time (Santrock 2018). It has been successful in promoting behavioural changes and once the child is consistently successful at the correct response, the prompts are faded and removed (Shabani <i>et al.</i> 2002).
Differential reinforcement	Differential reinforcement can be described as any means that follows a behaviour that increases the likelihood that the behaviour will be repeated or occur (Aspy and Grossman 2012). It is used as an alternative to punishment and there are various types of differential reinforcement that can be adopted based on their behaviour. These include differential reinforcement of other behaviours, differential reinforcement of incompatible behaviours, differential reinforcement of alternative behaviour and differential reinforcement of lower rates of behaviour (Aspy and Grossman 2012).
Modelling	Modelling is a cognitive strategy whereby a teacher engages in a think-aloud while performing a particular task to showcase what is involved through 'self-questioning, giving self-directions, making overt decisions and evaluating the results' (Westwood 2015, p.72). The teacher performs the target behaviour to show the child how to imitate, which over time leads to independent mastery of the behaviour (Lerner and Johns 2015).
Video modelling	Video modelling is a strategy that uses videos, with participants and/or others modelling target skills. They have been effective in increasing social interactions, conversation skills and play skills (Ganz <i>et al.</i> 2011). Video modelling is often a key component in the development of other different strategies and techniques (Aspy and Grossman 2012).
Naturalistic interventions	Naturalistic interventions are interventions which happen within the natural setting of a particular behaviour or peer-mediated activity that often includes the individual's own interests and provides support and natural consequences to learn a particular behaviour (Quill and Stransberry-Brusnahan 2017). These interventions are based on principles of ABA and are effective for helping children generalise skills in the environment where they are warranted (Wong 2012).
Peer-mediated instruction	Peer-mediated instruction is concerned with teaching typically developing peers to initiate social interactions with autistic children to assist with behaviour, communication and social skill acquisition. Peers can be trained to provide support for children to resolve some of their differences in social situations (Santrock 2018).
Pivotal response training	Pivotal response training is a naturalistic behavioural intervention that targets motivation, initiation and responsivity

	to multiple cues using a child-preferred motivator (Suhrheinrich <i>et al.</i> 2019). The underlying principle is that through a focus on strengthening pivotal behaviours, other areas of a child’s skill repertoire will be positively affected and developed (Koegel <i>et al.</i> 2012).
Social narratives	Social narratives are defined as ‘stories that describe social situations, appropriate social behaviours to display, and when to display the specified behaviours’ (Leaf <i>et al.</i> 2020, p.1). There are a few interventions that fit under this umbrella term and they will be briefly described individually: Social Stories™/social stories, social scripting and cartooning.
Social Stories™	A specific form of social narrative where simple stories based on the individual needs of the child that describe the way a behaviour or situations should occur (Westwood 2015). A trademark of the work of Carol Gray (2015), they provide information on socially appropriate behaviours and are written from the child’s perspective (Egan 2018).
Scripting	Scripting involves creating a verbal and/or written script that provides a description of a particular social skill for a child. They are described ‘as a form of prompt for a child who has not developed conversations skills naturally’ (Daly 2019, p.99). Scripts are typically practised with a child in advance of a situation and once proficiency has been reached, the script is faded (Hungate <i>et al.</i> 2019).
Cartooning	Cartooning represents another type of visual support, one that is combined with words to illustrate a concept (Aspy and Grossman 2012). This was adapted to Comic Strip Conversations™ by Carol Gray in 1994 when she combined social stories and cartooning. It is used to teach a child to process a social situation and help them fill in missing social information.
Social skills training	Social skills training involves individual or group teaching of ways to behave socially and often incorporates aspects of role-playing, constructive feedback, practice and play to teach and reinforce learning (Quill and Stransberry-Brusnahan 2017). Social skills training is often typically used in clinical settings and is considered an umbrella term for interventions that teach social skills and behaviour in groups, with many manualised versions available (Jonsson <i>et al.</i> 2019).
Antecedent-based interventions	Antecedent-based interventions involve changing the ‘contextual events that occur immediately before or in very close proximity to particular behaviours’ (Daly 2019, p.23) to support more appropriate outcomes. It involves gathering evidence to source the triggers of a behaviour or lack of social skill.
Cognitive behavioural interventions	Cognitive behavioural interventions are designed to teach children cognitive responses to social situations. They can be designed to teach children ‘to stop and think before responding,

		to verbalise and rehearse social responses, to visualise and imagine the effect of their behaviour and to pre-plant social actions' (Lerner and Johns 2015, p.172). This is done through cognitive processes taught to children, such as self-talk.
Discrete trial training		Discrete trial training is a one-to-one teaching intervention that uses repetitive trials of 'instruction, response consequence and pause prior to presenting the next instruction' (Quill and Stransberry-Brusnahan 2017, p.198). Discrete trial training is often described as a systematic method of instruction, one commonly adopted by ABA instructors (Leaf <i>et al.</i> 2020).
Functional communication training		Functional communication training is described as a method used to improve challenging behaviour by increasing functional communication skills. These replacement skills are deemed more appropriate, while still serving the same function for the individual (Quill and Stransberry-Brusnahan 2017).
Picture exchange communication systems		Picture exchange communication systems is a method of augmentative communication for autistic people. Picture exchange communication systems is designed for children with little or no communication abilities. It harnesses visual images and uses them in motivating situations to engage the child to communicate. It was developed by Bondy and Frost in 1985 with the aim of leading the autistic child to communicate independently (Egan 2018).
Self-management		Self-management interventions focus generally on teaching children to manage and monitor their own behaviour through recording when a competency or behaviour is used or not. Reinforcement is usually coupled with self-management to help motivate the child towards independence (Hungate <i>et al.</i> 2019).
Structured play groups		Play provides young children with a developmental platform that serves to contribute to their understanding of the world (Pittala <i>et al.</i> 2018). Play is a means for the early learning and development of the fundamental social components needed for later progression in autistic children (Wilson <i>et al.</i> 2017, p.10). In structured play groups, autistic children and typically developing peers are taught social competency through structured activities with social modelling and behavioural reversal part of game playing (Lerner and Johns 2015).
Task analysis		Task analysis involves segmenting a challenging task into component parts to make it more accessible for children (Santrock 2018). The teacher completes the task and writes down the systematic strips involved in the process. Visual supports are also used to detail each step. The child then uses the task analysis support to complete the task (Hayek and McIntyre 2019).
Time delays		Time delays involves teaching a child a behaviour through instruction and immediate prompt response technique. Once this aspect is mastered, a time delay is introduced between the

	instruction and prompt. The purpose of the time delay is to encourage independent response (Brandt <i>et al.</i> 2016).
Visual supports	Visual supports can provide concrete structure with clear unambiguous instruction and information that facilitates regular consultation according to a child’s needs (Daly 2019). Visual supports capitalise on the strengths of autistic children and for social development can create ‘opportunities for success, facilitate learning and foster independence’ (Aspy and Grossman 2012, p.220).

Table 5: Focused Intervention Practices

All the strategies detailed in Table 5 come under the umbrella of Focused Intervention Practices and are recommended for use to support SCC development. In special education, there is growing emphasis on sourcing more EBPs for children and teachers to engage with (Knight *et al.* 2019), and schools are deemed appropriate spaces where children can pursue social development (Westwood 2015). Further discussion on EBPs in special education is provided in the next section.

4.13 Evidence-Based Practices in Special Education

Instructional methods that feature prescribed criteria, where the positive influence of these on child outcomes is supported by numerous high-quality studies (Cook and Cook 2016), are known as EBPs (discussed earlier in Chapter One). Teachers should endeavour to adopt EBPs to achieve the best possible outcomes and experiences for children (Odom *et al.* 2005; Goldstein *et al.* 2014; Knight *et al.* 2019). Adopting this approach facilitates the opportunity to put in place the most valid and reliable research-based interventions, ones that are proven effective in improving a child’s social competence and educational performance (Cooper and Jacobs 2011). Implementing EBPs is seen as hugely important in special education as the identified practices have been proven effective with positive outcomes for the children with specific needs

(Mesibov and Shea 2010; Conn 2014; Egan 2018). Commitment to the promotion of EBPs is embodied in legislation in the No Child Left Behind Act 2001 and the Individuals with Disabilities Act 2004 and is contained within the Education for Persons with Special Educational Needs (EPSEN) Act (Bond *et al.* 2016). According to Burns and Ysseldyke (2008), the need to adopt EBPs is pertinent for all children, but even more so for children with SEN. Despite the calls and recommendations, there is concern that the correct use of EBPs is not happening in schools for children with SEN (Odom *et al.* 2005; Parsons *et al.* 2009; Bond *et al.* 2016). Often interventions designed to improve SCC are not specific to the individual needs of children and show little generalisability and long-term success (Bellini *et al.* 2007; Stichter *et al.* 2007). Cotugno (2009) concurs and questions the efficacy of some of the interventions that do not generalise across to real-life settings.

Placing an emphasis on the adoption of EBPs ensures that professionals base their educational decisions on rigorous research and scientific evidence, which will ‘eschew the tradition of following pronouncements and theories of authorities in the field’ (Goldstein *et al.* 2014, p.262). Furthermore, imperative to the success of EBP implementation is adherence to procedural fidelity for the programme (Knight *et al.* 2019). Fidelity is considered a measure of success for the student, as well as an ‘indicator of intervention quality’ (Stahmer *et al.* 2015, p.181). However, not all researchers agree on this, as is evident in the findings from a study of fifteen autistic children by Leaf *et al.* (2017). Their research noted that although closely following predetermined protocols facilitates the replication of EBPs, it limits the facilitator’s ability to customise the intervention and to make modifications that best fit the autistic child’s day-to-day and minute-to-minute requirements, in a progressive model of

intervention. Contrary to their recommendations, the study does partially address fidelity. Odom *et al.* (2020), emphasise the need for a more holistic approach to ensure that EBPs are used with more fidelity and stress that bridging the gap between research and practice for autistic children requires a broad overview of how such practices can be ‘scaled up’ and implemented with ‘fidelity’ (Odom *et al.* 2020, p.55).

In order to apply EBP programme fidelity, Stahmer *et al.* (2015, p.181) suggest that teachers must have ‘extensive training, coaching, and time to reach and maintain moderate procedural implementation fidelity’. There is limited research on what influences decision making in relation to EBPs for teachers, which directly affects application (Knight *et al.* 2019). There is a need to understand the contributing factors affecting implementation and decision making around this complex issue (Cooper and Jacobs 2011), with some research identifying that ‘access to training and resources is likely one salient factor ... [T]eacher (e.g., experience, education) and setting (e.g., caseload, educational setting)’ are other contributing factors (Knight *et al.* 2019, p.3). These findings were taken from a survey of 535 teachers working with children with ASD or intellectual disabilities. Their study noted, in particular, a lack of knowledge and professional learning as influential factors that impact on the preparedness, or lack thereof, for teachers implementing EBPs. A lack of professional development in understanding ASD for teachers has been identified as a barrier to inclusive education and is seen as critical for developing strategies to modify and adapt the learning environment for children (Petersson-Bloom and Holmqvist 2022). Knight *et al.* (2019, p.4) discuss how the ‘usability of a particular instructional practice is influenced by the curricular domain, context, and skill the special educator needs to teach’. Furthermore, school-based interventions should be made more intensive, according to Bellini *et al.*

(2007); interventions themselves should be implemented in naturalistic classroom settings across the school day, rather than once or twice a week and treatment fidelity should be monitored and assessed.

4.13.1 Evidence-Based Practices and Assessment

Hargreaves *et al.* (2012, p.6) eloquently discuss the possibility that having ‘more and better data can help us to make more efficient educational decisions and judgements’, such as in the area of special education. In classrooms, teachers are required more and more to reflect on their practice and design timely interventions and improvements to such practice through the use of data, in what Hargreaves (2009, p.95) describes as ‘data driven instruction’. The evaluation report from Daly *et al.* (2016) similarly stresses the need for all teachers to upskill in assessment procedures to obtain optimal benefit for autistic children; furthermore, the report advocates for the children themselves having a role in the self-assessment of their learning. Designing interventions in this way means that each teacher ‘begins with setting a goal, gathering data, analysing data, using data to inform a plan of action, evaluating the results, and repeating the cycle with refinements’ (Datnow *et al.* 2017, p.354), in an effort to guide decision making to improve student success. Teachers, however, have been noted to struggle with the process for varied reasons, including time constraints, ineffective school leadership and collaboration (Hargreaves 2009), and feelings of inadequacy as they lack varied instructional strategies to meet targets and goals in new ways (Datnow *et al.* 2017). For these reasons, data-informed teaching can be overlooked. Research conducted by Bertrand and Marsh (2015) investigates data-informed instructional practices in special education settings. Their research has highlighted how teachers are valuable in their ability to use professional judgements and intuition to make sense of and use data.

Evidence already exists to show that change informed by rigorous studies and reviews, but tailored and contextualised at school level, can lead to powerful learning in all primary classrooms (Kennedy 2010). Furthermore, Hargreaves *et al.* (2012, p.6) highlight the importance of making context-based decisions as using data alone cannot ‘help us make wiser or more humane’ decisions. These decisions can be further enhanced by the involvement of parents and external agencies in assessment and planning processes in schools (Daly *et al.* 2016). In 2018/2019, the Department of Education and Skills (DES) funded the roll-out of a pilot In-School and Early Years Therapy Support Demonstration Project that could deliver timely and equitable resources from services, speech and language therapists and occupational therapists to schools and children with SEN. An evaluation of the project, commissioned by the NCSE in 2020, concludes that the model of support using therapy services attached to schools shows signs of impact for better inclusion of children with SEN, as well as capacity-building for educators (Lynch *et al.* 2020). Furthermore, the authors stress how schools are best placed to lead out on inclusion programmes with school-based therapy services and interventions for children and that these must be encompassed in curriculum objectives (Lynch *et al.* 2020).

Advances in research on EBPs has led to the amassing of a wealth of available information; however, a gap persists between research-based evidence and classroom application for individuals with identified needs (Babkie and Provost 2004; Grima-Farrell 2017). The reasons put forward for the gap cite the rigidity of some EBPs (Conn 2014), poor teacher preparation (Grima-Farrell 2017) and the difference between clinic and classroom-based trials (Odom *et al.* 2010). A study carried out by Young *et al.* (2016) is critical of the fact that much research for autistic children takes place away

from school settings; they advocate that ‘school-based studies, addressing comprehensive outcomes, should play a critical role in closing the research–practice gap for young autistic children’ (Young *et al.* 2016, p.544). Investigating teachers’ perceptions on adopting practices recommended by research has also highlighted that the lack of knowledge and certainty for teachers regarding adopting new approaches and changes to practice can act as a systemic barrier to implementation (Joram *et al.* 2019). The recent report from Rose and Shevlin (2021) in Ireland notes that teachers expressed concern over their ability to support autistic children in mainstream schools and how a lack of confidence impacted on their attitude towards inclusion. Research by Brock *et al.* (2014), who surveyed 456 teachers, SETs and managers, show that teachers had limited confidence when it comes to implementing EBPs, but strategic professional learning tailored to their needs could help overcome this. Cordingley (2008) has long advocated that EBP adoption would be more prolific if teachers were part of the process and had their voices acknowledged in the use of EBPs, with a focus on championing their successes and determining their difficulties. In adopting such an approach, the teacher is able to share their real-world classroom experience, which should then inform their need for professional learning; this learning should then take place through mentoring and coaching relevant to their own context (Cordingley 2005). The day-to-day, real-life experiences and difficulties of teachers need to be ‘examined and interpreted in order to take on board new ideas and practices’ in the company of professional collaborators (Cordingley 2005, p.70). Research into bridging the gap from literature to practice has brought attention to the need for teachers to train and take on the role of researchers (Grima-Farrell 2017). Such attention places an emphasis on the importance of teacher agency.

4.13.2 Evidence-Based Practices and Teacher Agency

Teacher agency has generated much debate across the education landscape, with many researchers attempting to define its complexity in different ways (Priestley *et al.* 2012; Biesta *et al.* 2015; Simpson *et al.* 2018). Described as an ‘indispensable element of good education’ (Biesta *et al.* 2015, p.624), the concept of agency as a theory recognises the critical position of developing teacher capacity in contextualised planning and decision making, as encouraged by professional reflection (Simpson *et al.* 2018). Teachers should be viewed as professionals who can advance their teaching from their experience and greater knowledge can lead to this (Conn 2019). Brock *et al.* (2014) notes that not all professional learning approaches impact positively on a teacher’s implementation of EBPs, highlighting that teachers may be more interested in professional learning on EBPs proven to work in their contexts. This point further encapsulates the importance of teachers having autonomy to make everyday decisions about ‘situation-appropriate and context-specific inclusive pedagogies, to intentionally take actions, and to strategically initiate changes’ (Li and Ruppert 2021, p.49). In 2023, in Ireland, the new Primary Curriculum Framework was launched that underpins what curricula in Irish schools should look like for the future (NCCA 2023). The framework highlights that teachers must make informed decisions based on children’s preferences and learning to design appropriate pedagogical approaches and by doing so exercise their teacher agency (NCCA 2023).

Teacher agency is deemed imperative but it is also under-researched across inclusive education discourse, even though ‘teachers can and should play a powerful active role in promoting societal inclusion and equity for all learners’ (Li and Ruppert 2021, p.42). According to Biesta *et al.* (2015), both professional and personal

experiences inform the achievement of agency, which is directly linked to people's pasts. Teacher agency has been described as rooted in pragmatism, with teachers taking action in response to situations (Biesta *et al.* 2015) and experience change in their identity and expertise (Sheridan *et al.* 2022). Such responsiveness and professional competence, under the umbrella of teacher agency, are reflective of teachers' understanding and 'practice of inclusive education pedagogy with social equity as its core' (Li and Ruppert 2021, p.50). Conn (2019, p.45) alludes to the importance of seeing teaching as a social milieu where teachers translate 'specified curriculum into practice...build positive relationships...encourage pupils...engage their understanding...and encourage participation', key features in terms of teacher agency. However, a discrepancy exists in terms of the definition of teacher agency. The literature does not clearly clarify whether agency refers to the individual ability of teachers to act as agents or to an emergent 'ecological' phenomenon based on how individuals engage with their environments. The term is often inexact and poorly conceptualised (Biesta *et al.* 2015). Furthermore, it has been noted that the relationship between teacher agency, social equity, justice and inclusion is thinly researched, even though it could serve to support teachers' development of inclusive pedagogy competency and capacity for self-reflection in inclusive education (Pantić and Florian 2015). We must therefore endeavour to seek out the answer to the enigma of teacher agency and the contributing factors that 'inform teachers' perceptions, judgements and decision making and that motivate and drive teachers' action' (Biesta *et al.* 2015, p.624).

In Ireland the Teaching Council was established in 2006, in response to the Teaching Council Act 2001 (Teaching Council 2015). Part of the Council's manifesto

is to support teachers taking action in regard to their own professional learning. The Teaching Council is the professional standards body for the teaching profession; it is charged with enhancing and regulating professional standards within the teaching profession (Teaching Council 2015). Part of the Teaching Council’s remit is to inform the Minister for Education about teachers’ professional learning, actively promoting teacher engagement in such learning, and facilitating and conducting research into this (Teaching Council 2015). Several initiatives have been developed from the remit, to include:

Programme	Objective
<i>Céim: Standards for Initial Teacher Education</i>	Sets out the requirements which all programmes of qualification for teaching in Ireland must meet in order to gain accreditation from the Teaching Council. It is also a benchmark for anybody seeking to register as a teacher in Ireland.
<i>Droichead: The Integrated Professional Induction Framework</i>	For newly qualified teachers. The framework was designed to support the professional learning of the newly qualified teachers during the induction phase within the school environment supported by colleagues.
<i>Cosán: A National Framework for Teachers’ Learning</i>	Sets out a pathway to publicly acknowledge the full range of learning activities that teachers undertake including formal, informal, personal and professional development.
<i>CROÍ (Collaboration and Research for Ongoing Innovation) Research Series</i>	Designed to support a culture of shared learning and evidence-informed practice among the teaching profession.

Table 6: Teaching Council Continuous Professional Development Initiatives (Teaching Council 2015).

In addition to the initiatives set out in Table 15, the Teaching Council engages with the provision of funding to support the development of teacher professional learning and advocates the importance of the role of teacher as researcher. As a researcher, the teacher adopts a more reflective role and in the field of autism education,

this is more effective when we consider the individuality and complexity of learning and teaching for autistic children (Conn 2014). The Teaching Council promotes the shared learning and application of EBPs in the classroom for teachers (Teaching Council 2021). Through the Collaboration and Research for Ongoing Innovation (Croí) programme, the Teaching Council seeks out and disseminates high-quality research by teachers to education stakeholders. Furthermore, the Teacher Research Exchange (TREX) platform, led by Mary Immaculate College Limerick, is designed as a community of practice platform to share and promote research initiatives by preservice teachers, in-service teachers and professionals in higher education (Teaching Council 2021). These networks have brought about change in the promotion of the teacher–researcher role as they strive to promote teacher agency across education sectors (Teaching Council 2021). However, attention must also be directed towards the dissemination of research for teachers to manage. Cordingley (2008) notes that much research is driven by the requirements of research agendas, which can therefore result in challenges for teachers as they grapple with the complexities that are part of the report development. The teacher who is practice-based in their profession must be able to ‘connect intellectually, practically and emotionally with the knowledge they are offered in the research accounts if they are to take it on board and use this to inform their practice’ (Cordingley 2008, p.37). Teachers themselves should have their ‘specific needs and contexts’ considered in research (Cordingley 2008, p.37). Seeking out the EBPs promoted for autistic children is a key component of this study, and therefore noting the role of teacher–researcher and supporting it in special education are important.

All these initiatives are positive changes towards creating an inclusive and well-informed culture in schools. According to Rose and Shevlin (2021, p.173), ‘those engaged in training are demonstrating positive attitudes and greater confidence in their ability to address more diverse classroom populations’. Evidence-based practices are the basis on which teachers must design educational programmes for autistic children (Odom *et al.* 2010); therefore, teacher education in these EBPs is imperative. Developing the teacher-researcher dynamic, which is promoted by the Teaching Council, is a means to support teacher agency building.

4.14 Conclusion

The number of autistic children in Ireland has seen a considerable increase and therefore there is more need than ever for suitable education provision (Bond *et al.* 2016). Education provision needs research to highlight salient programme features so that educators can make informed decisions when selecting and customising interventions specific to the learner and environment in which they are learning (Ke *et al.* 2017). Howlin *et al.* (2007) discusses how the social competence of young autistic children is reflective of post-school outcomes and that social competence in childhood is deemed a powerful predictor of adult outcomes. Furthermore, Johnston and Iarocci (2017) warn of the risk of poor social competence to the mental health of autistic people. It is therefore imperative to extrapolate the appropriate EBPs deemed suitable for use by teachers for SCC. Cotugno (2009) reminds us that individualised interventions in SCC using appropriate evidence-informed practice can have a substantial impact in social performance and competency. Promoting the advancement of the teacher–researcher movement to support the development of teacher agency is an important element of such a journey. Kasari and Smith (2013) suggest that there is a critical need to

investigate EBPs implemented in schools with autistic children. However, for teachers to engage in EBPs not only means adopting the recommended strategies and the proven practices into their teaching; they must also espouse the concept of teachers becoming researchers (Grima-Farrell 2017).

The literature review has provided an overview of theory, practice and policy related to teaching SCC to autistic children. The next chapter discusses a systematic review of EBPs that, empirically, are deemed appropriate for teaching SCC to young autistic children in schools. Such a systematic review of the literature is warranted, as it represents ‘a vital tool for policy makers and practitioners to find what works, how it works and what might do harm’ (Gough *et al.* 2013, p.5). The inclusion and exclusion of studies in the systematic review are clearly defined *a priori*, with questions and criteria outlined in advance. The focus is placed on EBPs for teachers to adopt to effectively teach SCC to autistic children in the early years’ primary classroom. Critical to this review process was uncovering the gaps in knowledge of practices that are appropriate to bridging the gap in relation to ASD, as detailed in Section 1.2. There is a lack of coherence between what is recommended by the literature and what takes place in the classroom, and this has featured in the work of many researchers (Fox 2003; Cochran-Smith and Lytle 2009; Teaching Council 2011). The fundamental argument found in research is that there needs to be a link between professional practice and research for teachers (Griffin and Shevlin 2011). Burns and Ysseldyke (2008, p.7) tell us that ‘research on teacher practices will continue to be of interest and thus clearly warrants additional empirical inquiry’. The complexities of learning and teaching SCC to autistic children and the real need for teachers to engage in research and use EBPs are both highlighted as key elements in the literature. Subsequently, it is deemed

necessary to engage in a systematic literature review to ground the information in trustworthy evidence. The review is detailed in the next chapter.

CHAPTER FIVE

SYSTEMATIC LITERATURE REVIEW

5.1 Rationale and Aims of the Systematic Review

The literature reviewed in Chapters Two, Three and Four have presented a tapestry of connected information that has led to the culmination of the process with a systematic literature review. The interconnected nature of the previous chapters has highlighted key detail relevant to the research. The primary focus of the study is social communication competency (SCC) as it features significantly in the characteristics those with Autism Spectrum Difference (ASD) (Brignell *et al.* 2018). Improving the ability to understand social rules and expectations is vital to success in school and society for autistic children (Campbell and Tincani 2011; Boudreau *et al.* 2015). Furthermore, positive peer relationships and social inclusion are often parents' greatest concern for their autistic children (Bellini *et al.* 2007; Kasari *et al.* 2016; Peters 2016), and yet there continues to be a critical need for evidence-based intervention models that can be implemented by teachers for autistic children (Peters 2016; Morgan *et al.* 2018). The disparity in evidence-based practices (EBPs) is evidenced across the international literature (Parsons *et al.* 2009; Mesibov and Shea 2010; Reichow and Volkmar 2010; Bond *et al.* 2016) and creates the impetus for this review.

The National Council for Special Education (NCSE) commissioned a systematic review, *Educating Persons with Autistic Spectrum Disorder – A Systematic Literature Review*, in 2016. The aim of the report was to review up-to-date evidence of the intervention supports for autistic children documented in the literature (Bond *et al.* 2016). The report built on previous work undertaken by Parsons *et al.* (2009),

International Review of the Literature of Evidence of Best Practice Provision in the Education of Persons with ASD, also commissioned by the NCSE. Outcomes from both reviews provided significant evidence of limited research into ‘interventions in real school settings’ (Bond *et al.* 2016, p.ii) and highlighted that within these settings, interventions must be driven towards developing SCC as a priority. The 2016 review also noted that the disparities highlighted by Parsons *et al.* (2009) were still evident after seven years, stating ‘it is disappointing to note that similar limitations in the evidence base to those identified by Parsons *et al.* (2009), still prevail’ (Bond *et al.* 2016, p.ii).

Boudreau *et al.* (2015) claim that despite the promotion of EBPs in special education, there remains a prominent gap in the availability and commitment to reliable implementation of effective EBP models for autistic children. The statement came after Kasari *et al.* (2012) highlighted the need for EBPs implemented in real-life educational settings, ones that address core features of ASD and promote positive outcomes. Boudreau *et al.* (2015) also elaborate on this argument, stating that children spend most of their days at school, so it is therefore crucial to identify EBPs for autistic children that are acceptable and feasible for teachers to implement. Research into ASD intervention includes an extensive collection of comprehensive and specific intervention studies featuring myriad of designs, modules and outcomes (Bond *et al.* 2016). Literature reviews concerning EBPs identify studies that provide the basis for using specific interventions and represent a mechanism for the adoption of such methods into practice (Moore *et al.* 2018). Education research based on ASD has produced a wealth of information in recent years (Gibson *et al.* 2021). However, much of the research has been conducted in and reported from clinical settings, which are

removed from the daily experience of the school-going autistic child (Ke *et al.* 2017). An impetus exists to seek out appropriate contexts for teaching SCC as it is particularly ill-suited to learning in clinical settings alone (Hansen *et al.* 2017). Baron-Cohen *et al.* (2011) promotes the power of exercising an autistic child's natural interest to learn within an inclusive classroom setting. The following systematic literature review will consider the NCSE reviews carried out by Parsons *et al.* (2009) and Bond *et al.* (2016) but will refine the search to make it more applicable to in-school interventions for SCC for autistic children.

5.2 Overarching Aim of the Systematic Review

The objective of the systematic review is to analyse current and previous research on school-based interventions designed to increase SCC for autistic children, as used by teachers. A systematic review was conducted of all published studies focused on SCC in early school-aged autistic children, based on an established rubric. Conducting a systematic literature review enables 'education professionals to identify effective interventions and assess trends in research and practice' (King *et al.* 2018, p.1). Systematic synthesis of educational literature is the development of a formal set of processes for bringing together different types of evidence so that we can be transparent in what we know from research and clear about the knowledge source (Gough *et al.* 2013). Adhering to the rigorous procedure for a systematic review requires a solid review question. Petticrew and Roberts (2006) state that if a research question is invested in examining effectiveness, then the question should be framed using the Population, Intervention, Comparison, Outcomes, Context (PICOC) model. The PICOC model is detailed in Figure 6 and features the component parts captured in the review.

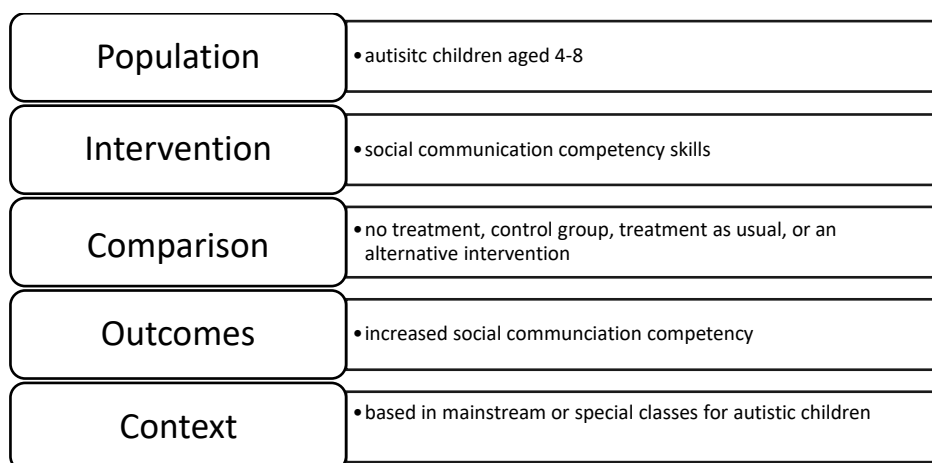


Figure 6: PICOC Method of Petticrew and Roberts (2006)

Framing the review based on the PICOC method ensured that the process was systematic from the outset. The procedure provided a valid structure for the formation of the review question, which is central to the study.

5.3 Review Question and Search Strategy

In light of the rationale outlined for the study, the objectives of the review include identifying:

- Effective EBPs for teaching SCC to young autistic children, aged between 4 and 8 years, in early years classrooms; and
- Social competency components that should be incorporated into the design of school-based SCC interventions for young autistic children.

Literature searches were undertaken from May to September 2019 across the following online databases: EBSCO host (EBSCO 2020), Academic Search Complete (EBSCO 2020), Proquest (Cambridge Information Group 2020), ERIC (Institute of Education Sciences 2020), Web of Science (Clarivate Analytics 2020), Scopus (Elsevier 2020) and PsycInfo (American Psychiatric Association [APA] 2020). In addition, web searches were undertaken using Google Scholar (Google 2020), the

NCSE research database (NCSE 2020) and the National Database for Autism Research Autism (National Institutes for Health 2020) to catch literature relevant to the Irish context. To keep the review broad in the initial search, there was no restriction on the types of study that were included. Each one would have to be assessed for quality using a rigorous assessment rating (provided in detail below). The presence of a control group as part of the intervention was not a necessary criterion of inclusion. However, if the control group exists, it is noted in each of the studies and reflected in the quality assessment indicator ratings. The interventions may be compared with a control group, the treatment as usual or an alternative intervention.

In the initial stage of planning the review, the type of documents and the search terms that would locate them were established. The process took place in April 2019. To set a broad scope, the review encompassed any relevant English-language published in journals from 1999 to 2019. The elements of the PICOC question were addressed in the search terms and trialled across multiple databases. Each element chosen was distilled from the literature reviewed in relation to ASD, EBPs and the need for classroom-based interventions (as advocated in Section 1.2). Table 6 sets out the actual search terms applied:

Component	Search term used
Title ASD AND	'Autism' OR 'Autism Spectrum' OR 'asd' OR 'auti*' OR 'asperger syndrome' OR 'autistic spectrum disorder' OR 'pervasive developmental disorder' OR 'pervasive developmental disorder not otherwise specified' OR 'childhood disintegrative disorder' OR 'rett's' OR 'rett syndrome' OR 'autistic' OR 'high functioning autism'
Population – Children AND	'children' OR 'child*' OR 'child*' OR 'pupil*' OR 'learner' OR 'girl*' OR 'boy*'
Intervention and Outcomes – Social Skills AND	'social communication OR 'social language' OR 'communication' OR 'language' OR 'verbal behaviour'

	OR 'social language skills' OR 'language intervention' OR 'pragmatic language'
Context – School AND	'school based' OR 'n' OR 'education' OR 'program/me' OR 'in school' OR 'elementary school' OR 'primary school' OR 'teacher led' OR 'instruction' OR 'intervention' or 'practice' OR 'pedagogy' or 'inclusive education' OR 'mainstream' or 'special class'

Table 7: Search Terms Applied in the Systematic Review

In total, 4,291 documents were identified for the review across all the different databases. Endnote online (Clarivate Analytics 2020) is the bibliographic referencing software used and all the citations were exported to this. Figure 7 below illustrates the flowchart delineating the literature search process undertaken.



PRISMA 2009 Flow Diagram

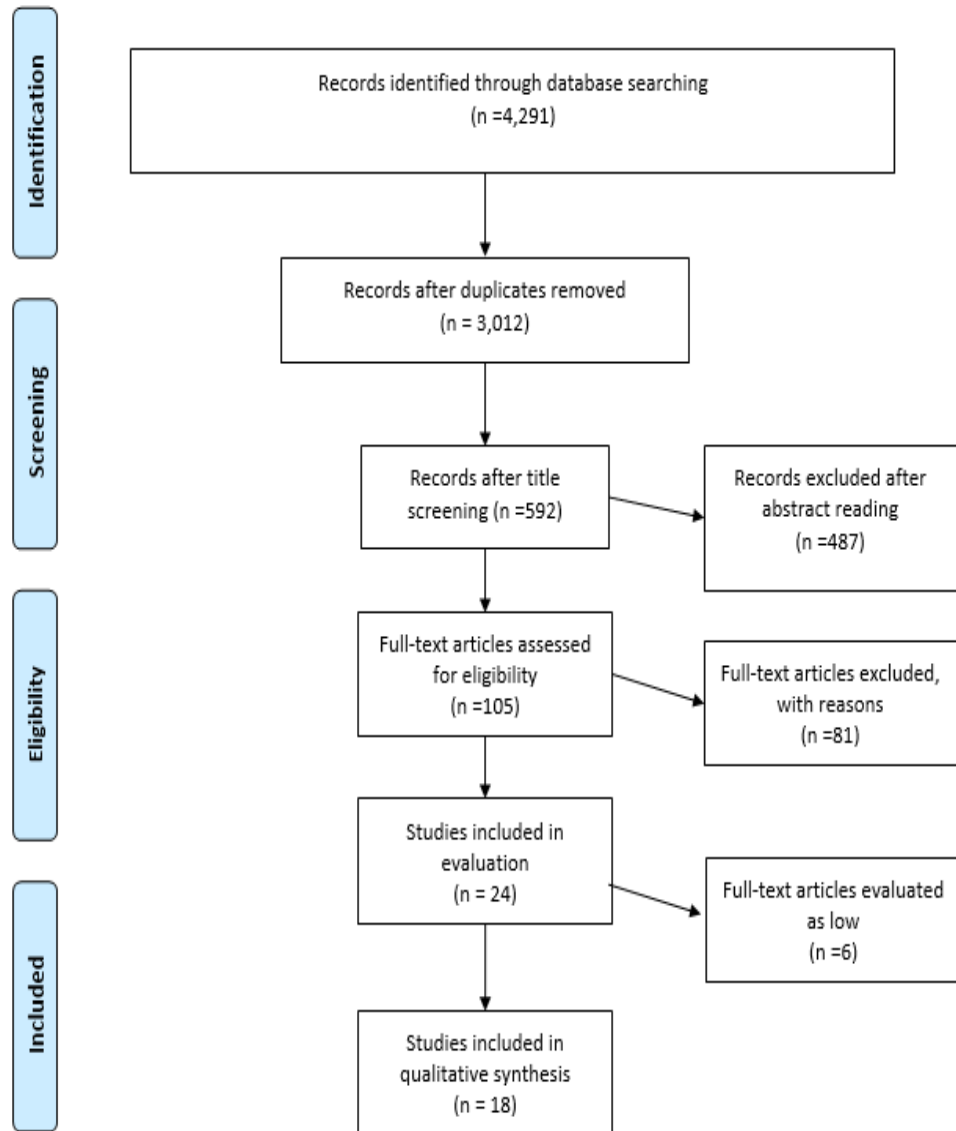


Figure 7: Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement (Moher, Liberati, Tetzlaff and Altman 2009).

5.4 Application of Inclusion Criteria

The focus was placed on the intervention packages that are specifically supportive of SCC within the parameters set out for the review. Once the initial key word search had been completed and relevant literature sourced, the next stage involved the application of predetermined inclusion and exclusion criteria. These criteria were developed based on appropriate material to answer the research question. The inclusion criteria, the exclusion criteria and the rationale are set out in Table 7.

Criteria	Inclusion	Exclusion	Rationale
<i>Criterion 1</i> Study Type	Is empirical – e.g. includes a collection of either quantitative or qualitative data.	Studies that report opinions, commentary or methodology that are not based on empirical data, whether quantitative or qualitative.	Empirical data allows the reviewer to source evidence-based interventions and programmes that have proven results based on data collection.
	An original unbiased, peer-reviewed study that reports primary outcomes.	The study contains subsequent reviews of primary studies, e.g. meta-analyses, reviews, reports.	Original studies required to produce a relevant systematic review.
<i>Criterion 2</i> Outcome	Reports at least one outcome measure applicable to autistic children.	No reported outcome measures relating to autistic children.	Must be relevant EBPs for autistic children.
<i>Criterion 3</i> Intervention	An intervention or programme type that reports the development of SCC for young autistic children.	An intervention or programme type that pertains to a skillset other than SCC for autistic children.	The study is situated in education interventions pertaining to SCC development and therefore needs to be explicit in this domain.

<i>Criterion 4</i> Language	In English.	Not written in English.	English medium as the preferred language of the researcher.
<i>Criterion 5</i> Publication date	1999–2019.	Published before 1999.	Acceptable years.
<i>Criterion 6</i> Participant characteristics	Children aged 4–8 years attending mainstream primary school or special classes in mainstream. If two or more children within the age category are part of the study, it is deemed eligible for inclusion.	Children older than 8 and younger than 4 attending schools that are not mainstream primary or attached to a mainstream primary.	Focus on junior classes in primary schools.
	Children with a diagnosis of ASD.	Children without a diagnosis of ASD.	Study is based on social and communication language development for autistic children: the participant requirements.
<i>Criterion 7</i> Location	Location of intervention takes place in mainstream primary school or special class attached to primary school.	Intervention takes place in a setting other than mainstream primary school, e.g. clinic or community-based intervention.	This study is focused on interventions trialled by teachers for classroom settings.

Table 8: Inclusion and Exclusion Criteria

One hundred and five articles were assessed; eighty-one of these were excluded based on the criteria. A full list of the excluded documents and the associated criteria are available in Appendix 1.

5.5 Critical Analysis Coding Framework

The study used a formulaic approach to identify EBPs in order to produce rigorous and well-controlled research (Hansen *et al.* 2017). Twenty-four of the studies that were included for the review were appraised through the Weight of Evidence (WoE) Framework (Gough 2007), which includes scoring and criteria. The framework refers to ‘the preponderance of evidence to inform decision-making’ (Gough 2007, p.223), and is applied as a rubric to allow for judgements on criteria outlined specific to the study; and acts as a mechanism to answer the specific research questions (Gough 2007).

There are four component parts to the WoE framework:

- Weight of Evidence A (WoE A) is one generic judgement regarding the coherence and integrity of the evidence in a report.
- Weight of Evidence B (WoE B) is the review-specific judgement of research design and its appropriateness to answer the question in the report.
- Weight of Evidence C (WoE C) reviews specific judgement of evidence, with the focus on the relevance of the evidence type in relation to the report question.
- Weight of Evidence D (WoE D) is the combination of the three appraisals informing the overall assessment of the extent to which a study is relevant to the review question (Gough 2007).

The WoE Framework provides ‘a structure for making judgements but does not explain how the specific judgements should be made’ (Gough 2007, p.224). Studies were allocated a ‘High’, ‘Medium’ or ‘Low’ rating set by the researcher. To adhere to the rigorous process involved in a systematic review, these judgements of quality and relevance pertaining to this study were set *a priori*. The specific judgements of each study were based on the criteria laid down in the NCSE’s systematic review on autistic people (Bond *et al.* 2016). In this review, the NCSE compiled a comprehensive coding

criterion, one inspired by proposals of leading framework designers in the field of special education. The criterion is relevant for both quantitative and qualitative studies, and evaluates the effectiveness of EBPs, which was imperative for the study. Bond *et al.* (2016, p.23) describe how ‘quality evaluations of the available evidence are essential to building a sound evidence base for ASD interventions’; they therefore designed the coding criteria to measure three components of each study. These criteria are relevant to the overall WoE Framework as they measure the quality of the evidence, the methodological appropriateness of the evidence and the effectiveness of the intervention.

Each of these measures was applied to both qualitative and quantitative studies, and the criterion was proven to be reliable through rigorous assessment in the original study (Bond *et al.* 2016). The completed criterion for each of the studies included features in Table 8. These three sets of judgements can then be combined to form an overall assessment, the WoE D, establishing the ‘extent that a study contributes evidence to answering a review question’ (Gough 2007, p.224).

5.5.1 Weight of Evidence A – Quality of Evidence

Quantitative studies

The quality of evidence standards used to judge quantitative studies, Table 8, according to Bond *et al.* (2016), were taken from the American Psychiatric Association (APA) (2006) and the criteria for evaluating EBPs in ASD, as refined in the work of Reichow *et al.* (2008). Three categories were nominated as scoring bands; ‘low quality’ (0–3 points); ‘medium quality’ (4–7 points); and ‘high quality’ (8–11 points).

Criterion	Maximum number of points
Use of randomised group design	/1
Focus on a specific, well-defined disorder or problem	/1
Comparison with treatment-as-usual, placebo or, less preferably, standard control	/2
Use of manuals and procedures for monitoring and fidelity checks	/1
Sample large enough to detect effect (from Cohen 1992)	/1
Use of outcome measure(s) that have demonstrable reliability and validity	/2
Gives details of participant characteristics (Reichow <i>et al.</i> 2008) (primary)	/1
Attrition rates did not differ between groups by more than 25% (Reichow <i>et al.</i> 2008) (secondary)	/1
The study has evidence of social validity (Reichow <i>et al.</i> 2008) (secondary)	/1

Table 9: Weight of Evidence A – Quantitative Studies, Quality of Evidence Standards

Qualitative studies

In the qualitative studies criterion framework designed by Bond *et al.* (2016), one point was awarded to a study for each of the criteria it met, with a maximum score of 13 points, as evident in Table 9 below. Three categories also applied as scoring bands in qualitative studies: 0–5 points represented ‘low quality’, 6–9 points ‘medium quality’ and 10–13 points ‘high quality’ (Bond *et al.* 2016). Studies that employed mixed methods were coded in both ways and the higher rating carried forward.

Criterion	Maximum number of points
Appropriateness of the research design	/1
Clear sampling rationale	/1
Well-executed data collection	/1
Analysis close to the data	/1
Emergent theory related to the problem	/1
Evidence of explicit reflectivity	/1
Comprehensiveness of documentation	/1
Negative case analysis	/1

Clarity and coherence of the reporting	/1
Evidence of researcher–participation negotiation	/1
Transferable conclusions	/1
Evidence of attention to ethical issues	/1
Social validity	/1

Table 10: Weight of Evidence A – Qualitative Studies, Quality of Evidence Standards

Each study was then assessed for methodological appropriateness in relation to the findings for this review.

5.5.2 Weight of Evidence B – Methodological Appropriateness

The standards for methodological appropriateness are criteria designed to measure the study design and its relevance to answering its question; this was evaluated as ‘high’, ‘medium’ or ‘low’ quality, as recommended by Bond *et al.* (2016), outlined in Table 10.

Methodological appropriateness of the evidence	Maximum number of points
A clearly defined sample	/1
A sound intervention approach comprising one point each for: <ul style="list-style-type: none"> • a clear theoretical rationale and/or evidence base for the intervention • sufficient information provided for the intervention to be replicated 	/2
Use of objective measures comprising one point each for: <ul style="list-style-type: none"> • Relating to the specific focus concern for the autistic children, e.g. use of a social skills measure for a social skills intervention • Relating to the educational application of the intervention itself, e.g. teacher questionnaire regarding utility 	/2

Table 11: Weight of Evidence B – Methodological Appropriateness of the Evidence

5.5.3 Weight of Evidence C – Effectiveness of the Intervention

Table 12: Weight of Evidence C – Effectiveness of the Interventions

The evaluation of effectiveness investigated the extent to which the intervention was successful in terms of the objectives it undertook as outlined in Table 11. The measures are deemed low, medium or high, as reflected in Bond *et al.* (2016).

Effectiveness of the interventions	Score
The intervention had no or a negative effect or did worse than control/against prediction.	Low
The intervention had a positive effect and no control OR one intervention was predicted to perform better than another but both interventions performed equally well.	Medium
The intervention was better than the control or comparison intervention but only if the finding was as predicted.	High

5.5.4 Weight of Evidence Woe D – Overall Quality Indicators

To be included in the critical analysis component of the review, a study had to attain at least a medium quality rating in all areas assessed. Choosing studies that had medium quality was highlighted and used in Bond *et al.* (2016); this has proven to be an accurate method of measuring EBPs in ASD research. The practice is reflected in the WoE D or the overall judgement of the evidence in terms of its relevance to the review’s research question as outlined in Table 12. The measures *Low*, *Medium* and *High* are applied based on the composition of WoE A, WoE B and WoE C.

Quality of evidence	Low	Medium	High
Methodological appropriateness	Low	Medium	High
Effectiveness of the intervention	Low	Medium	High

Table 13: Weight of Evidence D – Overall Quality Indicators

The results of the WoE D framework for the studies are outlined in Table 13 and the articles that were scored low are detailed in Appendix 2.

Author	Year	Quality of evidence	Methodological appropriateness	Effectiveness of the intervention	Overall
Andras, M.	2012	Medium	Medium	Medium	Medium
Beaumont <i>et al.</i>	2015	Medium	High	Medium	Medium
Brock <i>et al.</i>	2018	Medium	High	High	High
Buggey, T.	2005	Medium	Medium	Medium	Medium
Campbell <i>et al.</i>	2011	Medium	Medium	Medium	Medium
Delano, M. and Snell, M.E.	2006	Medium	Medium	Medium	Medium
Kamps <i>et al.</i>	2015	Medium	Medium	Medium	Medium
Kasari <i>et al.</i>	2016	Medium	High	Medium	Medium
Kasari <i>et al.</i>	2012	Medium	High	High	High
Koegel <i>et al.</i>	2012	Medium	Medium	Medium	Medium
Locke <i>et al.</i>	2019	Medium	Low	Medium	exclude
Lopata <i>et al.</i>	2013	Medium	Medium	Medium	Medium
Marshall <i>et al.</i>	2016	High	Medium	High	High
Peters, B.	2016	Medium	Medium	Medium	Medium
Peters <i>et al.</i>	2016	Low	Medium	Medium	exclude
Porayska-Pomsta <i>et al.</i>	2018	Low	Medium	Medium	exclude
Quirnbach, L.M.	2007	Medium	Low	Medium	exclude
Ratcliffe <i>et al.</i>	2014	High	High	High	High
Sansosti, F <i>et al.</i>	2008	Medium	Low	Medium	exclude
Schneider, N. and Goldstein, H	2010	Medium	Medium	Medium	Medium
Simpson <i>et al.</i>	2004	Low	Medium	Medium	exclude
Thomeer, M.	2012	Medium	Medium	Medium	Medium
Vincent <i>et al.</i>	2018	Medium	Medium	Medium	Medium

Wolfberg <i>et al.</i>	2015	High	High	Medium	High
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Table 14: Weight of Evidence D – Criteria Applied to the Studies

Five studies received a high overall WoE D rating (Kasari *et al.* 2012; Ratcliffe *et al.* 2014; Wolfberg *et al.* 2015; Marshall *et al.* 2016; Brock *et al.* 2018). Thirteen studies were allocated a medium overall rating (Buggey 2005; Delano and Snell 2006; Schneider and Goldstein 2010; Campbell and Tincani 2011; Andras 2012; Koegel *et al.* 2012; Lopata *et al.* 2013; Beaumont *et al.* 2015; Kamps *et al.* 2015; Kasari *et al.* 2016; Thomeer 2012; Peters 2016; Vincent *et al.* 2018) and six studies received a low overall rating. The search results were analysed and categorised and are discussed in the subsequent section.

5.6 Summary of Data from the Studies Included

In the review, a study was included if it obtained at least a medium score in terms of quality of evidence, methodological appropriateness and effectiveness of intervention. Studies scoring below medium in any category were deemed too low to be EBPs, following the WoE guidelines of Gough (2007), and were therefore deemed unsuitable for this review. A total of twenty-four studies were analysed. Eighteen studies were of a suitable calibre for inclusion and are available in Appendix 3. Six studies were deemed too low according to WoE D. Five studies were rated high in the WoE D.

The eighteen studies feature nine types of research study designs, as shown in Figure 8. These include four randomised controlled trials, five multiple baseline across participants, two single-subject designs, one multi-probe design, two mixed-methods studies and one each of cluster randomised trial, group experimental research, quasi-

experimental design and single component trial. Further detail is available in the literature input table in Appendix 4.

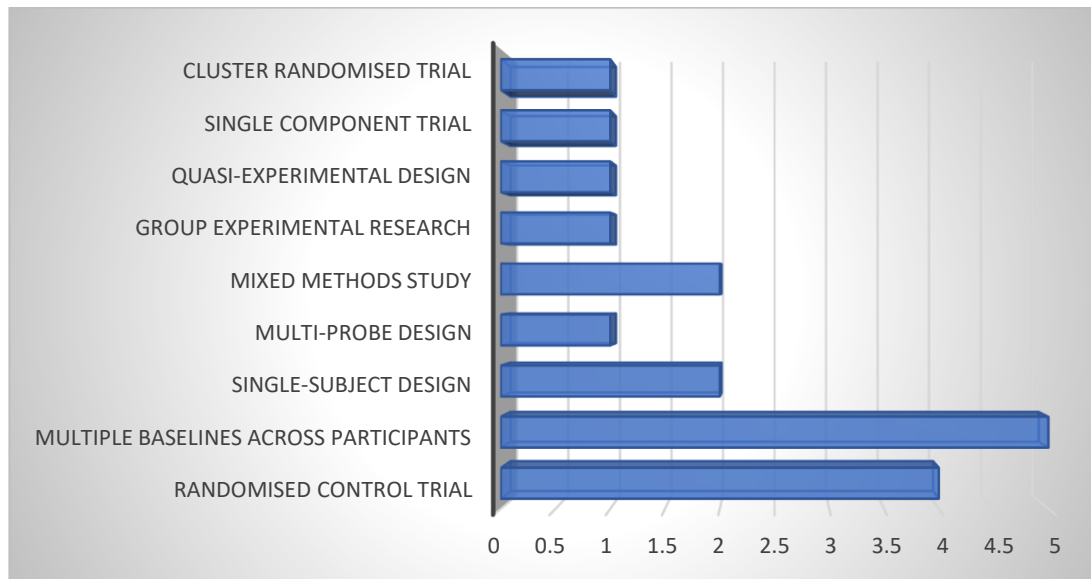


Figure 8: Study Designs for the Studies Included

The total number of participants (autistic children) for the eighteen studies was 742. The lowest number of participants was three, and this featured in four of the studies. The highest number of participants in any of the studies was 217, as is evident in Figure 9 below. Four of the studies note that typically developing peers were involved in their interventions. These range from nineteen in Brock *et al.* (2018), which was a peer-mediated pivotal response treatment intervention, to 815 in Kasari *et al.* (2016), whose study involved a randomised controlled trial of social skills and incorporated peer mediation. Other studies have peer involvement but do not give specific numbers.

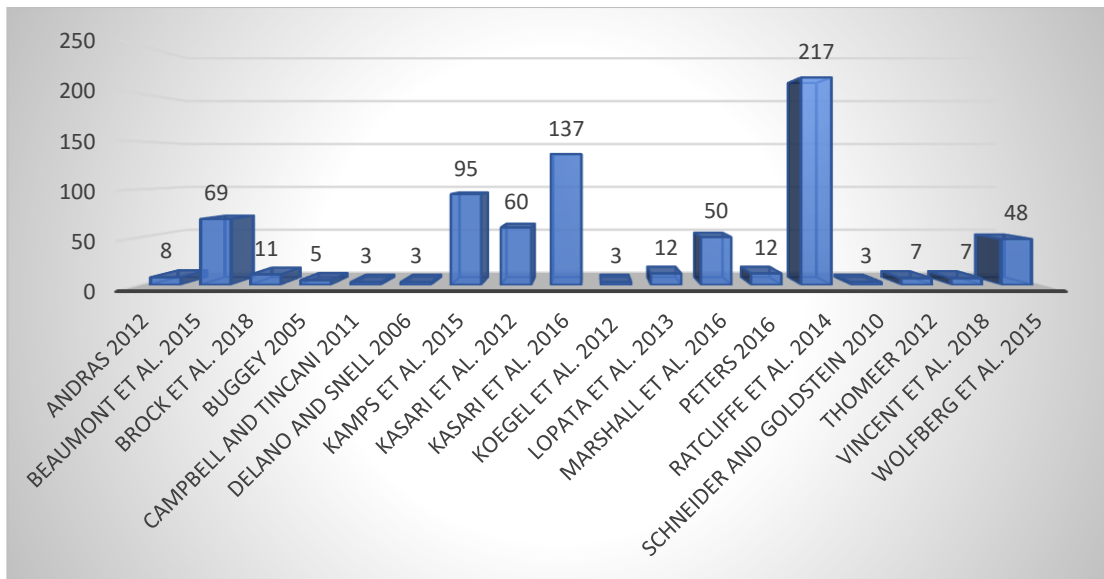


Figure 9: Participant Characteristics for the Studies Included

The studies ranged in years from 2004 to 2018, despite the wider search criteria used, which was 1999 to 2019. It is noteworthy to highlight that the study follows on from the extensive systematic reviews carried out by the NCSE in 2009 and 2016. However, this review has different criteria to capture interventions within the age bracket of 4–8 years, and the interventions were directly carried out in schools.

5.7 Evidence Based Practices Featured in the Studies

The eighteen studies used an array of EBPs to improve the social competency of autistic children. Figure 10 provides an overview of these as they were adopted. Table 14 gives additional detail in relation to the EBPs and the social competencies targeted in the interventions. These will be discussed in each EBP category below.

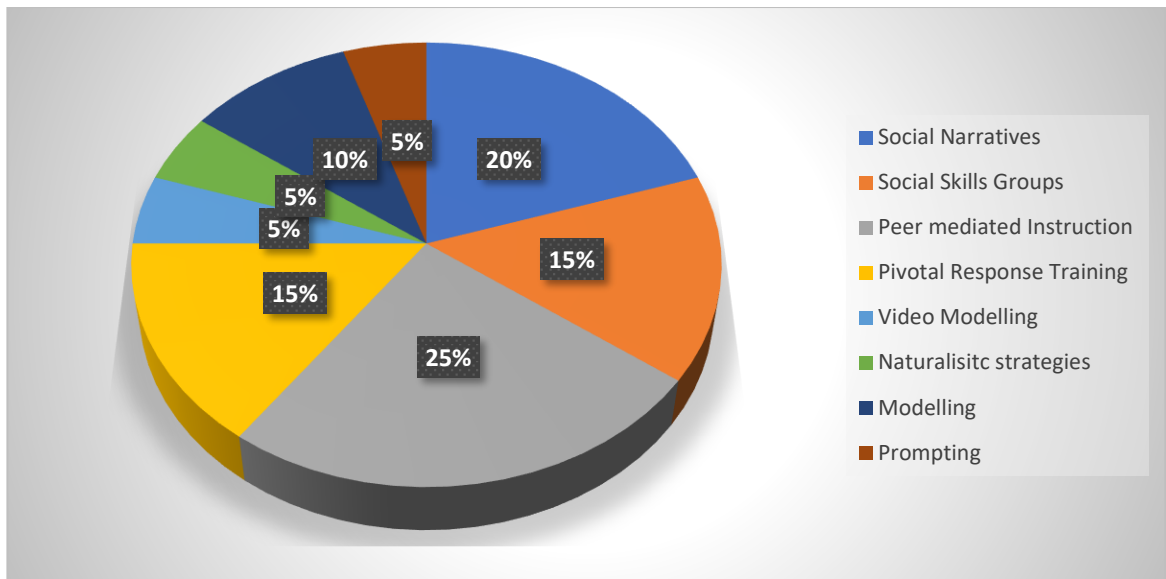


Figure 10: Evidence-Based Practices in the Studies Included

Author, year	All EBPs	Targeted competencies
Delano and Snell 2006	Social stories	Social engagement with peers, seeking attention, initiating comments and requests, responding to peers' interactions
Marshall <i>et al.</i> 2016	Social stories	Social interaction
Ratcliffe <i>et al.</i> 2014	Social stories, role play, visual supports	Identifying emotions, emotional problem-solving and managing emotions
Schneider and Goldstein 2010	Social stories, visual schedules	On-task behaviour, following directions, making eye contact
Peters 2016	Peer-mediated, direct instruction	Initiation, imitation, mediation, self-regulation, class interactions, playground interactions, leading activity, community interactions
Kamps <i>et al.</i> 2015	Peer-mediated, direct instruction	Requests and shares, comments about one's own and others' play activities, social manners, play organisation communication
Kasari <i>et al.</i> 2012	Peer-mediated, modelling, direct instruction	Social etiquette, turn-taking in conversation, peer engagement, friendship initiation and reciprocity
Kasari <i>et al.</i> 2016	Peer-mediated, direct instruction	Greetings and goodbyes, non-verbal communication, humour, conversation

		skills, dealing with teasing, perspective taking, dealing with emotions, friendship tips
Wolfberg <i>et al.</i> 2015	Peer-mediated, manualised	Social communication, social reciprocity, relationship with peers, symbolic play
Beaumont <i>et al.</i> 2015	Social Skills Groups	Initiate attention, recognise emotions, express feelings, talk and play with others, solve social problems
Lopata <i>et al.</i> 2013	Social Skills Groups, modelling, role play, task analysis, direct instruction	Pragmatic communication, initiation, face and voice emotion recognition, understanding social cues
Thomeer 2012	Social skills groups, therapeutic activities, parent training, manualised intervention	Pragmatic communication and deciphering non-verbal social cues
Brock <i>et al.</i> 2018	Pivotal response treatment	Ask a friend to play, show and talk about how to play, give a compliment, take turns
Koegel <i>et al.</i> 2012	Pivotal response treatment	Initiating social play and peer social engagement
Vincent <i>et al.</i> 2018	Pivotal response treatment	Initiating and maintaining peer interactions, appropriately engaging in play, initiating conversation with peers, sharing, turn-taking and giving a compliment
Buggey 2005	Video self-modelling	Social skills, behaviour, language, social initiations, tantrums and aggression
Andras 2012	Modelling, naturalistic intervention, LEGO™ therapy, peer support	Joint attention, turn-taking, sharing, listening, joint problem-solving, initiating, expressing ideas clearly, compromising, taking other people's perspectives
Campbell and Tincani 2011	Prompting, ABA power card	Direction following, turn-taking, sharing, accepting 'no', politely declining invitations

Table 15: Evidence-Based Practices and Social Communication Competencies Targeted by the Studies Included

5.7.1 Social Narratives

Social narratives, identified as Social Stories™, featured in 20% of the studies. These included the interventions designed by Delano and Snell (2006) and Marshall *et al.* (2016). Social Stories™ with role play and visual supports feature in the intervention documented by Ratcliffe *et al.* (2014) and Schneider and Goldstein (2010) detailed Social Stories™ and visual schedules. Two of the studies, Ratcliffe *et al.* (2014) and

Marshall *et al.* (2016), were labelled ‘High’ in the WoE D and other two studies, by Delano and Snell (2006) and Schneider and Goldstein (2010), were given a ‘Medium’ rating. In total, these four studies had 273 autistic children participating. The targeted social competencies of *social engagement with peers, seeking attention, initiating comments and requests, responding to peer interactions, social interaction, greeting behaviour, requesting to play a game, asking another person what they want to play, accepting examiner’s choice of play, identifying emotions, emotional problem-solving and managing emotions, on-task behaviour, following directions and making eye contact* featured across the studies. All four studies reported positive outcomes for the participants in the areas of social interaction and game-playing skills. Ratcliffe *et al.* (2014) applied the social story format to a group intervention and the other three studies based the stories on the individual needs of the child. This is true to the design of the Social Story™ by Carol Gray, who intended each story to be written with the unique and personalised details of each child (Gray 2015). Interestingly, Delano and Snell (2006) and Ratcliffe *et al.* (2014) reported the differences faced by some participants in generalising their learning through the social stories outside of the classroom setting. The other two studies reported more favourable generalisation outcomes. Overall, the studies relayed the cost-effective, time-effective and functional use of Social Stories™ and their application to school settings.

5.7.2 Peer-Mediated and Direct Instruction Strategies

In total, 25% of the studies evaluated adopted peer mediation and direct instruction as part of their interventions. Two of these studies, Kasari *et al.* (2012) and Wolfberg *et al.* (2015), were awarded ‘High’ ratings by the researcher using the WoE D Framework (Gough 2007). Kamps *et al.* (2015), Peters (2016) and Kasari *et al.* (2016) were

classified as 'Medium'. In total, the five interventions reached out to 352 autistic children in school settings. Utilising Peer-Mediated Instruction and Direct Instruction, the studies targeted different social competencies. These included *the ability to request and share, comment about one's own and others' play activities, have social manners, play organisation communication, use social etiquette, take turns in conversation, have peer engagement, friendship initiation and reciprocity, greetings and goodbyes, non-verbal communication, humour, conversation skills, deal with teasing, perspective taking, deal with emotions, symbolic play initiation, imitation, mediation, self-regulation, class interactions, playground interactions, initiating and leading activity with peers.*

Kasari *et al.* (2012) and Kasari *et al.* (2016) both featured randomised controlled trials. Kasari *et al.* (2016) investigated two SCC interventions with different group compositions and found that autistic children made more gains through groups with similar peers, as opposed to that of mixed typically developing and ASD children. They highlighted the importance of the school for facilitating the generalisation of learning and maintenance post-intervention and referred to the vital influence of the teacher in their role to help the autistic child develop SCC.

Kasari *et al.* (2012) researched the performance of autistic children following a 'CHILD' intervention vs. a 'PEER'-mediated intervention. The 'CHILD' intervention featured direct instruction in a one-to-one setting within the school, while the 'PEER'-mediated intervention was run with three trained peers, who encouraged the autistic children to participate socially and communicate with age-appropriate peers during school. The 'PEER' model proved more effective across the board. The researchers highlighted the need for teachers and staff to be trained as mediators for such a model

to be a success but noted that significant positive outcomes were evident in social connections between peers and autistic children in their classrooms, and that the learning lasted over time. Furthermore, they noted the benefits of combining direct instruction on social competency with peer mediated instruction to support the embedding of learning. Similarly, the control trial researched by Kamps *et al.* (2015) gathered data over a two-year period running peer-mediated trials and concluded that effective factors were those where school staff were trained and had a structured procedural module to follow. The model enabled the combination of both direct instruction and peer mediation, which they found were a vital combination for success, as is recommended by previous reports (Bauminger *et al.* 2008; Wang *et al.* 2011a).

Peer mediation also featured in Wolfberg *et al.* (2015). The authors advocated the use of 'Integrated Play Groups' as a specific format within which to use peer mediation and scaffolded play. Their intervention strongly iterated 'the therapeutic potential of play for maximising the development and social inclusion of autistic children' (Wolfberg *et al.* 2015, p.841). The authors argued that the potential of Integrated Play Groups for helping children generalise social learning across contexts should be acknowledged and they advocated strongly for manualised programmes.

Direct Instruction is the key component of the study conducted by Peters (2016). In his study mediation, tools, visual signs and printed rules within the social and communication interaction model were utilised to support SCC development (Peters 2016), citing improvements in 'joint attention, response to others, initiating interactions and increase in eye contact' (Peters 2016, p.98). The author expressed difficulty in examining the generalisation of the SCC learning attained once the intervention finished and highlighted the need to engage in further research on this subject (Peters

2016). The recommendation is reflective of discussions by Bellini *et al.* (2007) and Koegel *et al.* (2012), who ascertained that opportunities for naturalistic socialisation interventions should also specifically target the generalisation of the competency required. Peters (2016) further highlights the immediate need to provide teachers with professional learning in mediation and strategies that could give autistic children opportunities to develop their social communication repertoire and that could provide the support for SCC maintenance. According to Peters (2016), direct instruction and mediation provides the most effective formula for devising an intervention for SCC in schools. In conjunction with such a model, Peters (2016) recommends using the teaching strategies of modelling, role play, specific feedback, repetition and incorporating opportunities for natural engagement and generalisation as effective elements in such an intervention.

5.7.3 Multiple Strategy Social Skills Groups

The review highlighted three studies that recounted interventions that feature mixed strategies with Social Skills Groups (SSGs) as the EBPs used. Thomeer (2012); Lopata *et al.* (2013) and Beaumont *et al.* (2015) were deemed 'Medium' based on the same criteria. In total, 88 autistic children participated in the interventions.

The studies took place between mainstream schools and special classes in mainstream schools. In all cases, children had the opportunity to work with peers. The interventions were designed based on established practices in teaching autistic children, including direct instruction, modelling, role-playing and performance feedback (Lopata *et al.* 2013; Beaumont *et al.* 2015). All three of the studies adopted features of explicit direct instruction in social competencies for the children and provided opportunities to

practise and use the learning with peers. The studies used small groups to teach models and practise SCC. Lopata *et al.* (2013) and Beaumont *et al.* (2015) adapted features of manualised programmes to meet the specific requirements of their studies and reported that this led to improved study feasibility. As part of intervention SSGs, three or more children, including those with ASD, come together and were simultaneously taught a variety of social activities (Leaf *et al.* 2017). Each of the studies targeted social competencies were specific to the assessed needs of the participants and outcomes were reported based on these. The social competencies targeted included *initiating attention, recognising emotions, expressing feelings, talk and play with others, solving social problems, pragmatic communication, face and voice emotion recognition, understanding social rules, joint attention, turn-taking, sharing, listening, joint problem-solving, initiating, expressing ideas clearly, compromising and taking other people's perspectives*. The interventions also adopted many different components to their SSGs. Thomeer (2012) advocated pairing SSGs with therapeutic activities, parent training and a manualised intervention.

Overall, these studies represent 15% of the studies included. Collectively, they agree that there is an immediate need for more interventions designed for teachers to implement in schools, with some suggesting teachers should adapt interventions based on evidence from university clinic-based psychosocial interventions (Lopata *et al.* 2013). Recommendations such as these are found across the ASD-specific literature landscape, with suggestions further stipulating that adapted interventions need to be tested in settings where they are intended to be adopted, such as schools (Kasari and Smith 2013; Cook and Cook 2016; Morgan *et al.* 2018).

5.7.4 Pivotal Response Treatment

Pivotal response treatment was adopted in 15% of the studies: Koegel *et al.* (2012), Brock *et al.* (2018) and Vincent *et al.* (2018). The social competencies that featured in the three intervention studies included *ask a friend to play, show and talk about how to play, give a compliment, take turns, initiating social play and peer social engagement, initiating and maintaining peer interactions, appropriately engaging in play, initiating conversation with peers and sharing*. The studies featured twenty autistic children in total. Both Koegel *et al.* (2012) and Vincent *et al.* (2018) were appraised at ‘Medium’ in the WoE D framework and Brock *et al.* (2018) was given a ‘High’ rating. All three studies applied their respective interventions while the autistic children engaged in break-time during school. The focus of the interventions was to increase the independent social competency of the children, and this was reported as a feature in all.

According to Brock *et al.* (2018), data from the interventions showed that the children were able to engage in unprompted peer initiations in the absence of a support teacher following the pivotal response treatment intervention. The opportunity to develop social competency afforded in the natural setting of the playground was also highlighted as a key element to the success of the intervention (Koegel *et al.* 2012; Vincent *et al.* 2018). Peer mediation also featured in these studies, which involves ‘training and prompting peers to use strategies that promote positive play and interaction with autistic children’ (Brock *et al.* 2018, p.2224). Such an intervention format typically consists of small groups of typically developing peers who are taught to support the social interaction of autistic children. They generally use ‘adult facilitation, repeated social learning opportunities in natural settings with peers and active peer mediation with the autistic children’ (Kamps *et al.* 2015, p.1810). Through

the approach they encompass the use of the MKO, as promoted by Vygotsky (1978), and feature the sociocultural ideal. These three studies advocate the relevance and support provided by peers and highlight the importance of this for autistic children and relationship building. Interestingly, according to Brock *et al.* (2018), the typically developing peers also reported positive gains and experiences from engaging in the programme. Brock *et al.* (2018) found that pivotal response treatment has the potential to enable autistic children to engage and communicate better and is feasible for school staff to implement and train in.

5.7.5 Video Modelling

Video modelling delivered through individualised self-modelling videos featured in the study by Buggey (2005) and scored a medium rating across the WoE framework. The study reported on single study design across five autistic children and reported positive outcomes for all involved. According to Buggey (2005), the intervention itself featured modified videos of the target students engaging in the pro-social behaviours. Peers and teachers were also included in different roles in the videos, depending on the behaviour being targeted. The videos were created to match the unique profiles of each autistic child and a prerequisite condition was that the child had self-recognition and the ability to model the pro-social behaviour targeted. These videos were delivered to the children before school started each morning. The children were observed before during and after the intervention in a multiple-baseline design used to gather data in relation to their progress with the targeted learning. The social competencies measured were unique and varied to each student. They included language, communication, social initiations and pro-social behaviour. All children in the study were reported to have increased targeted behaviour proficiency from baseline data, and this was observed across settings in the

school day for all participants. The potential of video modelling was seen as important and this has implications for peer-modelled support and instructional videos. Bugghey (2005) notes that further research should consider the generalisability of social learning and the usability of video modelling across different settings.

5.7.6 Naturalistic Strategies

Andras (2012) investigated the effectiveness of a naturalistic collaborative play approach using LEGO™ therapy and the social use of language that focused on a support through adult modelling, child participation and games in SSGs. Eight autistic children participated in the LEGO™ group, championed as a naturalistic intervention, and were supported by different peers throughout the programme. Parents were also involved in part of the programme evaluation. Gains in social competencies, including *joint attention, turn-taking, sharing, listening, joint problem-solving, initiating, expressing ideas clearly, compromising, and taking other people's perspectives*, were attributed to the children's involvement in the mixed ability, naturalistic strategy SSGs that used LEGO™ therapy as the stimulus and motivator. Andras (2012) suggests that using LEGO™ creates an opportunity for the autistic child and the peers to engage in a mutual activity that naturally presents social training opportunities. This study also attributes the high interest and cost-effectiveness of running the intervention in the classroom to its success. According to Andras (2012) using naturalistic intervention approaches, including harnessing the motivation of a student's interest and peer social groups, is an effective and inclusive approach to teaching SCC. The study was deemed favourable in terms of outcomes for the children and was promoted as functional for classroom use by teachers and for the engagement of autistic children, when compared to no intervention at all. Overall, the study supports the case for the use of LEGO®

Therapy in the development of SCC in children with ASD in school. Following the intervention, generalisation was evident where the children were observed to engage social interactions more regularly. Children were able to form meaningful relationships with their peers, which was apparent outside of the classroom and the LEGO™ group to the playground where they were more confident to use the strategies they had learned.

5.7.7 Prompting

The power card strategy, which is based on providing prompts for a child, featured as part of the Campbell and Tincani (2011) study; this focused on *direction following, turn-taking, sharing, accepting 'no', politely, and declining invitations* with three autistic children. The study was rated 'Medium' in the WoE D overall rating (Gough 2007). Power cards incorporating children's special interest and providing context-specific explicit instructions were used to derive positive outcomes, through prompts in different aspects, including improvements in the targeted learning of following directions and turn-taking (Campbell and Tincani 2011). The power card is based on the strategy of prompting in a multi-component intervention whereby the teachers use the special interest-based power card to describe and prompt the student to engage in the pro-social behaviour. Campbell and Tincani (2011) used a multiple baseline across a three-participant design in a classroom, to evaluate the effectiveness of the strategy. The study reported favourable outcomes for the children and positive affirmations by the teachers who were engaged in the process; they deemed the strategy 'useful, easy to implement and effective' (Campbell and Tincani 2011, p.12). The study promotes the power of using a child's special interest as a motivator and key component of the power card strategy. Effectiveness is confirmed by Aspy and Grossman (2012), who note that this technique is based on the EBPs of priming and prompting. The focused

study did, however, note difficulty in examining the generalisation of the social competencies attained once the intervention finished and highlighted the need to research this issue further (Campbell and Tincani 2011).

5.7.8 Modelling

Modelling featured across two of the studies identified in the systematic review (Kasari *et al.* 2012; Lopata *et al.* 2013) and was noted for its effectiveness in supporting learning of SCC. In the studies, modelling was noted alongside other EBPs which is a feature across the review, with eleven out of the eighteen studies adopting multiple practices in their research. Kasari *et al.* (2012) used modelling alongside peer-mediated instruction, and in the training component of their study modelling was used with both the autistic children and the peers to teach and build social competency. This included a particular focus on positive social modelling to support generalisation of SCC learning. The study was effective in its aim of supporting autistic children in this social arena but also noted the differences observed when children are called on to use their learning in the complex social setting of the playground. The study framework included a six-week programme using twelve sessions that were short in duration but reported favourable outcomes. Kasari *et al.* (2012) emphasise that the educational setting of the school holds a significantly advantageous role in supporting social learning for autistic children and should be exploited. Lopata *et al.* (2012) adopted a comprehensive school-based programme for twelve autistic children and used modelling as a key part of the intervention. Their study reported positive findings that were feasible for schools to implement in their contexts. The findings advocated for more intense interventions carried out by teachers to develop SCC, and the social validity of the study was championed.

The last eight sections have provided details specific to each of the interventions highlighted in the systematic review that scored ‘Medium’ or ‘High’ ratings as EBPs for learning and teaching SCC to 4–8-year-old autistic children. The studies that emerged are all trialled within the school context in order to see their potential efficacy for teachers and children. The next section will explain the validity and reliability of the systematic review protocol; a discussion follows.

5.8 Validity and Reliability

Validity and reliability were established through analysis of the methodological rigour of individual sources drawn from peer-reviewed sources (Cooper and Jacobs 2011). The practice of doing a review systematically facilitates judging the relevance and reliability of studies to answer the intended purpose (Gough *et al.* 2013). The study set down inclusion and exclusion criteria *a priori* (Table 7), which is known to ‘optimize the external and internal validity of the study, improve its feasibility, lower its costs, and minimize ethical concerns ... finding a true association between exposure/intervention and outcomes’ (Salkind 2010, p.9). The WoE criteria (Gough 2007) were applied; these included the assessment protocols for qualitative and quantitative studies that had been proven reliable through rigorous assessment in the original study by Bond *et al.* (2016), respond to the validity objective of the study and are critical to accomplishing this goal (Salkind 2010). In total, twenty-four studies were measured against the WoE framework and by adhering to the parameters set down, six of these studies were determined too low for inclusion. Quirnbach (2007), Sansosti and Powell-Smith (2008) and Locke *et al.* (2019) were deemed too low in the methodological appropriateness of their studies and Simpson *et al.* (2004), Peters *et al.*

(2016) and Porayska-Pomsta *et al.* (2018) presented inconsistencies in terms of the quality of evidence provided.

Reviews of effectiveness must have thorough and comprehensive literature searches to ensure the results are reliable and reproducible (Cooper *et al.* 2018). The understanding that through the process all relevant studies have ‘been “comprehensively” identified, and that this process has been “transparently” reported’ (Cooper *et al.* 2018, p.5) allows for certainty in the conclusions that are drawn. The review plan was peer-reviewed and deemed original by the PROSPERO database. PROSPERO is an international database of prospectively registered systematic reviews. The researcher outlined key features from the review protocol in advance, detailing the inclusion and exclusion, and detailed search criteria, which were then peer-reviewed, recorded and maintained as a permanent record on the PROSPERO database. This can be accessed at:

Maria Dervan. A systematic review of school-based interventions targeting social communication and language skills in young children with Autism Spectrum Difference. PROSPERO 2019 CRD42019136984 Available from; https://www.crd.york.ac.uk/prospere/display_record.php?ID=CRD42019136984

The aim of PROSPERO is to provide a comprehensive listing of systematic reviews registered at inception to help avoid duplication and reduce opportunity for reporting bias by enabling comparison of the completed review with what was planned in the protocol.

(PROSPERO 2020)

Engaging in the peer-reviewed PROSPERO system impacted the overall validity and reliability of the study from the outset.

5.9 Discussion

The systematic review set out to source effective EBPs for teaching SCC to autistic children aged between four and eight years in early years classrooms and to determine social competency components that should be incorporated into the design of school-based interventions for young autistic children. Although research in the field of ASD intervention has repeatedly highlighted the need for teachers to design SCC interventions around established EBPs (Bellini *et al.* 2007; Reichow and Volkmar 2010; Kasari and Smith 2013; Bond *et al.* 2016; Morgan *et al.* 2018), disparity continues between research and practice when it applies to the classroom (Peters *et al.* 2016). Results from the review produced only eighteen articles which were relevant to the topic and were considered of appropriate quality through the WoE Framework (Gough 2007). The evidence corroborates with recent findings from Morgan *et al.* (2018), who reiterated the need and continued call for EBP research applicable to the classroom for autistic children, stating that although more studies have become known, there is still scope for huge improvement. The studies in the review recount some of the positives of the EBPs used which supports implementation.

5.9.1 Positive Attributes from the Reported Studies

Despite the low number of high-quality, applicable studies, the review has served to provide evidence of proven strategies to inform a school-based SCC intervention. These include peer mediation interventions, direct instruction in SCC based on the individualised needs of the child, pivotal response training, multiple strategy SSGs, Social Stories™ with modelling, opportunities for practice, reinforcement, generalisation, role play and engaging special interests.

5.9.1.1 The Importance of Peers

Eleven of the studies reported in their findings the importance of peer involvement in SCC interventions. Brock *et al.* (2018) and Koegel *et al.* (2012) measured and recounted positive outcomes related to pivotal response treatment and peers. Peters (2016), Kasari *et al.* (2016), Beaumont *et al.* (2015) and Lopata *et al.* (2013) all reported positive outcomes in terms of social skills groups, with peers, to develop SCC for autistic children. Direct instruction on explicit SCC was also a highly reported component of the interventions and was one recommended in the studies by Koegel *et al.* (2012), Beaumont *et al.* (2015), Kamps *et al.* (2015), Kasari *et al.* (2016) and Peters (2016). Most of the studies reported that the greatest impact on the outcomes for autistic children were evident when peer mediation and direct instruction were used, according to Campbell and Tincani (2011), Kasari *et al.* (2012), Koegel *et al.* (2012), Lopata *et al.* (2013), Kamps *et al.* (2015) and Peters *et al.* (2016). The success is evident from other reports that drive this combination of direct instruction on SCC with the focus put on the use of the competency when interacting with others in naturalistic contexts (Kamps *et al.* 2002; Reichow and Volkmar 2010; Koegel *et al.* 2012). Peer-mediated instruction reflects the recommendations of Vygotsky (1978) when he attributed social learning to the involvement of the MKO in the interactions with a child. Vygotsky believed that with the MKO, who can be a teacher or peer, the child could move their skillset up to the next level in their Zone of Proximal Development (ZPD) (Roth and Radford 2010; Semmar and Al Thani 2015). The social interaction develops the autistic child's SCC 'first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the learner (intrapsychological)' (Vygotsky 1978, p.57). In Section 2.5.4, Vygotsky's sociocultural theory strongly attests to the

importance of relationships and the role of others in a child's culture to help them learn social processing and social norms (Daniels 2009; Eun 2019). For Vygotsky, the onus is placed on the teacher in the classroom to facilitate and encourage the autistic children's SCC learning, through engaging pedagogical approaches that facilitate interactions with peers and teachers or MKOs (Putnam 2009). The interventions by Campbell and Tincani (2011), Kasari *et al.* (2012), Koegel *et al.* (2012), Lopata *et al.* (2013), Kamps *et al.* (2015) and Peters *et al.* (2016) adopted both direct instructions based on the child's ZPD and peer mediation, reflecting Vygotsky's sociocultural theory.

5.9.1.2 Teacher Expertise

Delivering appropriate interventions in schools also relies heavily upon the professional development and expertise of the teachers involved. Such a view features in the studies by Delano and Snell (2006), Kasari *et al.* (2012), Koegel *et al.* (2012), Kasari *et al.* (2016) and Brock *et al.* (2018), who advocate the importance of teacher professional learning. The recent publication by Rose and Shevlin (2021) notes that Ireland has begun a positive journey towards providing opportunities for professional learning among the teaching community, placing an emphasis on inclusion and learning and teaching for SEN.

The systematic review also highlighted that assessment of SCC differed across the studies, which is noted in the literature input table in Appendix 4. Two studies reported assessment based on the intervention itself (Brock *et al.* 2018; Koegel *et al.* 2012) that targeted SCC and were delivered at baseline and upon intervention completion. Nine other studies reported more formal assessments of SCC, with three

studies including the social communication questionnaire by Rutter *et al.* (2003), and two studies (Kamps *et al.* 2015; Lopata *et al.* 2013) featuring the social responsiveness scale (Constantino *et al.* 2004). Throughout the studies, the assessments were reported as key to intervention design and as applicable to the needs of the children (Brock *et al.* 2018; Vincent *et al.* 2018; Kasari *et al.* 2016; Beaumont *et al.* 2015; Lopata *et al.* 2013; Koegel *et al.* 2012). Westwood (2015, p.99) suggests that an intervention focused on SCC must ‘target the precise skills and knowledge an individual lacks’. Vygotsky’s sociocultural theory uses the term ZPD to highlight the area between what a child can perform independently and what they can do with mediation (Vygotsky 1978). The ZPD is where, Vygotsky believed, we should become aware of the child’s current level of ability to reveal the cognitive functions that they have not mastered. In this way, assessment is individualised and ongoing; it can reveal underlying problems with a child’s performance in terms of their ability (Poehner 2008). Teacher expertise in the use of assessment is seen as an important detail from the review as it facilitates the identification of each autistic child’s individual needs.

The EBP with the greatest support was Social Stories™ and featured in 25% of the overall number of studies analysed. Teachers reported noting effectiveness after just one week (Marshall *et al.* 2016), even though the standard protocol is a two-week improvement window (Gray 2015). The Social Stories™ were used in video format in one of the studies and reported favourable outcomes (Ratcliffe *et al.* 2014). Adhering to the original design is important when focusing on EBPs; this implies retaining the Social Stories™ as an ‘individualised, child-specific tool for teaching relevant social information and responses’ (Aspy and Grossman 2012, p.222). Overall, they provided a cost-effective, plausible EBP that could be individualised and revised to function for

the child's needs (Delano and Snell 2006). The social stories in the studies were individualised and based on the child's current level of understanding or, as postulated by Vygotsky (1978), their ZPD. Adopting a personalised and individualised approach means that learning can take place from where the autistic child is currently competent and facilitates their learning in a precise and appropriate manner. In Section 2.5.4, Vygotsky's theory on the ZPD is explained, highlighting the importance of teachers working in this zone to predict and make decisions on their teaching approaches (Wang 2009).

5.9.1.3 Practicalities of Implementation

Five of the studies report on the cost-effectiveness of the interventions in relation to applying them in the school (Brock *et al.* 2018; Andras 2012; Kasari *et al.* 2012; Koegel *et al.* 2012; Kasari *et al.* 2016). The rise in the prevalence of ASD has generated an impetus for researchers to source cost-effective interventions in order to improve the quality of life of autistic people (Andras 2012). Beaumont *et al.* (2015, p.390) describe how 'resource and funding constraints' have caused many schools to struggle to support the learning needs of autistic children, strengthening the argument for cost-effective teaching interventions. The sociocultural theoretical framework encourages the use of EBPs. The theory assumes the 'view that human thought processes ... are shaped by the demands of the practical activities in which people are regularly engaged' (Hudson *et al.* 2016 p.28). Vygotsky (1978) postulated that to encourage a child's learning and development, we must intervene in the process. Recommendations from Beaumont *et al.* (2015, p.390) suggest that 'school-based programs would help to alleviate the cost, time, and accessibility barriers that many face with clinic-based interventions'. These

results support the view that working with peers may be the most effective and ecologically valid approach for improving the social outcomes of autistic children.

In contrast to these recommendations, Kasari *et al.* (2012) and Bellini *et al.* (2007) report that much SCC instruction occurs in off-site clinical settings and that the results produced by autistic children often do not transfer to school. Sociocultural theory stresses that learning should be socially situated with real-life relationships and contexts to facilitate learning for autistic children (Conn 2014). Vygotsky believed that in the classroom, through appropriate programmes, appropriate learning is possible (Van Compernelle and Williams 2013). All eighteen of the studies included feature interventions that were delivered in the schools among autistic children. The ultimate test of an intervention’s success is the ability of the children to generalise the competencies acquired and maintain them after the intervention, and these studies reported positive outcomes on this measure (Koegel *et al.* 2012; Lopata *et al.* 2013; Beaumont *et al.* 2015; Peters 2016).

5.9.2 Social Communication Competencies from the Reported Studies

The social communication competencies that were targeted through the studies analysed provides an extensive list and illustrates the variations in SCC needs that are experienced by autistic children. These competencies have been compiled in Table 16 under five different categories: Basic Communication Skills, Empathy and Rapport Skills, Interpersonal Skills, Problem-Solving Skills and Accountability.

Categories of Social Communication Competencies	
Basic Communication Skills	Understanding social cues, joint attention, turn-taking, sharing, listening, adaptive communication, making eye contact, pragmatic communication,

	deciphering non-verbal social cues, direction following, greeting behaviour, on-task behaviour, social manners, social etiquette.
Empathy and Rapport Skills	Recognising emotions, expressing feelings, identifying emotions, emotional problem-solving and managing emotions, dealing with emotions, face and voice emotion, recognition, giving a compliment, humour.
Interpersonal Skills	Initiating attention, talking and playing with others, expressing ideas, clearly compromising, taking other people's perspectives, asking a friend to play, showing and talking about how to play, maintaining peer interactions, sharing, requesting to play a game, making comments about one's own and others' play activities.
Problem-Solving Skills	Joint problem-solving, solving social problems, dealing with teasing, mediation.
Accountability	Accepting 'no', politely declining invitations, responding to peer interactions, accepting examiner's choice of play, play organisation, communication, perspective taking, self-regulation.

Table 16: Categories of Social Communication Competencies

Results in the studies indicate that improvements in emotion-regulation abilities and the assessed social competencies have also led to improvements in behaviour at school and home, leading to improvements in other areas of the child's life (Delano and Snell 2006; Beaumont *et al.* 2015; Kamps *et al.* 2015). Four of the studies noted the additional support from the inclusion of visuals as part of their interventions and the plausibility of their use for encouraging optimal performance in activities and social engagements that involve interpersonal skills (Schneider and Goldstein 2010; Lopata *et al.* 2013; Ratcliffe *et al.* 2014; Beaumont *et al.* 2015). The researcher analysed the studies and compiled the SCC into the five categories (Basic Communication Skills, Empathy and Rapport Skills, Interpersonal Skills, Problem-Solving Skills and Accountability). The categories facilitate greater understanding of the component competencies that should be included in teacher-designed interventions for autistic children learning SCC, as anticipated at the beginning of the review.

5.10 Conclusion

The chapter has provided the background to the systematic review, its objectives, the review methods (the ‘protocol’) and the results of the map and synthesis (the answer to the review question). The review included a discussion of the findings, the reliability of the process engaged with, and the applicability of the information extrapolated for teachers designing interventions to teach SCC to autistic children through EBPs. Information on appropriate issues relevant to the interpretation and application of review findings was also discussed.

The study has shown that promoting inclusive education for autistic children is challenging for the school system (Beaumont *et al.* 2015). The lack of studies available that have a Medium to High quality rating and are sourced in schools is highlighted and has featured in reports as a recommendation that must be addressed (Morgan *et al.* 2018; Wong *et al.* 2015). Several of the researchers featured in this study (Kasari *et al.* 2012; Koegel *et al.* 2012; Lopata *et al.* 2013; Beaumont *et al.* 2015; Kamps *et al.* 2015; Kasari *et al.* 2016 and Brock *et al.* 2018) agree on the importance of providing relevant cost-effective and manageable approaches and professional learning in schools for teachers to carry out EBPs that enhance outcomes for learning and teaching SCC to autistic children in the future.

The review has found that the key component social competencies (Basic Communication Skills, Empathy and Rapport Skills, Interpersonal Skills, Problem-Solving Skills and Accountability) can be taught successfully through the EBPs of prompting power cards, modelling, mixed social skills groups, peer-mediated and direct instruction strategies, video modelling, Social Stories™ and pivotal response

treatment. The review highlighted that providing relevant information and professional learning in the school setting allows for the best opportunity for SCC interventions for autistic children. The educational setting of the school offers unique opportunities to teach autistic children and their typical peers to become sensitive and helpful towards each other (Kasari *et al.* 2012). This review has provided evidence to support the development of a school-based SCC intervention for autistic children, one that can be applied in Irish classrooms by primary school teachers. The finding is corroborated by Westwood (2015), who postulates that the most important setting for school age children to develop SCC with peers is usually the classroom and school yard. Accordingly, he suggests that instruction must occur within the natural social environment that the child is familiar with. Highlighted throughout the review is the importance of strengthening the school–research partnership to develop robust EBPs that are focused on the participants and the contexts they experience, reflecting the concepts espoused by sociocultural theory.

The next chapter sets out the research methodology of the study, designed to capture the experiences and sentiments of the teachers, supporting young autistic children to develop SCC using the identified EBPs.

CHAPTER SIX

RESEARCH METHODOLOGY

6.1 Introduction

The research study was designed to capture the perspectives of teachers, facilitating social communication competency (SCC) learning for young autistic children. The primary focus was to explore eight identified evidence-based practices (EBPs) that emerged from the extensive literature review and to investigate teachers' perspectives on their effectiveness for teaching SCC and how they are implemented in schools. The eight practices included modelling, social narratives, peer-mediated instruction, social skills groups, pivotal response training, video modelling, naturalistic strategies and prompting. Hansen *et al.* (2017) note that of all other forms of support, teachers should adopt EBPs to optimise SCC outcomes for autistic children. Developing SCC is vital as the long-term effects of challenges in the area can be profound (Silveira-Zaldivar and Curtis 2019) because social competencies are imperative for the accomplishment of positive progressive outcomes, including academic success, peer acceptance and mental health (Fenning *et al.* 2011; Soto-Icaza *et al.* 2015; Campbell *et al.* 2016; Stack 2018). Schools are responsible for providing developmentally appropriate instruction and for meeting the needs of the diverse learners within their community (Barnett 2018; Rose and Shevlin 2021) and should focus, where possible, on addressing SCC of autistic children in naturally occurring settings (Barnett 2018). Recent National Council for Special Education (NCSE) commissioned reports by Parsons *et al.* (2009), Bond *et al.* (2016), Daly *et al.* (2016) and the Department of Education and Skills (DES) (2020) all endorse the use of EBPs

by teachers supporting autistic children. Both Daly *et al.* (2016) and DES (2020) highlight the positive practices that are taking place in schools in Ireland to support autistic children and advocate for capturing this practice as a source of information for other teachers. The research study embodied such recommendations and searched for information on EBPs from teachers who support SCC learning for autistic children in early years Irish classrooms. Chapter Six sets out the questions the research was designed to answer and the philosophical assumptions of the researcher. The research design and approach, data collection method and how the data analysis programme were designed are also outlined. Considerations of the ethical components, trustworthiness, validity and researcher bias are discussed. The chapter concludes with the proposed limitations and scope of the study.

6.2 The Research Question

The overarching research that underpinned the study was based on exploring teachers' perspectives of effective EBPs that support SCC for autistic children in early years Irish primary classrooms. The embedded questions that featured throughout the study are as follows:

Embedded Questions:

- Are teachers familiar with effective EBPs to develop SCC for autistic children?
- How do teachers report that these EBPs are being implemented and used in schools?
- How do teachers measure the effectiveness of EBPs?
- What are the contributing factors that influence the adoption of EBPs for teachers?

A comprehensive, systematic review and detailed thematic literature reviews provided research-based platforms which identified a gap from which to build the study, supported the development of the research questions and rooted the study in evidence. To answer the research questions, it was imperative to use a study methodology that facilitated the generation of information from the lived experience of the relevant stakeholders. Practical knowledge attained in this manner reflected the pragmatic researcher's paradigm.

6.3 Research Paradigm

Understanding teachers' perspectives on the implementation of EBPs to support SCC learning for autistic children was the foundation of the study. The philosophical stance behind this enquiry comes therefore from the 'what works' criterion (Mertens 2015, p.371), whereby the researcher considers the best method to answer the research question. Such an approach lies within the pragmatist philosophical orientation, which emphasises exploring and ascertaining the 'connections between knowledge and action in context' (Kelly and Cordeiro 2020, p.1). As such, the researcher identified a problem during her work and could see the merit in investigating it and, if possible, improving practice (Bell 2010). Tashakkori and Teddlie (2009) iterate that pragmatists identify their chosen study based on their own personal beliefs. The researcher engaged with the teachers of autistic children based on the belief that people are 'active creators of our own knowledge ... [T]o do this, we must ask questions, explore, and assess what we know' (Bada and Olusegun 2015, p.67). The pragmatist aims to make sense of how other people operate in the world by placing

emphasis on actual behaviour ('lines of action'), the beliefs that stand behind those behaviours ('warranted assertions'), and the consequences that are likely to follow from different behaviours ('workability').

(Morgan 2007, p.67)

According to Mertens (2015), the pragmatistic approach to research concerns itself with deciphering useful points of connection on the subject in question. Discussed in Chapter One, the research–practice gap highlighted that EBPs, noted as positive by research, are not always apparent in the classroom (Parsons *et al.* 2013; Barry *et al.* 2021). However, contrasting evaluation reports by Daly *et al.* (2016) and DES (2020) both report that teachers are implementing EBPs in their classrooms to support autistic learners. The study was therefore constructed with active participants in the field of interest, by adopting a pragmatic approach to uncovering and understanding what is happening within schools, in terms of the potential to transform practice (Biesta 2010).

The evolution of pragmatism as a theory comes from the works of Charles Sanders Pierce (1839–1914), William James (1842–1910), George Herbert Mead (1863–1931) and John Dewey (1859–1952) and arose from questions related to the possibility of accessing perfect truth through positivist inquiry (Kelly and Cordeiro 2020). Pierce was concerned with inquiry being grounded in practical consequences, in what he described as 'pragmatic maxim' (cited in Putnam 1995, p.292). James concurred with much of Pierce's assertions and felt that the paradigm served to access people's thought structures and generate new ideas and habits (Kelly and Cordeiro 2020). In 1922, Dewey advanced the pragmatism debate by placing the emphasis on the individual and their community (Maboloc 2021). Dewey postulated that every individual's experience involves some amount of interpretation – 'interpreting

knowledge and beliefs leads to action and reflecting on actions leads to new ways of knowing and acting' (Morgan 2014, cited in Kelly and Cordeiro 2020, p.2). Dewey was responsible for advancing the classical pragmatism movement to its pinnacle. Following his work, modern-day influences adapted the theory to include a more linguistic focus (Sorrell 2013). Richard Rorty is considered an influential contemporary pragmatist and believes in the importance of research for improving human experience and conditions, as opposed to trying to explain the philosophy behind the world's reality (Sorrell 2013). Pragmatism places its focus around 'lines of action' and 'workability' (Morgan 2007, p.66), in terms of the assertions made about research (Mertens 2015).

Dewey and fellow pragmatists detail that the research methods or lines of action should be identified as those that are 'most appropriate for studying the phenomenon at hand' (Mertens 2015, p 85). Pragmatism was therefore considered relevant for this enquiry as, by its nature, it placed the researcher's emphasis on what works for teachers and autistic children in relation to EBPs. In doing so, pragmatism validated the research enquiry from the outset and was influential in terms of the researcher's expectations of the process. Such a sentiment is reflected by Kelly and Cordeiro (2020, p.3), who insist that pragmatism 'underpins ecological understanding of the interlinkages between inquiry, experience, knowing and acting', which are important when addressing the difficulties presented by educational research in schools. Identifying this paradigm was significant and became more evident in its relevance when it was aligned with the study. Making paradigm connections within the study meant addressing the components of ontology, epistemology and axiology, and their relationship to data collection and interpretation within the proposed field of special education research.

6.3.1 Ontology

Ontological belief about reality, according to the pragmatist, is diverse in nature in that ‘pragmatists do not see the world as an absolute unity’ (Creswell and Creswell 2018, p.48). The focus is placed rather on functionality in a situation and what is suitable to address a problem (Mertens 2015). Pragmatists therefore do not tend to subscribe to any ‘one system of philosophy and reality’ and have freedom of choice in the way they approach a study (Creswell and Creswell 2018, p.48). Moreover, discussion based on truth and reality is often avoided in the pragmatic discourse as it can lead to ineffective discussion and debate (Tashakkori and Teddlie 2010). The pragmatist researcher instead focuses on the action – the *what* and *how* of research, ‘based on the intended consequences – where they want to go with it’ (Creswell and Creswell 2018, p.48). The study was invested in the lived experience and knowledge of teachers that directly support autistic children and have taught SCC using EBPs, so the researcher focused on producing ‘actionable knowledge’ (Kelly and Cordeiro 2020, p.1). Ontology in education research alludes to ‘the question of how education actually works’ (Biesta 2015, p.11) and, in terms of this study, both the research question and the answers are best understood from such an ontology. Kasari and Smith (2013) describe the need to examine EBPs implemented in schools with autistic children, but it is important that, at the same time, the research must also espouse the concept of teachers becoming researchers (Grima-Farrell 2017).

In essence, ‘pragmatists agree that research always occurs in social, historical, political, and other contexts’ (Creswell and Creswell 2018, p.48); in consequence, the research endeavour for the study was to understand the applications and constructions of meaning and knowledge based on what works, leading to a solution-focused reality

(Tashakkori and Teddlie 2010). Moreover, the researcher sought the answers from people engaged in the subject of interest, from the belief ‘that truth is what works at the time’ (Creswell and Creswell 2018, p.48). Constructing the study on this reality facilitated a mixed-methods approach, which is often underpinned by the pragmatic paradigm (Mertens 2015), and the researcher therefore had the freedom to ‘draw liberally from the quantitative and qualitative assumptions’ in the research (Creswell and Creswell 2018, p.48).

6.3.2 Epistemology

The reality or epistemological belief of a pragmatist is founded on the idea that research can be rooted in understanding the practicalities associated with tangible, real-world matters (Patton 2014), as opposed to debates about the nature of truth and reality. The researcher identified the research method of the study to facilitate the uncovering of knowledge and the sharing of expertise. The data collection method chosen for this study reflected a commitment to pragmatism, with the emphasis on questioning the value and meaning of research data through the investigation of its practical significance (Morgan 2007). Such an approach is imperative as the researcher addressed the praxeology of education. The epistemological process attempts to establish ‘what [it] means for making education work and making it work better in the everyday practice of teaching’ (Biesta 2015, p.11). Furthermore, there is a direct correlation between the epistemological beliefs of the teacher and the pedagogical practices in the classroom (Jordan and Stanovich 2003; Lee *et al.* 2013). The importance of these beliefs directly affects specific classroom procedures (Brownlee *et al.* 2016), and they become even more significant in positions that involve complex everyday situations, such as approaches to inclusive education and pedagogy (Sheehy *et al.* 2019). The

pragmatic researcher is often better equipped methodologically ‘to deal with complex, dynamic organizational processes where action, even if carefully planned, can have varied spatial or temporal qualities’ (Kelly and Cordeiro 2020, p.1). The pragmatic researcher understands that the actions of people (teachers, in the study) are different and varying, and therefore approached the research design with the view to finding out the actions that people take and their relevance for practice in the classroom (Kelly and Cordeiro 2020). Imperative to the whole process was being mindful of the need to approach the design with ethical consideration.

6.3.3 Axiology

Research underpinned by a pragmatic paradigm ought to hold steadfast the values attributing to ethics. These values, or axiology, address questions ‘based on desirable outcomes for humans and society’ (Biedenbach and Jacobsson 2016, p.142). In the study, axiology related directly to placing value on the contributions of the research participants and respecting their level of experience, while focusing on the axiology or the quest for what might work in education for autistic children (Biesta 2015). Indeed, the central precept in pragmatic inquiry ‘is the view that all research should emanate from a desire to produce useful and actionable knowledge, [and] solve existential problems ... drawn from examination of effective habits or ways of acting’ (Kelly and Cordeiro 2020, p.3). Adhering to the ethical underpinnings of pragmatism means being cognisant of the researcher–participant relationship, understanding people’s points of view (Mertens 2015) and being mindful of this in the way we reach a consensus on findings (Creswell and Poth 2018). The nature of the study promoted respect for people’s experience and opinions, and the researcher was always mindful that ethical issues were addressed in the study (Creswell and

Guetterman 2021). According to Mertens (2015), in modern-day research, the pragmatic approach to ethics is governed by the goal of gaining practical knowledge as the desired consequence, and care should be taken to attend to ethics at each stage in the process. Birt *et al.* (2016) remind us that the trustworthiness of research outcomes is the foundation of high-calibre research and engaging with mixed-methods analysis accounts for rigour and trustworthiness of findings. In research, pragmatism facilitates the emancipation for ‘multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis’ (Creswell and Creswell 2018, p.48). The pragmatist can therefore use the mixed-methods approach to facilitate both quantitative and qualitative data, thus producing research that is rigorous in its results and ethically sound (Mertens 2015, p.19). The following sections discuss the data collection method.

6.4 Mixed-Methods Approach

The pragmatic researcher adopted a combination of both qualitative and quantitative data analysis, known as mixed methods (Mackenzie and Knipe 2006). A mixed-methods approach was identified as tenable as it provided answers to the embedded questions in the study and testified to a more holistic picture of the research (Johnson *et al.* 2016). The research interest justified the mixed-methods design as it provided for stronger inferences from data collection (Mertens 2015). Using such an approach appeals ‘to the values and logic of many special education researchers’ (Trainor 2011, p.219), and therefore has gained a position in the world of research as a method which can offer a valuable contribution in terms of both quality and quantity.

However, the establishment of credibility for the mixed-methods approach has not come without its complications in the world of educational research. The qualitative-only community versus the quantitative community have debated their positions and roles in educational phenomenon since the research paradigm war between 1970 and 1980 (Mertens 2015). The debate exposed the two sides arguing for their superiority and uncovered two opposing views of educational research (Tashakkori and Teddlie 2009). Despite ongoing debate, the mixed-methods approach effectively documents experiences in relation to special educational needs (SEN) (Trainor 2011) and provides robustness in the evaluation of research data (McBride 2011).

Choosing to adopt a mixed-methods approach stemmed from the pragmatist ideals of the researcher. The study documented the lived experience of teachers by examining what they were experiencing, to produce research beneficial for autistic children and their teachers. In essence, the pragmatist researcher used the mixed-methods approach to data analysis to solve problems:

everyday problem solvers want to get to deeper levels of understanding regarding the issues they face within the context of where they work and beyond.

(Tashakkori and Teddlie 2010, p.275)

According to Mertens (2015), researchers often choose mixed methods as it is apparent that the approach provides answers to their question. Mixed-methods analysis can involve both qualitative and quantitative data (Creswell and Plano-Clark 2011) and can occur within just one data type of data collection (Onwuegbuzie and Collins 2007). Several mixed-methods designs have emerged in the literature, and the adoption of a particular design should focus on the needs of the study in question (Creswell and Poth

2018). These designs help inform data collection procedures and reporting process within the mixed-methods approach and include: the convergent design; the exploratory sequential design; and the explanatory sequential design (Creswell 2014; Levitt *et al.* 2018). To elicit teacher experiences using EBPs teaching SCC to young autistic children, a mixed-methods convergent/parallel design featured. The design involved simultaneously collecting both qualitative and quantitative data, using the same data collection technique, then merging, comparing and explaining the results (Creswell and Guetterman 2021) through a process of convergent triangulation. The basic premise of the design was that one data form strengthens or bolsters the claims of another to provide a more complete representation of the research (Mertens 2015; Creswell and Guetterman 2021).

6.4.1 Convergent Mixed-Methods Purpose Statement

A mixed-methods purpose statement provides a rationale for the overall study intent and gives details of both the qualitative and quantitative aspects of the study from the outset (Creswell 2009). The convergent design of this study used quantitative closed questions and qualitative open-ended questions to provide a more complete understanding of the research (Creswell and Guetterman 2021). Furthermore, a goal of this mixed-methods convergent study design was to source a holistic representation of teachers' perspectives on effective EBPs used to support autistic children learning SCC, and using both qualitative and quantitative data provided for a more contextual portrayal of their experience (Turner *et al.* 2017). In the study, a survey design was adopted which served to host both the quantitative and qualitative components. Quantitative questions were used to measure the relationships between the independent variables of teacher's roles, social competencies taught, the use of assessment, and the

dependent variable of the implementation of identified EBPs that support SCC learning for autistic children, as drawn from a systematic literature review. At the same time, the teachers' perspectives on each of the variables was explored with open-ended questions in the survey to give greater detail to the research. Each data type was analysed and presented separately and then results from both were triangulated to seek knowledge that provided a complete understanding of the phenomenon of the study (Turner *et al.* 2017). By converging the numeric quantitative data with the detailed views obtained in the qualitative data, a better understanding of the research phenomenon is provided (Creswell 2009). Morgan (2019, p.9) noted that comparing the qualitative results from thematic analysis with the quantitative results generated from testing hypotheses supported a complexity of comparisons which 'has the advantage of relying on two widely used types of outcomes'.

6.5 Data Collection Method

The convergent mixed-methods design gathered both quantitative and qualitative data and analysis of such formed the answer to the problem posed (Tashakkori and Teddlie 2009). The research questions and methodologies of the study led the researcher towards data collection design (Mwangi and Bettencourt 2017) which is seen in special education research (Trainor 2011). The primary focus of the design was to integrate quantitative results with qualitative data to explore certain results in more detail. Figure 11 illustrates the research design and accounts for the phases of the study.

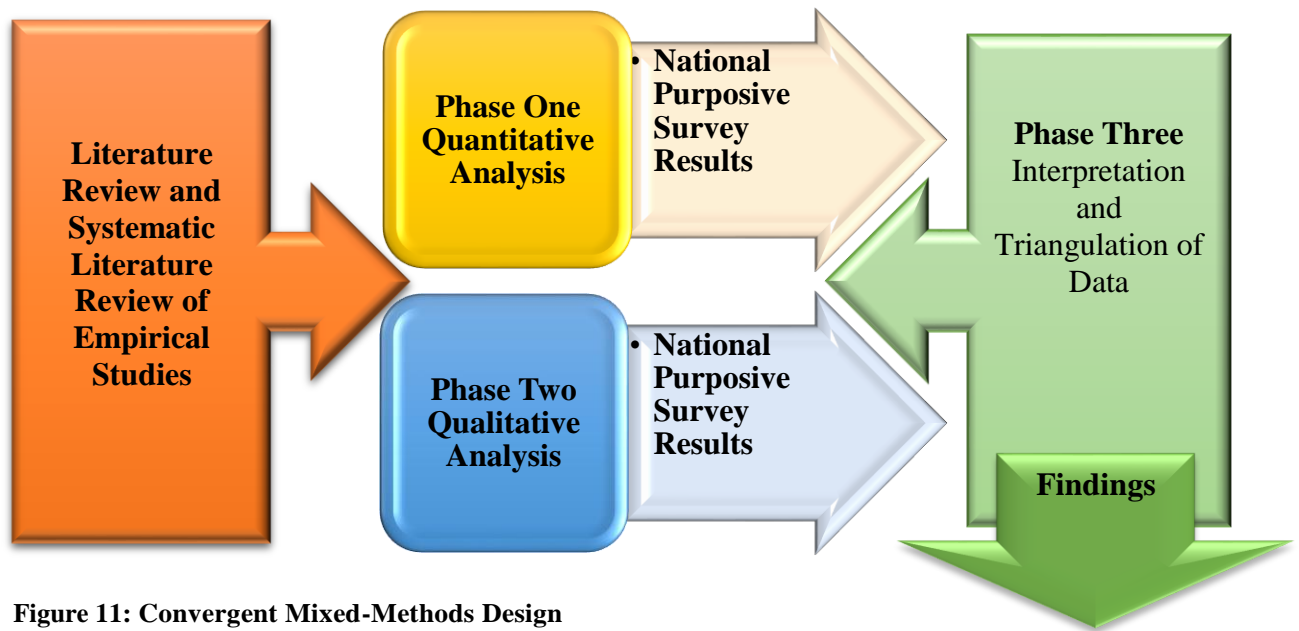


Figure 11: Convergent Mixed-Methods Design

As Figure 11 shows, the convergent mixed-methods design simultaneously gathered quantitative data and qualitative data, through a large national survey of teachers working with autistic children, capturing a broad view of their experiences on teaching SCC. Through distribution of a national survey, the research was able to locate a wider audience of teachers and gather relevant information and data to explore allowing for a greater range of answers that were both quantifiable and qualitatively rich in detail (Mertens 2015). Adopting this mixed-methods approach reflects sociocultural theory: it ‘aims to expose the multiple realities about the implementation and functioning of the policy or program constructed by those involved in the policy or program’ (Lub 2015, p.4).

Figure 11 shows the parallel nature of the research design with both quantitative and qualitative data collected at the same time. Each of the data types were analysed separately in different phases and the results were then converged to find any discrepancies or produce inferences (Creswell and Guetterman 2021).

Each of these phases of data analysis provided significant data to answer the research question and are further explained in detail in the following sections.

6.5.1 Survey Research Design

A survey research design gathered quantitative and qualitative data for the study to access the ‘attitudes, opinions, behaviours, or characteristics’ of the sample population (Creswell and Guetterman 2021, p.429). According to Mertens (2015), survey research designs are deemed appropriate when the researcher seeks to capture data from a larger number of people than experimental designs can allow. Moreover, the survey design is suggested as a means of identifying fundamental beliefs and attitudes of people regarding policies, community interests, programmes and trends in different sectors of society (Creswell and Guetterman 2021). Through analysis of survey data, the researcher was able to make inferences about the survey sample using mathematical models that account for the validity of findings (Jupp and Sapsford 2006).

The design of the survey was focused on the research question and the target audience. Both factors directly impacted the survey design as it was imperative that it reflected the objectives of the study (Story and Tait 2019). Only through such an approach could the survey capture ‘constructs, practices, and behaviours’ and not just knowledge of the participants (Story and Tait 2019, p.193). When designing the survey, consideration was given to the three specific categories of surveys discussed in research, based on their function: simple descriptive; cross-sectional; and longitudinal (Mertens 2015). A cross-sectional survey is the classification of survey that was most appropriate here as it is a one-shot survey for the purpose of

describing the attitudes, characteristics, or beliefs of sample participants at one point in time (Mertens 2015; Creswell and Guetterman 2021). Research surveys are designed through a particular process and the steps undertaken in each stage are important to account for reliability in the data collection method. The study followed recommendations for design Creswell and Guetterman (2021); details in relation to sampling, collecting data, designing the instrument and response rate are provided below.

6.5.2 Sampling

The aim of sampling in research is to save time and effort but also obtain unbiased and reliable exponents of the population being studied (Jupp and Sapsford 2006). Population in terms of statistics is used in reference to the ‘individuals or elements’ that make up the area of interest of the study (Jupp and Sapsford 2006, p.25). By studying the sample from a population, researchers can use their findings to reflect the views of the whole population. The researcher used a sampling matrix to guide decisions on the appropriate population of interest for this study, as outlined in Figure 12.

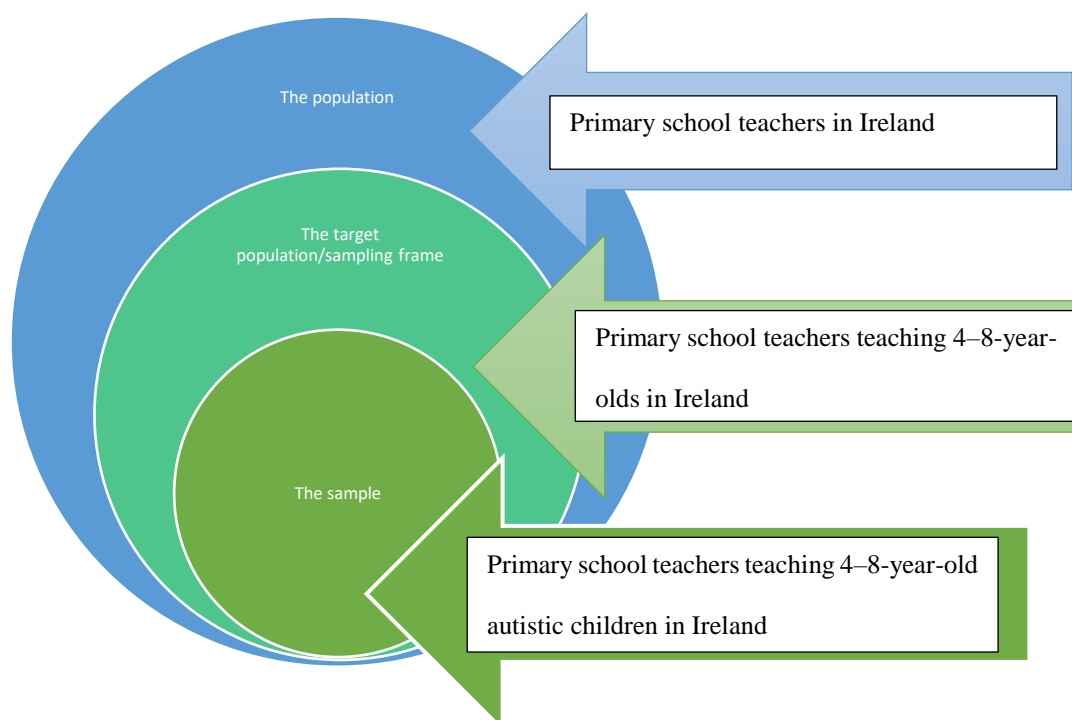


Figure 12: Sampling Matrix

Based on the recommendations of Creswell and Guetterman (2021), following the sampling matrix procedure determined the appropriate list of individuals that the study should obtain and identified factors to mitigate against, to improve inferencing ability in the analysis phase. One such factor is the reduction of coverage error by virtue of having a complete list of identified respondents in the sampling frame, which were the primary teachers with experience teaching 4–8-year-olds, as highlighted in Figure 12. Furthermore, addressing the population in the sampling frame allowed the researcher to reduce sampling error as the survey was sent to many possible respondents. An imperative component of the research design was accessing the respondents equipped with the relevant information needed for the study (Mertens 2015) who could provide an unbiased estimate reflective of the characteristics of the study population (Jupp and Sapsford 2006).

To do so, the researcher had to clearly define the study population to reflect the research question, bearing in mind the impact such a definition would have on the generalisability of the findings (Jupp and Sapsford 2006). Through purposeful sampling the researcher could access a group that have relevant experience commensurate with the research question and that could provide appropriate and beneficial information for the study (Creswell and Poth 2018). These were the respondents identified in the sample in Figure 12. Although this in effect limited the number of respondents that could complete the survey, accessing the purposeful sample over a large national context helped offset such limitation and allowed for response rate considerations.

According to Creswell and Guetterman (2021), to address poor response rate, the researcher must design an instrument that is clear and unambiguous for the respondents to follow. The survey questions reflected the evidence correlated throughout the literature reviews by the researcher, which furnished the survey with evidence-based material that the teacher respondents used to reflect on their experience. The survey included eight EBPs highlighted as effective in classrooms, sourced through the systematic literature review conducted. These were: modelling, naturalistic strategies, peer-mediated instruction, pivotal response training, social narratives, video modelling, social skills training and prompting. The researcher also documented literature explaining each EBP and SCC in the survey. By doing so, the researcher ensured the teachers had the relevant knowledge for the questions throughout the survey, so they were informed and prepared to answer each question, thus reducing measurement error (Jupp and Sapsford 2006).

6.5.3 Survey Questionnaire

Following on from the sampling decisions, consideration was given to the means to gather data through the survey design. Deliberation was given to both survey questionnaire and survey interview, with the former deemed more appropriate for the study. Although the survey interview would provide an opportunity to engage discursively with respondents, the questionnaire would gather more data and limit the researcher bias or prejudice (Creswell and Guetterman 2021). The researcher used an online survey questionnaire (called the ‘survey’ from here on) as such surveys give ‘convenient access to samples, reduced costs; faster responses; more interactive or tailored formats; quick troubleshooting ... and access to larger samples’ (Mertens 2015, p.187). The survey took place against a backdrop of limited societal interaction when the world was dealing with the global Covid-19 pandemic in 2020. The survey was deemed effective and appropriate at the time to gather data from a national sample of respondents; this was important to the project as it facilitated capturing the experience of a wide audience (Mertens 2015). The researcher addressed the challenges associated with poor response rate and non-probability sampling in advance by using email and follow-up reminders to encourage the participation of the target sample.

Through a database of school emails, accessed online on www.gov.ie, the researcher electronically distributed surveys to 3,145 principals across Ireland. The initial email captured the essence of the survey and asked principals to seek out purposeful respondents who could answer the survey. Furthermore, through the principal’s engagement with the email, consent to access respondents among their staff members was sought directly, while addressing ethical considerations. A copy

of the initial principal email letter is available in Appendix 5. By contacting the schools directly, the researcher reached the target sample effectively and appropriately, amid the global Covid-19 crisis. According to research, approaching data collection in this way offers great depth because it enables researchers to pinpoint data relevant to the research project (Almalki 2016). The surveys, designed through Google Docs™ and distributed electronically by email, sought the potential respondents purposefully. Upon notification of the requirements to complete the survey, the school principals disseminated them accordingly. The information sheet available in Appendix 6, explicitly detailed the desired purposeful sample respondents and reassured teachers of the ethical considerations that the research adhered to. Once the respondents opened the link from the principal, they were able to access the online survey, which was carefully designed and planned. The results were filtered back to an email account set up specifically for the study, in order to support the effective organisation of the data.

6.5.4 Instrument Design

When designing the survey, consideration was given to multiple steps that produce a good survey and serve the research question. Three component parts captured the survey design: the types of questions; the question construction; and pilot testing (Creswell and Guetterman 2021). The questions needed in the survey were grouped based on data required. Three specific sections emerged in the design phase: Section One captured demographic information (Figure 13) regarding teacher experience; Section Two focused on teachers' use of specific EBPs (Figure 14); and Section Three gathered data regarding evaluating the EBPs (Figure 15).

Overall, the questions captured demographic and background information, attitudes, opinions and teacher behaviour.

The screenshot shows a survey form titled "Section One: Demographic information". It includes a header "Section 2 of 4" and a sub-header "Section One: Demographic information". The form contains five numbered questions:

1. What is your current role in school? *
2. How many children with ASD do you support in your setting? *
3. How many years experience working with children with ASD do you have? *
4. In your teaching setting, how often do you teach social communication to children with ASD, on a weekly basis? *
5. Which of the following social communication skills outlined by Westwood (2015) have you taught to children with ASD? Tick all that apply. *

At the bottom, there is a navigation button: "After section 2 Continue to next section". A blue arrow points from a text box "Demographic information and questions" to the survey content.

Figure 13: Section One: Demographic Information

The screenshot shows a survey form titled "Section Two: Evidence based strategies for supporting social communication". It includes a header "Section 3 of 4" and a sub-header "Section Two: Evidence based strategies for supporting social communication". The form contains five numbered questions:

6. In your teaching have you used any of the following evidence based strategies to teach social communication skills to children with ASD? Tick all that apply.
7. Modelling means instruction paired with demonstration of a behaviour to promote imitation and acquisition of the behaviour (Quill and Stransberry- Brunsahan 2017). Have you used modelling as a strategy to teach social communication to children with ASD? *
8. Where have you used modelling as a social skill teaching strategy? *
9. When do you use modelling as a social skill teaching strategy? *
10. If you have not used modelling as a social skill teaching strategy, please provide reasons. Tick all that apply.
11. Naturalistic intervention strategies occur within naturalistic environments, based on the individual's interests, arranged setting and activity, necessary consequences (Quill and Stransberry Brunsahan 2017). Have you used naturalistic intervention to teach social communication to children with ASD? *

At the bottom, there is a navigation button: "After section 3 Continue to next section". A blue arrow points from a text box "Evidence-based strategies" to the survey content. A green arrow points from a text box "Sample questions regarding teachers' behaviour" to question 10.

Figure 14: Section Two: Evidence-Based Practices for Supporting Social Communication

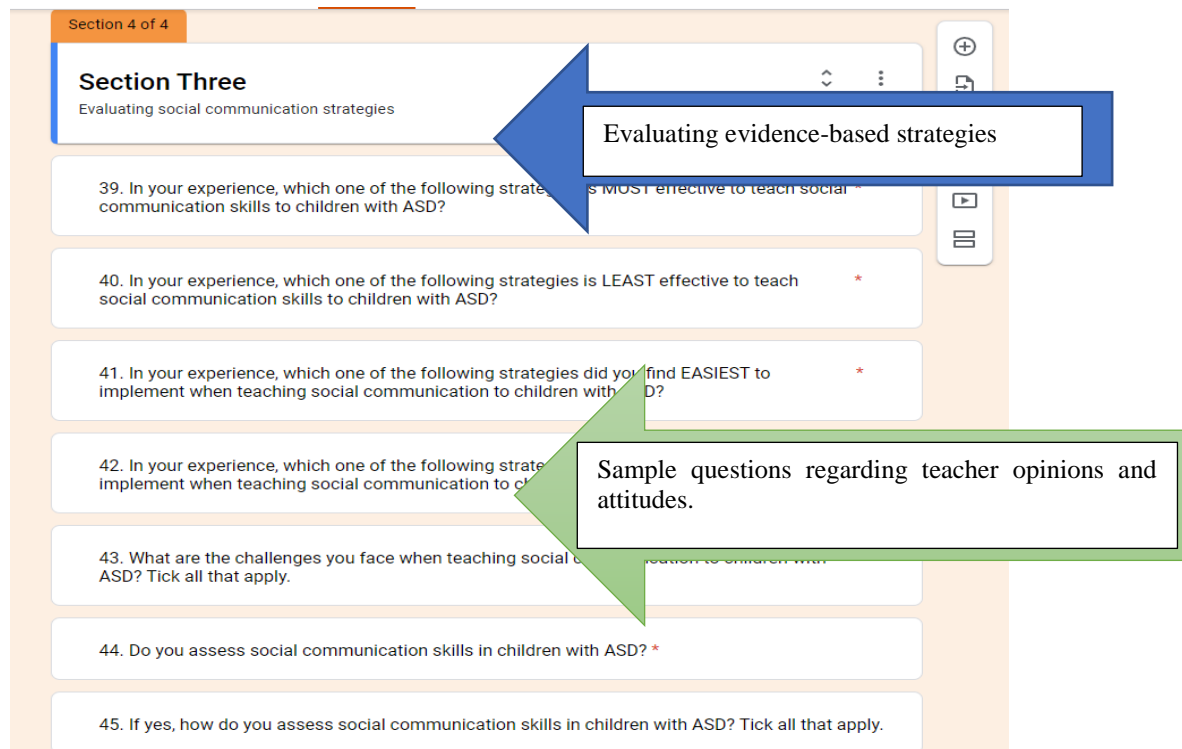


Figure 15: Section Three: Evaluating Social Communication Strategies

The questions in the survey featured closed-end questions and semi-closed-ended questions. The closed-ended questions allowed the researcher to code and statistically analyse the results by providing pre-set response options for the respondents to choose from. Some of the questions also had an extra feature of ‘other’ option at the end of the list; these are the open-ended response questions. They had the advantage of allowing the respondent flexibility in their answer (Creswell and Guetterman 2021), providing for richer data. The questions were developed through a cyclical process of pilot testing to ensure the material was properly understood by the respondents (Jupp and Sapsford 2006; Mertens 2015; Creswell and Guetterman 2021).

6.5.5 Pilot Testing

Engaging in pilot testing was an effective way to conduct a small-scale trial of the survey to assess the suitability and accuracy of the questions, as well as the length of time for the respondents (Jupp and Sapsford 2006; Mertens 2015). The researcher engaged in multistage piloting where changes were made to the original survey (Appendix 7) to reflect initial feedback; this was then piloted again with different respondents for further comments, as detailed in Figure 16 below. In doing so, the researcher addressed the ambiguity of the questions as well as the length of the survey overall.

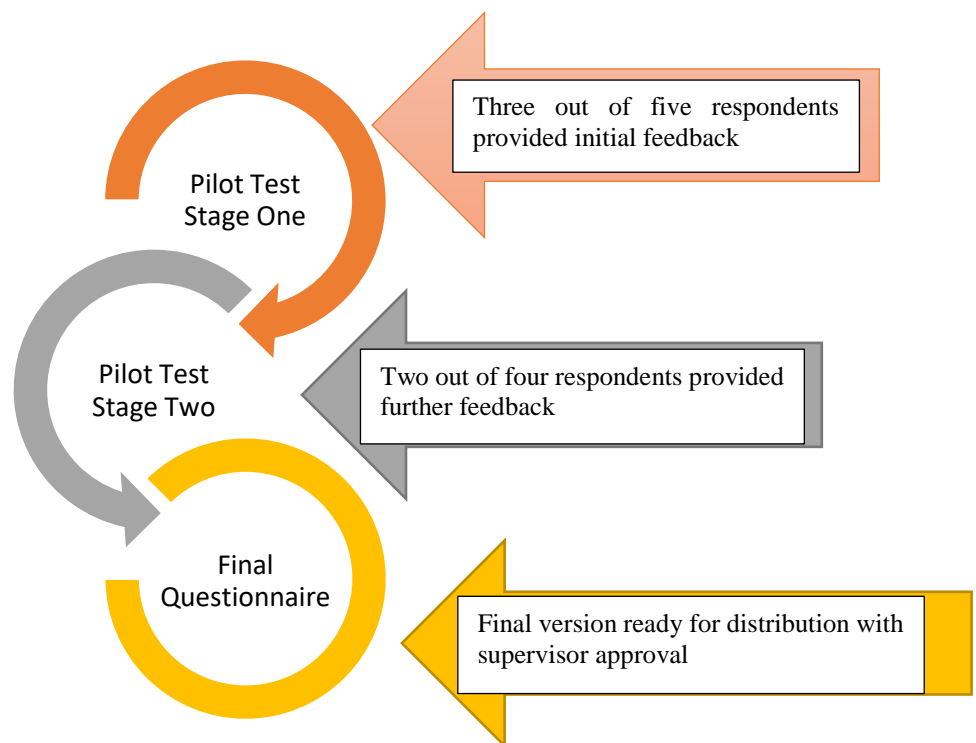


Figure 16: Multistage Piloting Process for Survey

As detailed in Figure 16, three respondents out of the five completed the original survey and provided honest feedback and reflection. The three respondents

were teachers from the broad population, highlighted in the sampling matrix in Figure 12; their feedback had a significant impact on the survey design.

Teacher one indicated that the overall length of the survey was too long, and she struggled to complete the process to the end, only doing so because it was to support the researcher: ‘The survey is way too long, and I got annoyed with the number of questions. I think other teachers will feel the same’ (Teacher 1). Teacher two confirmed that the length of the survey was a challenge and that she did not understand some of the questions and was therefore guessing at suitable answers

I definitely struggled with the questions on the strategies, some I hadn't heard of before, so I hazarded a guess – maybe I use them but don't really know, I'd have to look it up

(Teacher 2).

Teacher three also noted difficulties with the length of the survey and felt that the language was a problem:

I wasn't sure of the strategies bit, so I had to really read it all and it took me nearly 50 minutes because I wanted to do it right. I think if you explained what the names meant it might be better, what is pivotal response and bits like that. I think more people will find that hard, they might be using it but not know so won't answer properly

(Teacher 3).

Feedback from the Pilot Test Stage One respondents had a profound impact on the survey. The researcher restructured the template to include definitions of the EBPs in part of the survey to allow all teachers to have the same understanding, therefore making the instrument a more valid test. Some of the demographic information regarding schools was removed as it was felt this added to the length; while it was interesting information, it was not valid for the study. Once these

changes were embedded, the revised survey (Appendix 8) was put through Pilot Test Stage Two.

Two teachers provided feedback for the redrafted survey. For this phase of the pilot both the teachers came from the sampling frame category highlighted in Figure 12, meaning they were primary teachers with experience teaching four–eight-year-olds. Teacher 4 responded with positive feedback:

It's an interesting survey and I like the explanations throughout some I didn't know the names but when I thought about it, I was doing the strategy but I never had the name. It might be an idea to allow people add their own suggestions about the challenges as I wanted to mention others not suggested.

(Teacher 4)

Teacher 5 was also positive about the layout and structure:

I like the way you just clicked through section by section and could see how to complete the questionnaire. It is long but the questions are good. I think I would answer it better if I had more experience teaching ASD kids.

(Teacher 4).

Following on from the feedback once again the survey was amended and was submitted for supervisor approval. Suggestions regarding formatting were applied and the final survey (Appendix 9) was ready for use. The final component for consideration in advance of distribution was response rate.

6.5.6 Response Rate Considerations

Response rate is an important part of online survey as a high response furnishes the researcher with stronger claims to generalise (Jupp and Sapsford 2006; Creswell and Guetterman 2021). The cross-sectional survey captured a sample at a point in time (Creswell and Hirose 2019) and could identify teacher respondents through

their connection to the research topic. The purposive sampling in the survey design meant that the respondents could relate to the topic. In this way, the survey was designed to engage the respondent’s interests, as it draws on their personal experience (Jupp and Sapsford 2006). Bell (2010) has described how surveys aim to attain data from a representative selection of the population, with the view to generalising the results to the whole of that population. The criteria were outlined in the information sheet, which was a prerequisite consent form, provided to respondents to read before they began to complete the survey (Appendix 6). By providing the information up front to respondents suitable to answer the survey, a high response rate was encouraged (Creswell and Guetterman 2021). Researchers use different methods to encourage a high response rate. For this study, a three-step administration process was used.

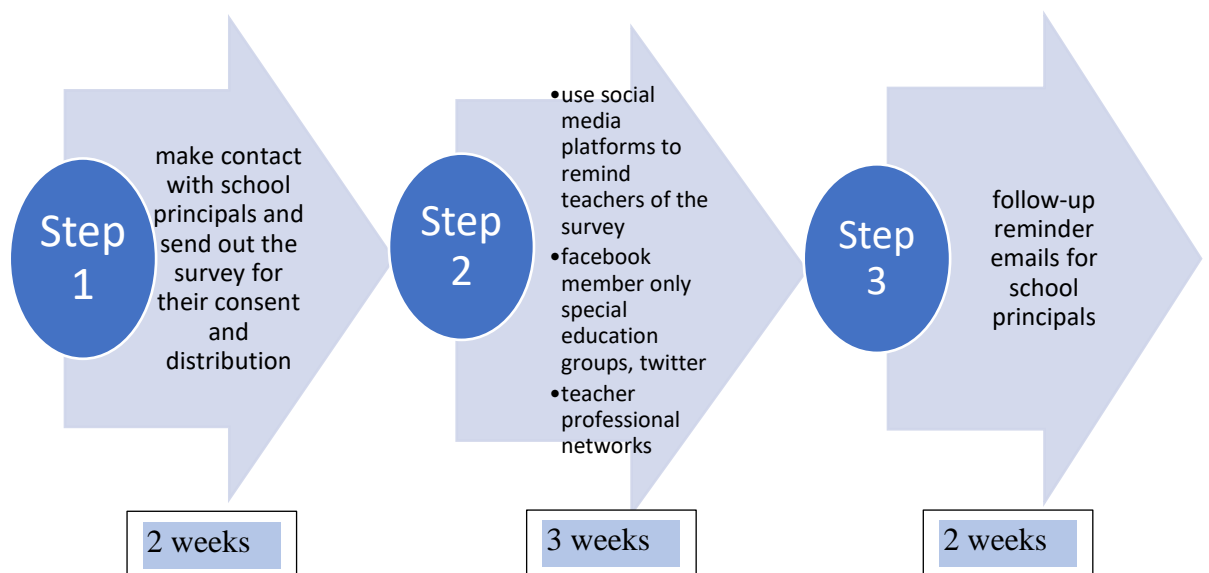


Figure 17: Three-Step Administration Process

The use of the three-step administration process, depicted in Figure 17, was important for the study as it took place at a time when all teachers were working remotely due to the Covid-19 pandemic and were therefore more readily contactable via digital means. It is noteworthy to mention that this acts as a double-edged sword. Some principals responded positively, noting that teachers were readily available at computers for the most part and were able to complete the survey. Three principals, however, replied to say that, unfortunately, they did not feel that the timing was appropriate as demands on teachers' time online were very high and they did not wish to add to the pressure. Such non-responses did not impact significantly on the overall response rate. Following the three-step administration process, access to the online survey closed with a total of 393 responses recorded. These were then prepared for analysis.

6.6 Data Analysis

Using both quantitative and qualitative data analysis in the study provided a more holistic representation of the research (Tashakkori and Teddlie 2010). Trainor (2011) advocates the use of the mixed methods to enable researchers to work on multi-layered embedded questions, particularly when working with children with SEN. The analysis through mixed-methods research design required the researcher to draw on both disciplines to facilitate data analysis (Mertens 2015; Creswell and Guetterman 2019). The study adopted the convergent mixed-methods research design, which determined that the analysis of both types of research data must account for each discipline separately. Inferences were then made based on both data types (Creswell 2014; Turner *et al.* 2017).

6.7 Quantitative Data Analysis Phase

To address the research question, the survey produced a comprehensive account of teacher experiences and perspectives using EBPs for teaching SCC to autistic children. The next phase in the research design involved quantitative data preparation in advance of data analysis. The quantitative data survey response was analysed through the IBM Statistical Package for the Social Sciences™ Version 25 (SPSS) statistical analysis software. SPSS is championed as a robust, widely used computer program that can assist in the statistical analysis of data, particularly for social science researchers (Brace *et al.* 2016; Pallant 2016). Guided by the literature, the researcher followed data preparation procedures to ensure that data were initially accurate (Swift 2006), and then inputted the information through a series of steps in SPSS.

The initial step was preparation of the data, where the researcher ‘tuned into’ and explored the ‘characteristics and structure’ (Swift 2006, p.153) of data to appreciate and interpret the messages and acknowledge omissions and outliers (Aguinis *et al.* 2013). The preparation stage involved data coding and data entry in SPSS. A critical friend critiqued the process to minimise the chances of error. The critical friend role, first introduced by Stenhouse in 1975, is a position that is undertaken by an advocate of the researcher who is focused on the trustworthiness of the research methods (Taylor and Storey 2013). The critical friend remit is driven by characteristics that support the researcher engaging in their specific study; they often have attributes such as relevant expertise, strong intrapersonal skills, and an ability to facilitate critical reflection and build researcher confidence (Taylor and Storey 2013). In relation to the quantitative data analysis process, the critical friend oversaw data entry process and discussed the researcher’s decisions in relation to data screening and identification of outliers. They

offered the researcher a platform for discussion in relation to their decision making and, in this way, had a proactive role (Kember *et al.* 1997) in the process, as noted in Appendix 10. Sociocultural theory identifies the imperative role of the More Knowledgeable Other (MKO) in relation to one’s learning and development, and the critical friend served in such a position (Petroelje *et al.* 2019).

In data preparation stage, the researcher identified eleven outliers and removed these as the respondents were ineligible to complete the survey based on the three different criteria, as outlined in Table 17. Three respondents were not teaching in mainstream primary schools and were categorised as ‘incorrect setting’. Two respondents had completed the survey multiple times and these duplicates had to be deleted, which accounted for four entries. The other four respondents had completed the survey even though they had no experience of teaching autistic children.

Survey number	Reason for exclusion
61	Incorrect setting
118	Incorrect setting
138–139	No experience and duplicated – deleted 2
141	Not a teacher
186	No experience
213	No experience
330–332	Three entries – deleted 2 duplicates
338	Incorrect setting
381	No experience

Table 17: Categorisation of Outliers

The remaining 382 responses were then exported into an Excel file so that they could be prepared for SPSS.

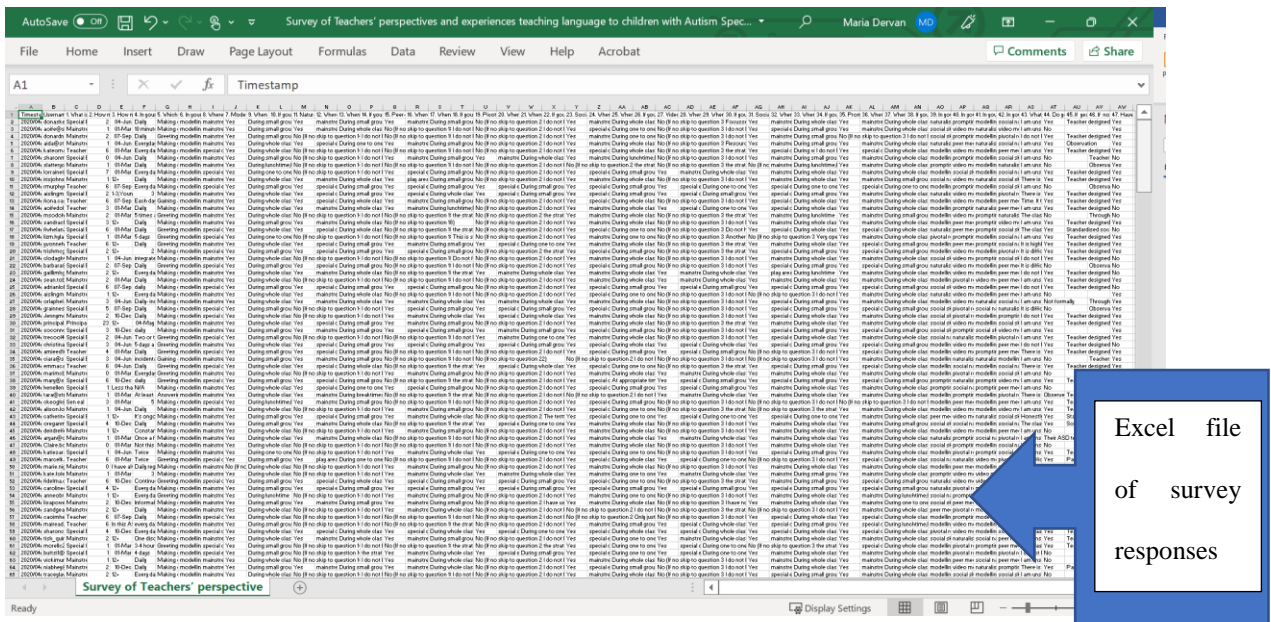


Figure 18: Survey Responses in Excel Data File

The Excel file depicted in Figure 18 above drew down the raw data response set from the survey. This file contained all 382 responses to the forty-nine survey questions and the researcher used a format to structure and exploit the potential held within the raw data for data analysis process. The format adopted the guidelines recommended by Pallant (2016) when a researcher is using the SPSS package; this is outlined in the flowchart in Figure 19 below.

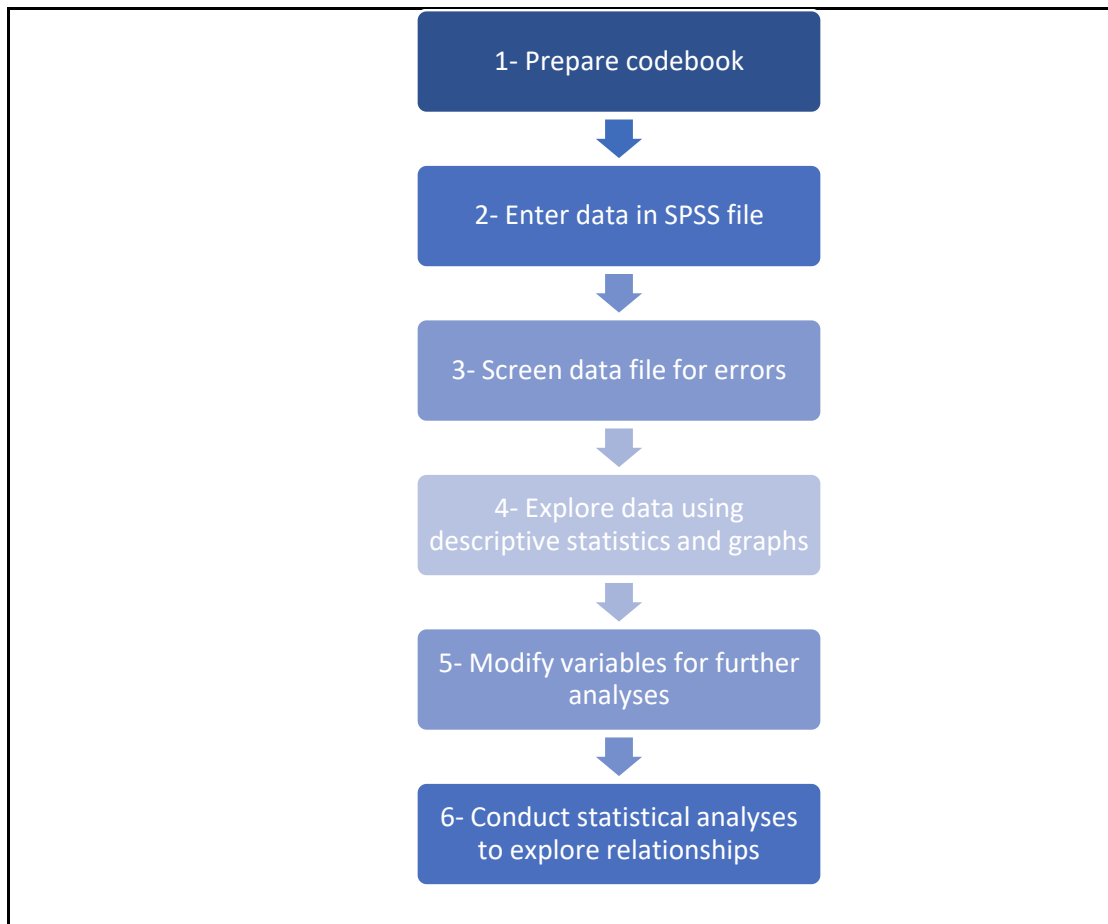


Figure 19: Flowchart of Data Analysis Process

Each of the steps depicted by the flowchart in Figure 19 is described in the subsequent sections, with specific detail pertaining to the study.

6.7.1 Step One: Preparation of the Codebook

Writing a codebook was an important step in the data analysis process and it took place when raw data were ready for entry into SPSS. The purpose of the codebook was to summarise the details pertaining to data so that it could be entered into the SPSS package. The codebook facilitated a description of the label for each variable or data entry, and possessed the numerical categories assigned to data by the researcher (Pallant 2016). The researcher recorded the instructions for coding and reading data – sometimes referred to as a ‘coding matrix’ (Swift 2006) – by referring to the source,

the symbols and variables associated in data entry (Swift 2006; Pallant 2016; Creswell and Guetterman 2021). Codes for data were created *a priori* in the case of the closed questions and during data entry process for the open-ended closed questions (Swift 2006), which would be analysed in Phase Two, using different software in this study. Approaching the dataset in such a way helped to minimise error (Mertens 2015) and enabled the researcher to become familiar with the detail of the dataset through development of the variable names and codes. The codebook contained the relevant variables, the names and description of each variable, the coding method and numbers assigned to each response, as well as the scale of measurement for SPSS to the responses (Swift 2006; Pallant 2016). Figure 20 below contains a graphic of part of the researcher’s codebook designed for this study, with the key areas highlighted. The full codebook appears in Appendix 11.

Question	SPSS Name	Variable	Coding Instructions	Measurement Scale
1	Role	What is your current role in the school?	1- Mainstream Teacher 2- special class attached to mainstream 3- Special Education Teacher 4- other	Nominal
2	Caseload	How many children with ASD do you support in your setting?	1- 1 child 2- 2 3- 3 4- 4 5- 5 6- 6 7- More than 6	Nominal
3	Years’ experience	How many years’ experience working with children with ASD do you have?	1 – 1-3 years 2 – 4-6 years 3- 7-9 years 4-10-12 years 5 – 12+ years	Nominal

Figure 20: Sample from Research Codebook with Key Areas Identified

Once the codebook was created, the researcher then entered the relevant, concise information into the SPSS statistical package.

6.7.2 Step Two: Enter Data in Statistical Package for the Social Sciences File

The next step in the process involved entering the codes into the SPSS data editor window to create a data file. The process began with the researcher applying the codes determined in the codebook to the files in Excel, as documented in Figure 21 below.

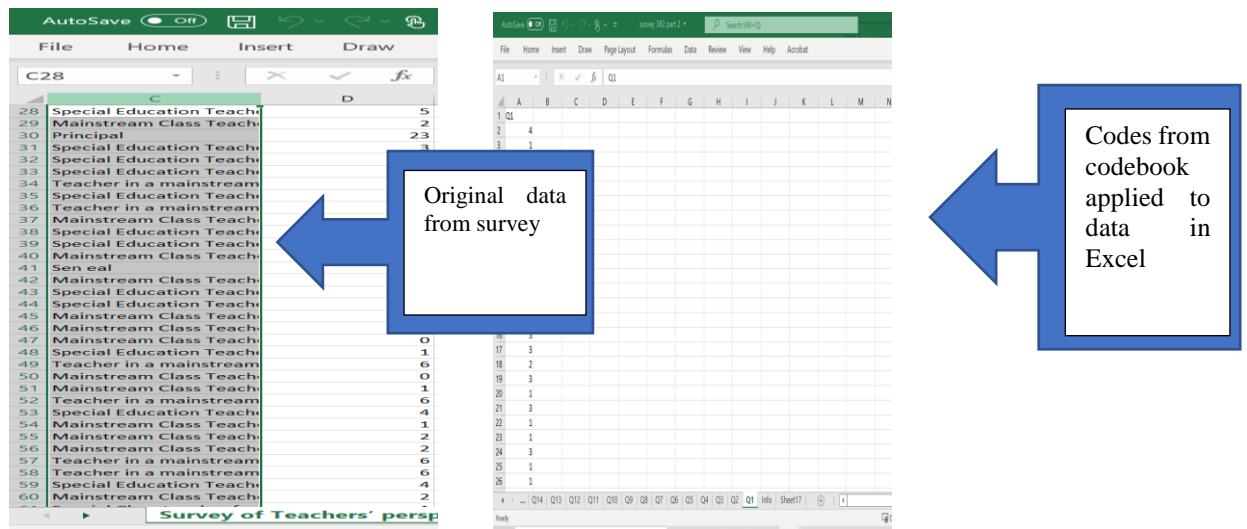


Figure 21: Sample Coding in Excel File

Once each question was given a variable name and coded, they were then drawn into the SPSS data viewer, which produced numerical data, as seen in Figure 22 below.

Each row represented a survey respondent and each column represented a variable.

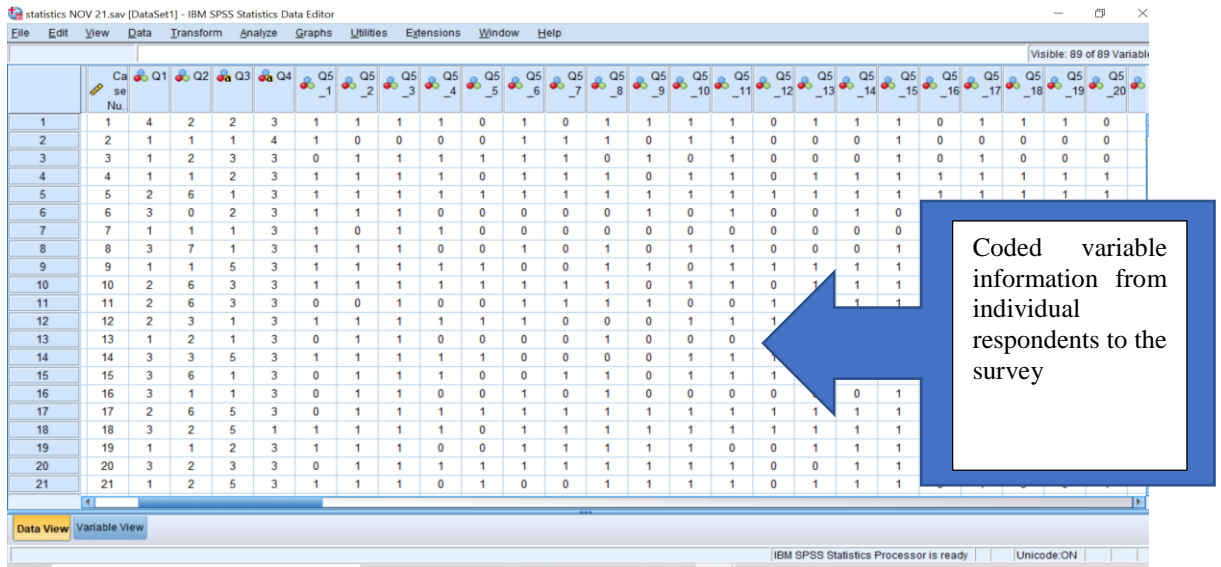


Figure 22: Data View in SPSS

The variable view page, Figure 23, contains the specific information related to each variable and the coding used by the researcher. Value labels were applied in the variable view tab, which helped the researcher to interpret data in the SPSS output window. It is recommended that all nominal value entries are given value labels in SPSS (Brace *et al.* 2016); as the majority of data in this study was nominal in measurement, the researcher followed the advice.

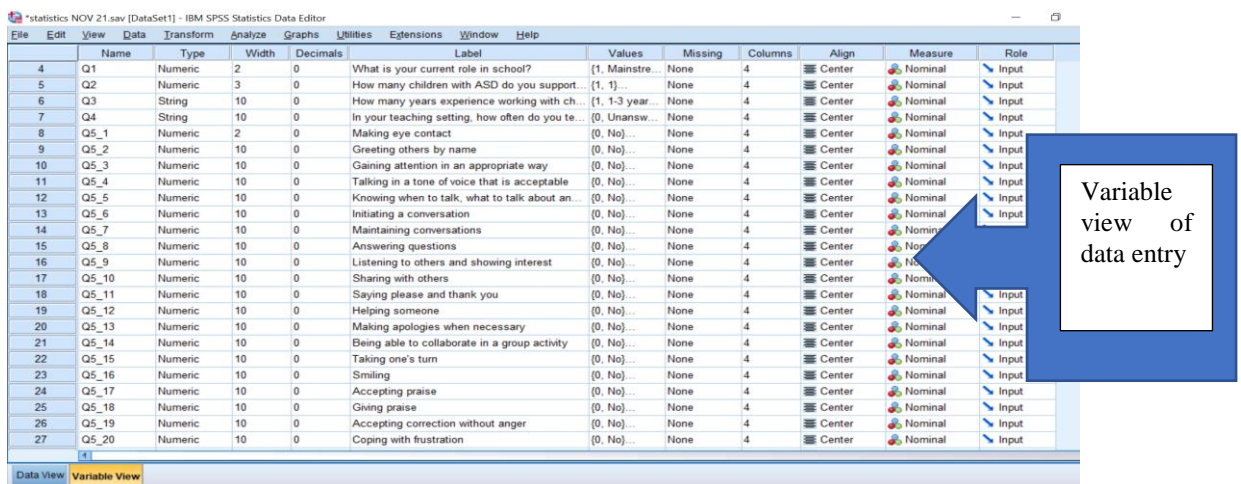


Figure 23: Variable View in SPSS

In the variable view mode, the researcher applied the different values from the codebook and accounted for errors and missing values.

6.7.3 Step Three: Screen for Errors

In the variable view mode, the researcher was able to account for unanswered question responses and missing values, as highlighted in Figure 24. Such a step is important as accounting for missing values at this point provides instructions for SPSS in relation to data (Brace *et al.* 2016; Pallant 2016).

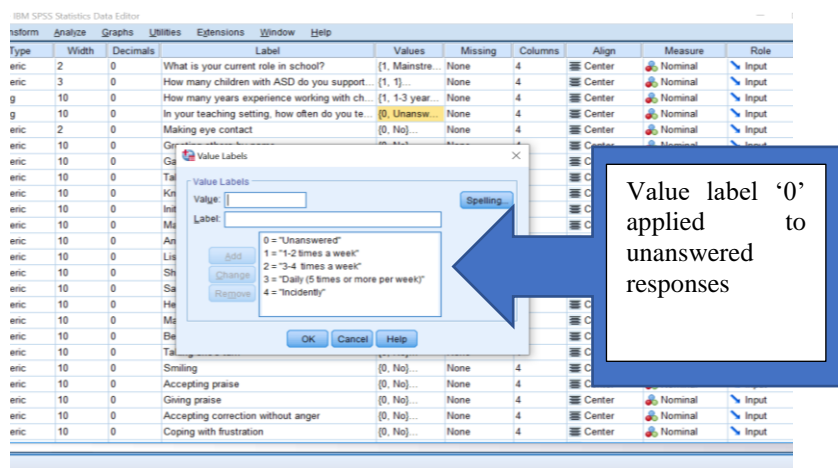


Figure 24: Accounting for Missing Answers

The next stage involved screening data entry as a whole for errors. The researcher checked the file for values outside the parameters set down and codes that did not fit the labels assigned. These were reconciled manually. The researcher used the descriptive statistics tab to pull up information and located any potential discrepancies. These were then edited in the data view file.

6.7.4 Step Four: Explore Data Using Descriptive Statistics and Graphs

Descriptive statistics provide ways of clearly and effectively relaying the information from sources through a system of organising the dataset. Through descriptive statistics, the researcher used ‘tables and diagrams and simple formulae which turn complex data into simple numerical indexes ... describing numerically the data’s main features’ (Howitt and Cramer 2020, p.22). Descriptive statistics served several functions in data analysis, including describing sample characteristics, checking variables for errors or violations, and, specifically, addressing research questions (Pallant 2016). The researcher analysed data in relation to the measures of central tendency and confidence intervals, and also identified key areas for further examination through inferential statistics (Brace *et al.* 2016).

The scale of measurement, as described in the literature, determined in advance the statistical procedure followed by the researcher (Mertens 2015). For this study, nominal categorisation was applied for the scale of measurement as the researcher placed the cases into named categories using ‘univariate analyses’ of single variables (Howitt and Cramer 2020, p.22) and through descriptive statistics provided a profile of the teachers’ perspectives captured in the survey. The research question and embedded questions served as the catalyst to determine the ‘scale of measurement’ and the type of descriptive statistical analysis adopted (Mertens 2015). Descriptive statistics uncovered relevant information for the research questions (Mertens 2015). The findings gleaned from that analysis served as the basis for further detailed inferential analysis. The researcher used the data view window in SPSS and, as data entered was categorical in nature, obtained the descriptive statistics through frequencies information that

provide a better representation of data (Pallant 2016). An example of such is provided in Figure 25.

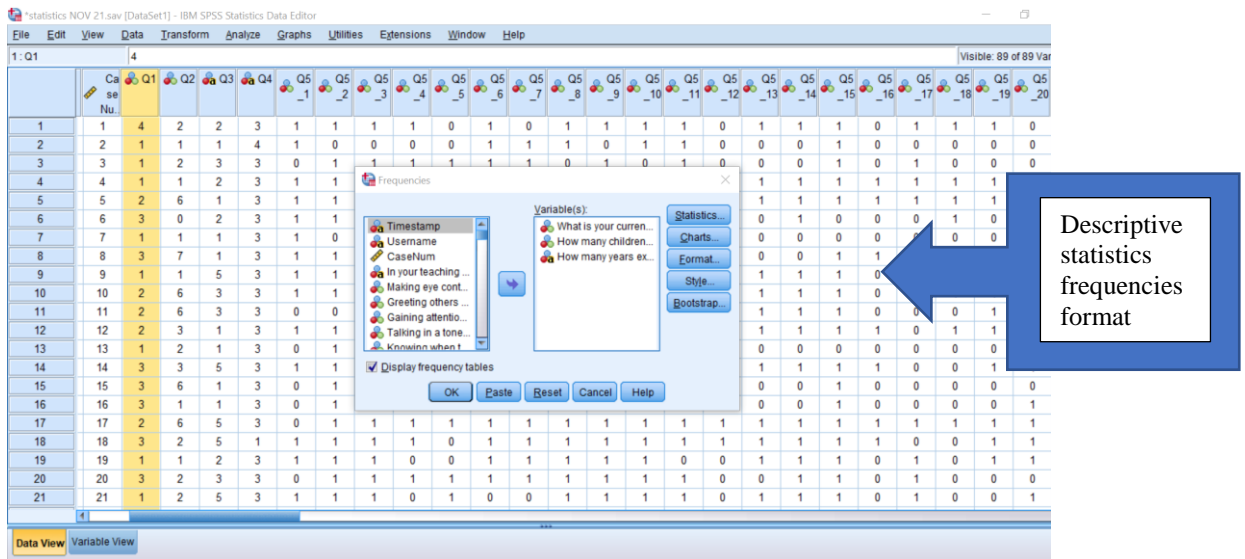


Figure 25: Extrapolating Descriptive Statistics Using the Frequencies Format

The researcher explored data for descriptive analysis, and through SPSS produced tables and graphs to showcase the relevant detail, as shown in Figure 26 below. These tables represented data requested for interpretation by the researcher.

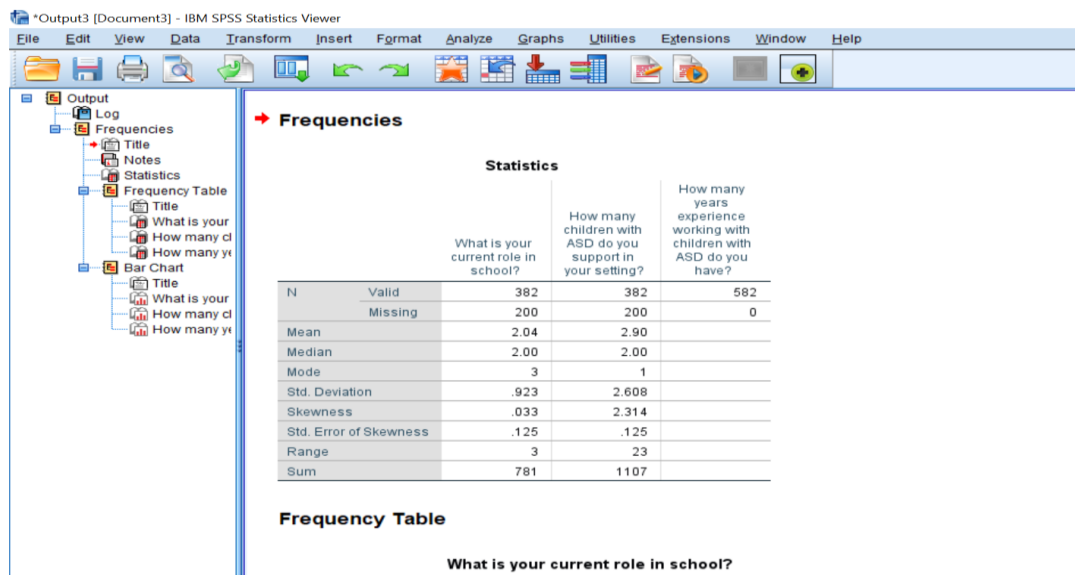


Figure 26: Output Viewer of Descriptive Statistics

The purpose of the methods and fundamental constructs in descriptive statistics was to enable the explanation and summarisation of data (Cooksey 2020). These statistical procedures served to highlight trends and concepts held within the dataset. The researcher used frequency distribution to isolate the frequency of occurrences of certain data to present the number of times that specific data occurred within the sample (Cooksey 2020). What remained required the interpretation and presentation of the emerging data trends for further analysis.

6.7.5 Step Five: Modify Variables for Further Analysis

Following initial descriptive analysis, the next stage in the research process involved manipulating the variables to conduct analyses and test hypotheses. The manipulation required was determined by the questions that needed to be addressed and the variables of interest identified (Pallant 2016). The researcher developed hypotheses to test and extrapolated the pertinent data for analysis, as detailed in Figure 27.

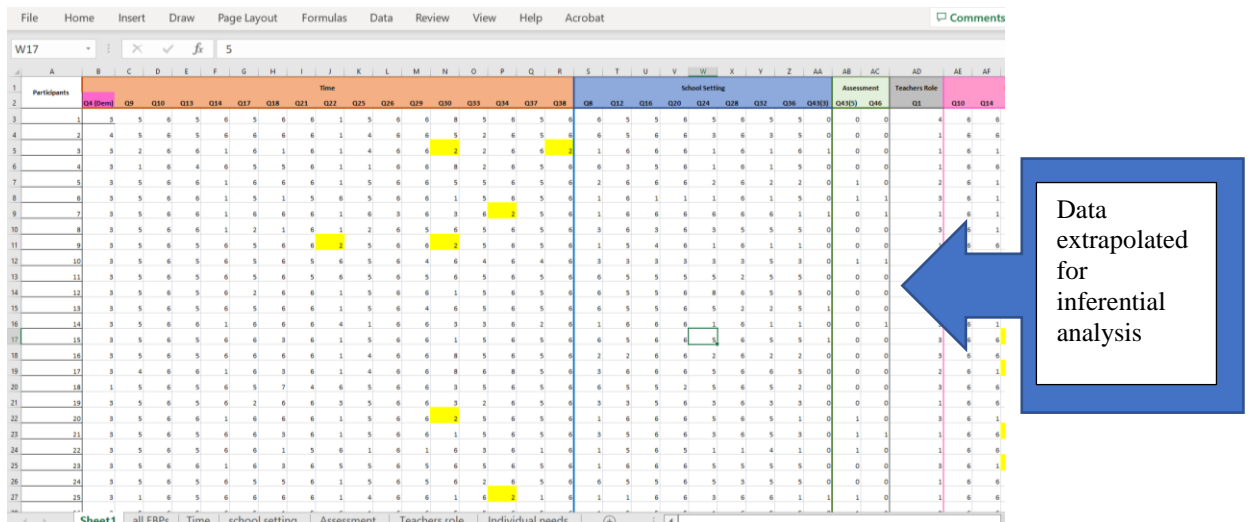


Figure 27: Data for Manipulation

The researcher used Excel™ to structure the coded data taken from SPSS and prepared key pieces for further analysis. These datasets were deemed important for inferential analysis as they were highlighted by the descriptive statistics.

6.7.6 Step Six: Conduct Statistical Analyses to Explore Relationships

Statistical analyses were used to test the identified hypotheses and included one-way ANOVAs, Chi-Square Tests, non-parametric correlations and T-Tests. The relevant detail from each one is discussed in Chapter Seven, with reference to the findings, and further discussion is provided in Chapter Eight. Section 6.7 in its entirety has provided a clear overview of the quantitative analysis procedures rigorously adhered to by the researcher; it is presented as an audit trail of the stages taken. The next section provides a qualitative account of data analysis.

6.8 Qualitative Data Analysis Phase

Qualitative research methods are recognised as the most appropriate means of acquiring information ‘when the object is concrete human experience’ (Brinkmann and Kvale

2005, p.162). Qualitative data collection afforded the researcher the opportunity to focus on the perspectives of those being studied (Bell 2010) and facilitated ‘the greatest promise of making significant contributions to the knowledge base and practice of education’ (Merriam 1998, p.1). Qualitative questioning featured in the survey throughout and was designed to extract more detailed responses from the teachers than quantitative questions could provide (Creswell and Poth 2018). The qualitative data collection element within the mixed-methods approach supported the participants in giving their experience, and the researcher to interpret this to tell a new narrative (Mwangi and Bettencourt 2017). The primary characteristics of qualitative research provided a rational choice in relation to this study. These characteristics included:

1. the focus on understanding people’s experiences with intent to convey experiences into meaning,
2. the researcher is the key instrument for data collection and analysis,
3. the product of qualitative research is richly descriptive.

(Butina *et al.* 2015, p.186)

Qualitative studies by special education researchers often document school and classroom practice (Schwartz *et al.* 1998; Jiménez and Gersten 1999; Brantlinger *et al.* 2005) as this offers the means to explore challenges in areas of teaching and also yields expansive data (Kozleski 2017). Through qualitative data collection, the research sought out deeper information on the perspectives and thoughts of teachers (Brantlinger *et al.* 2005). It is worth noting that special education researchers often favour utilising a descriptive approach as it ‘leads to an understanding of individuals with disabilities, their families, and those who work with them’ (Brantlinger *et al.* 2005, p.196). Rich descriptive data from qualitative sources addresses and advances research into educational practice and policy

(Kozleski 2017), key concerns of this study. The descriptive qualitative research allowed the researcher to provide more detailed explanations of the study, including the participants, topics and issues related to special education (Cook and Cook 2016). Invariably, these positive attributes of qualitative research are also met with trepidation. Tracy (2020) notes that there are ongoing debates related to authenticity of qualitative research. In many disciplines, questions arise regarding the trustworthiness of narrative research, especially compared to quantitative, scientific, numbers-based research (Tracy 2020). Doubts related to qualitative research validity may stem from the ability of the researchers themselves to produce trustworthy, high-quality research, from commencement through findings and dissemination (Kozleski 2017). Education research can be a minefield of lesser quality standards:

[Although] we cannot erase all ‘poor’ research reported in the educational field, we can, however, as responsible inquirers, seek to reconcile different findings and use sound procedures to collect and analyse data and to provide clear direction for our own research.

(Creswell and Guetterman 2019, p.7)

The study therefore addressed the questions of the trustworthiness of data collection through the adoption of the mixed-methods analysis research design ‘and the combination of both forms of data analysis provides a better understanding of a research problem than either quantitative or qualitative data alone’ (Creswell and Guetterman 2019, p.8).

6.8.1 Overview of Qualitative Data Analysis

Phase Two of the analysis involved the qualitative element. To respect the methodological discipline posed by the convergent design, the researcher adhered

to a separate process of data analysis. The sociocultural theoretical framework featured from the outset and encouraged a ‘strong foundation of evaluation ... through enhanced understanding and connection’ (McBride 2011, p.12) with the participants and topic. In the initial stage of data analysis, the researcher engaged with immersion in the dataset; this involved making notes on initial readings of the data transcript through the lens of the research questions (Bennett *et al.* 2019). Familiarisation with the dataset involved developing intimate knowledge with the content, critical engagement and functional note-making filtered throughout the process (Braun and Clarke 2022). Following immersion, the researcher undertook an iterative process to code data and assign an interpretive meaning relevant to the research (Mertens 2015; Bennett *et al.* 2019). The iterative coding method served the purpose of making sense both of and out of data through ‘consolidating, reducing, and interpreting what people have said and what the researcher has seen and read – it is the process of making meaning’ (Merriam 1998, p.178). While engaging with the data, the researcher began to internalise the information and create knowledge, as advised in sociocultural theory. Through the internalisation of the data, the researcher engaged in ‘an inductive process of making meaning of the co-constructed data’ (Wang *et al.* 2011b, p.302). The application of sociocultural theory to data analysis from the outset added to the ‘the robustness and validity’ of the evaluation through the provision of structure and also served to ‘bolster the compassion and connectedness evaluators should have with stakeholders’ (McBride 2011, p.12).

6.8.2 Structuring Data

NVivo was used as the software package to support analysis of the extrapolated qualitative data from the mixed-methods research survey. From the outset, the place

and role of the computer program as a tool for structuring the coding is acknowledged and an understanding existed that the software cannot replace the role and responsibility of the researcher for the actual analysis (Brinkmann and Kvale 2018). NVivo is a software tool to conduct qualitative and mixed-methods analysis, licenced by QSR International. The software program ‘helps analyse, manage and shape’ qualitative data (Creswell and Poth 2018, p.213). Through the software, the researcher was able to manipulate data gathered and create a means for storage of the information. The university training package provided access to this program and completion of the training afforded the researcher with project support for the lifetime of the study. Initial training was undertaken in January 2019 with further training in January 2021. Through the NVivo program, analysis of all the qualitative data from the surveys created an audit trail to detail the process. Through the process, the study espoused the recommendations put forward in literature:

In case of a qualitative evaluation that primarily focuses on the instrumental effectiveness of a particular policy or program (does it work? what are its working components?), the criteria triangulation, member checking, and conducting an audit trail are essential.

(Lub 2015, p.4)

Discourse on systematic qualitative data analysis techniques features throughout the literature with key figures in the field of research (Lincoln and Guba 1985; Butina *et al.* 2015; Mertens 2015; Brinkmann and Kvale 2018; Creswell 2019; Bazeley 2020). Common recommendations suggested adhering to a structure or framework for qualitative data analysis. Types of frameworks include framework analysis, thematic analysis, content analysis and discourse analysis (Lester *et al.* 2020), and each brings their own ideals and systems for researchers to engage with. For the purpose of the study the researcher, was keen to engage in

a framework that afforded flexibility in the analysis which would offset the stringent procedures that are commensurate with quantitative analysis. In essence, the researcher wanted to have the opportunity to be more subjective and situated in the study and the flexible nature of reflexive thematic analysis (RTA) served such a purpose.

6.8.3 Reflexive Thematic Analysis

Engaging with RTA meant the researcher used a framework to guide the process to ensure credible and robust findings (Lester *et al.* 2020). The six-step framework in Table 18 is widely supported as an established tool; it is drawn from Braun and Clarke (2022), as revised from the earlier publication in Braun and Clarke (2006). These steps were engaged with iteratively as the researcher moved back and forth through the process in relation to the dataset. A detailed audit trail was developed to illustrate the journey of the researcher through each of the stages and is presented relevant to each phase. In line with recommendations from Braun and Clarke (2022), the researcher kept a reflexive journal to facilitate note-making, interrogating thought processes, documenting the journey and ultimately meaning making, as data were shifted and moulded within the guidelines. The process of journaling began from the initial stage:

Thematic Analysis – the beginning of the adventure – I am drawn in and captured by Braun and Clarke's proposal of the potential offered by reflexive thematic analysis. I have furiously highlighted relevant parts of their book, listened to their podcast, engaged with the webinars and feel an immediate sense of excitement for what I can hope to do with the dataset.

(MD Reflexive Journal 2022)

The framework of RTA outlined the process of analysis that weaved through the research, providing openness and trustworthy findings (Nowell *et al.* 2017). The

trustworthiness was an important element that was bolstered through the use of an illustrated audit trail and the reflexive journal. Here the researcher captured thoughts but also documented the learning that was part of the research journey:

[T]he book asks specifically that I locate myself in relation to the research. Having engaged extensively with quantitative analysis, which prides itself on the removal or ability to curtail bias, I am now apprehensive about the idea of exposing my own thoughts on the topic under investigation. Having a vested interest has certainly motivated me to undertake the study and the more I read of reflexive thematic analysis I understand being aware of this helps me to see how it influences data from the outset.

(MD Reflexive Journal 2022)

Each of the phases in the RTA framework are documented in Table 18 and then further explored specific to the study in the coming sections.

Phases of Reflexive Thematic Analysis	
Phase	Description of process
1. Familiarising yourself with your dataset	Transcribing data (if necessary), reading and re-reading the data, making notes about any analytic ideas or insights related to each data item or the dataset as a whole.
2. Coding	Work through data to identify segments that appear potentially interesting, relevant or meaningful for the question and apply pithy, analytically meaningful descriptions (code labels). In RTA both explicit and surface meaning codes (semantic) and more conceptual implicit meaning (latent) can apply.
3. Generating initial themes	Identifying shared pattern meaning across the dataset. Compile clusters of codes that seem to share a core idea or concept.
4. Developing and reviewing the themes	Assessing the initial fit of the provisional candidate themes to data and the viability of the overall analysis. Think about the core focus or idea (central organising concept) and its scope.
5. Refining, defining and naming themes	Fine tune analysis ensuring each theme is clearly demarcated and is built around a strong core concept.

6. Writing-up

Finesse and finish the writing process. Ultimately you are aiming to weave together your analytic narrative and compelling vivid data extracts to tell [the] reader a coherent and persuasive story about the [the] dataset that addresses the research questions.

Table 18: Phases of Reflexive Thematic Analysis (Braun and Clarke 2022, pp.33–34)

6.8.3.1 Phase One – Familiarisation

Familiarisation with the dataset the first stage of the six-step process outlined in RTA, as shown in Table 18. Reflective of qualitative approaches (Byrne 2022), it involved the researcher becoming intimately familiar with the entire dataset through thorough and repeated reading. To begin with, the dataset was imported into NVivo and prepared for immersive reading, as shown in Figure 28 below.

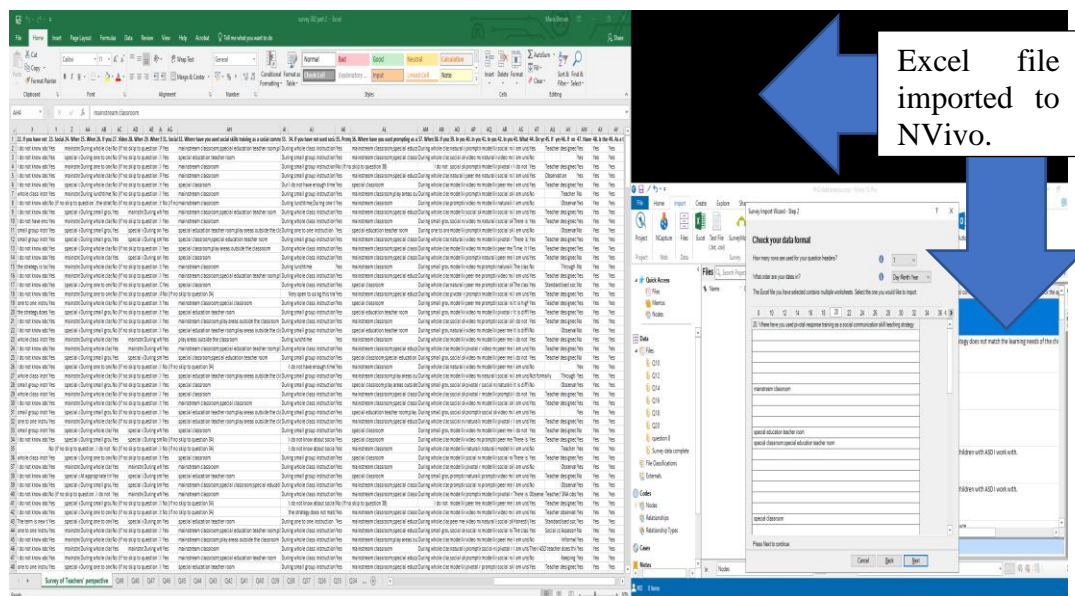


Figure 28: Excel File Imported to NVivo

Braun and Clarke (2022) relay three separate practices that are involved in familiarisation: immersion; critical engagement; and note-making. Immersion is the practice of cultivating a deep understanding of the dataset. Simultaneously, the

researcher absorbed data and adopted a critical lens on its content. Both of these processes were facilitated by systematic journaling and note-making, which involved annotating to integrate contextual factors, including coding assumptions, field notes and observations, and the researcher's thoughts and ideas during the encoding process. A sample of the Phase One codebook is provided in Appendix 12; this provides a sample of the familiarisation process. Furthermore, the process of journaling throughout helped the researcher to solve problems:

I have mixed feelings about familiarisation – on the one hand I know I have to immerse in the reading of the data, maintain a critical thought process and question/take notes but I am apprehensive about my ability to do the analysis justice and forcing myself to interrogate my 'making sense of the data' as I read and reread.

(MD Reflective Journal 2022)

By design, RTA generates a high calibre of deep qualitative analysis which can produce a range of findings. Through reflexive engagement, the researcher cultivated the process of critically investigating the *what*, *how* and *why* of their actions that impacted on the direction of the research undertaken (Braun and Clarke 2022). The process was imperative for the researcher in the study and was noted early on in the analysis:

I feel happy about the familiarisation piece of data and I think spending so long quantitatively preparing and working with the dataset in the first phase of the analysis has helped me to develop a strong sense of the content overall. I feel it has been conducive to immersion as I worked on the dataset.

(MD Reflexive Journal 2022)

Engaging with the processes meant the researcher honestly accounted for their experience and critically appraised their engagement in order to account for bias. Although there was merit in conducting analysis in the convergent design, it was also important to be honest about the difficulties:

That being said, it's a shift to move to really engaging critically with the content away from the black and white that came with number work and quantitative analysis. In the book chapter Braun and Clarke talk about the intersection of the data, the researcher and the analytic contexts that form the meaning making piece. It has meant moving myself into position in the dataset with my own experience and ideas reflected on the analysis.

(MD Reflexive Journal 2022)

6.8.3.2 Phase Two – Coding

Codes were the essential building blocks of what ultimately became themes in the qualitative analysis. They produced small units of analysis that related to the research questions (Braun and Clarke 2022), through the use of descriptive and interpretative labels (Byrne 2022). Coding successfully involved systematically moving through the dataset to reduce the detail into pieces of analytically interesting information. Through the NVivo software, the researcher applied the code labels to each of the pieces of qualitative text as 'nodes', which is the term used by the program.

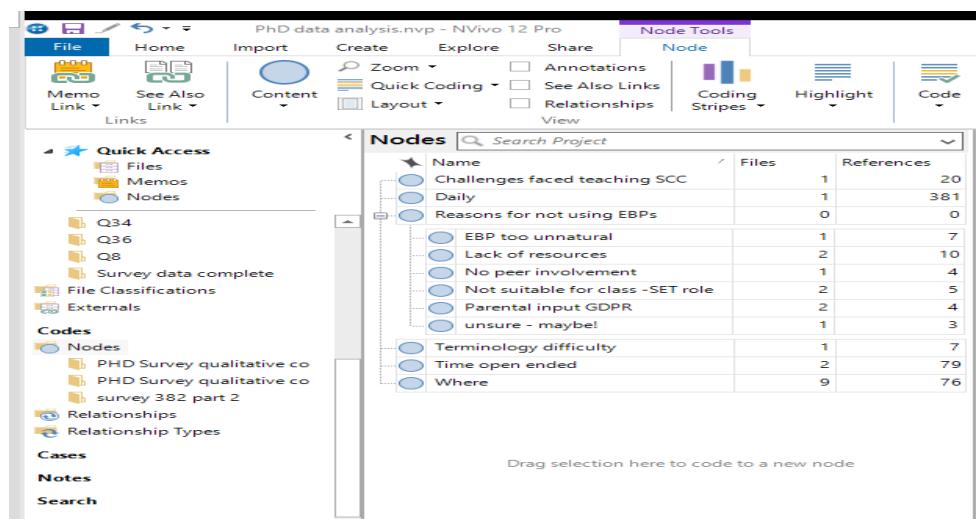


Figure 29: Codes Filed Under the Name 'Nodes' in NVivo Software

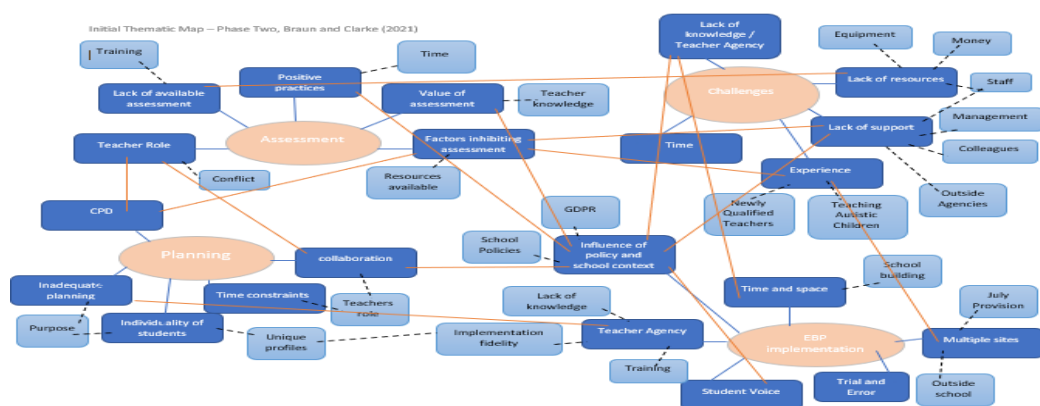
The coding phase involved both insight and rigour; these take time and prevent superficial engagement in the analysis (Braun and Clarke 2022). The researcher moved back and forth through familiarisation, coding and recoding in order to identify

conductive codes and discard unnecessary details (Byrne 2022). While engaging in the process, two dimensions are relayed by Braun and Clarke (2022) as imperative to meaning making and the analysis process. These are *inductive*, which is focused on data to hand, and *deductive*, which leans more on the theory or researcher driven lens:

I pulled up at the inductive, deductive piece. I think being so immersed in the quantitative coding has me grappling with the idea that reflexive analysis can be both. The importance of the theory element to both processes is noteworthy and I am glad. Initially the study seemed to align to inductive analysis as I am seeking out the ‘experience and perspectives’ of the research participants but I am also deductively applying the theoretical framework. The elements of Vygotsky’s sociocultural theory were popping to mind as I engaged in familiarisation and the initial coding process so I have to recognise elements of both forms of analysis.

(MD Reflexive Journal 2022)

Coding also involved specific types of codes that were applied; these can be semantic or surface-level data and latent or deeper more implicit data (Braun and Clarke 2022). Often the semantic level happened initially with latent coding related to the less obvious surface-level meaning. An initial thematic map was used to begin to identify the relevant codes, and this would be iteratively used through the process. Figure 30 captures the initial map, which is also available in Appendix 13.



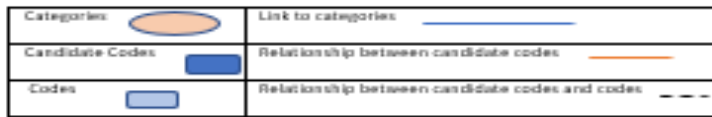


Figure 30: Phase Two – Thematic Map

The process was non-prescriptive in relation to the number of codes, the way coding was undertaken and the types of codes applied (Byrne 2022). Indeed, the same data items were coded both semantically and latently, as was deemed appropriate. Through the process of systematic coding and recoding, the researcher pursued and applied rigour to the outcome by applying the correct data tools (Braun and Clarke 2022):

Coding Phase Two – after initial grouping and coding I have moved to semantic and latent codes. To help refine the meaning I used code labels as working tools to help visualise what I am trying to do. This process was slower than anticipated and I needed multiple rounds of codes.

(MD Reflexive Journal 2022)

Furthermore, through the process of generating initial coding, the researcher was able to deconstruct the dataset from its original chronology into an initial set of non-hierarchical codes. This involved the creation of fifty-seven initial codes overall, a sample of which is captured in Figure 31. (The full Phase Two codebook is available in Appendix 14.)

Codebook\\Phase 2 – Phase 2 Systematic Data Coding (Open Coding)

Phase 2 - Systematic Data Coding (57 initial codes identified and created in phase 2)	Surveys Coded	Units of Meaning Coded
Approaches	1	70
Assessment Availability	1	30
Challenges	1	44
Collaboration between Teachers	1	21
Colleagues	1	16
Consultation with Child	1	16
CPD	1	13
Conflict	1	17
EBP Contrived	1	7
Equipment	1	9
Factors Inhibiting Assessment	1	6
Financial Burden	1	9
Formal	1	10
Implementation Fidelity	1	10
Inadequate Planning	1	8
Individuality	1	17
Influence of Policy and School Context	1	14
Interests/ Uniqueness	1	18
Informal	1	25
Knowledge	1	24
Lack of Resources	1	11
Lack of Support	1	16
Manualised Programmes	1	1

Figure 31: Sample from Phase Two Codebook

The initial codes were then subjected to further analysis in Phase Three.

6.8.3.3 Phase Three – Generating Initial Themes

Phase Three of data analysis involved aggregating the codes produced, to capture and unite the ‘shared meaning’ or ‘conceptual patterns’ (Braun and Clarke 2022, p.77), using NVivo as a management tool, as shown in Figure 32. Each category possessed its own unique central organising concept (Braun *et al.* 2015), which was either at the semantic or the conceptual level. The researcher began by creating initial candidate categories through clustering the codes together.

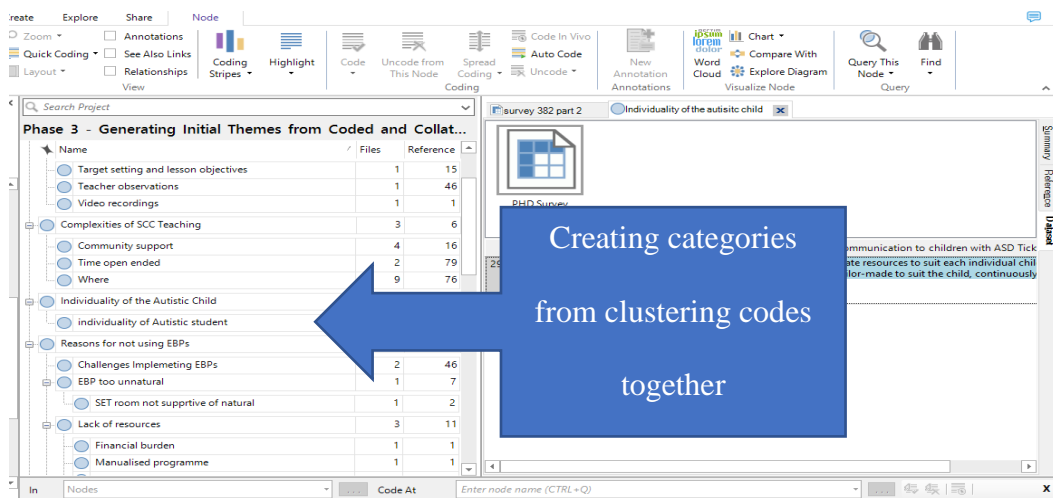


Figure 32: Clustering codes with Nvivo software

The recursive action of coding and recoding at this stage facilitated the interpretation of emerging categories:

The process of generating categories means finding patterns across the codes I have generated and clustering these into categories that reflect some part of the content, which may even have conflict within. The emphasis in this phase is firmly placed on initial thematic labels and Braun and Clarke stress that these will evolve and change as the process continues. Immersion in the codes and the production of an initial thematic map of categories helped the process, although at times it was hard to try and distinguish between the different categories and the codes, there was a lot of codes that linked.

(MD Reflexive Journal 2022)

Phase Three saw the researcher engaged in the process of merging, renaming, distilling and clustering related codes into broader categories of codes to reconstruct the dataset into a framework that made sense in order to further the analysis and address the research questions and aims of the study. This process meant recoding the initial fifty-seven systematic codes into twenty-eight consolidated categories of codes, as evident from the sample in Figure 33. (The full Phase Three codebook is included in Appendix 15 to support the audit trail.)

Codebook\\Phase 3 Generating Initial Themes from Coded and Collated Data (Developing categories)

Phase 3 - Generating Initial Themes from Coded and Collated Data (57 initial systematic codes mapped and consolidated to 28 initial themes or categories of codes)	Surveys Coded	Units of Meaning Coded
Assessment	1	162
Collaboration	1	44
Complexities of SCC Teaching	1	178
Confidence	1	15
Consistency	1	16
Generalisation	1	76
How	1	35
Importance of SCC Teaching	1	26
Implementation Challenges	1	46
Implementation of EBPs	1	26
Incidental Teaching	1	14
Individuality of Students	1	18
Information Gathering	1	46
Influence of Policy	1	4
Lack of Resources	1	11
Outside Agencies	1	1
Parent Participation	1	21
Planning	1	30
Peer Involvement	1	8
Reasons for not Using EBPs	1	55
Significant Time Commitment – When	1	446

Figure 33: Sample from Phase Three Codebook

The initial thematic map and codebooks also served as a means to illustrate the detail of the dataset in a workable format as the analysis moved into Phase Four, where the categories were subjected to further investigation.

6.8.3.4 Phase Four – Developing and Reviewing Themes

Phase Four centred on the concept of re-engagement. Here the researcher returned to the dataset with a more critical lens. Phase Four provided the space to revisit all the analysis covered with a view to capturing the core concepts with richer nuances (Braun and Clarke 2022):

In Phase Four I needed to understand what is meant by a ‘good theme’ as Braun and Clarke keep referring to. Key guiding principles that I used at this stage involved answering and being mindful of the following questions adapted from; Braun and Clarke (2022) and Byrne (2022). Can I identify boundaries around the theme? What is the quality of the theme – is it both complex and diverse and do I have meaningful data to support the theme, is it too thin? Does the theme convey something useful about the dataset and is it part of the compelling story, does it answer the research questions posed?

(MD Reflexive Journal 2022)

Reflecting upon the initial thematic map and the entire dataset presented an opportunity to look across the connections between the candidate codes and codes, and to seek out patterns that were built around a central idea, reflect richness in the data, were distinctive and not just topic summaries (Braun and Clarke 2022):

Reflecting on the candidate codes and pulling together the relationships initially seemed like tidying up the dataset into nice categories. However, as I engaged further, I realised I was indeed focused on finding themes as topic summaries trying to almost force all data into these ‘themes’ to create a picture of the information.

(MD Reflexive Journal 2022)

Spending time reflecting and engaging in this phase using NVivo, depicted in Figure 34, was of vital importance for RTA as the emphasis was placed on the researcher's reflexivity, as opposed to following governing rules:

As I revisited the overall question and the guiding principles I had noted, I found myself seeking out more of the rich nuanced ideas, what could I capture that the teachers were really telling me in the data? Four central concepts were flagged in this space and I feel more excited to tell their story.

(MD Reflexive Journal 2022)

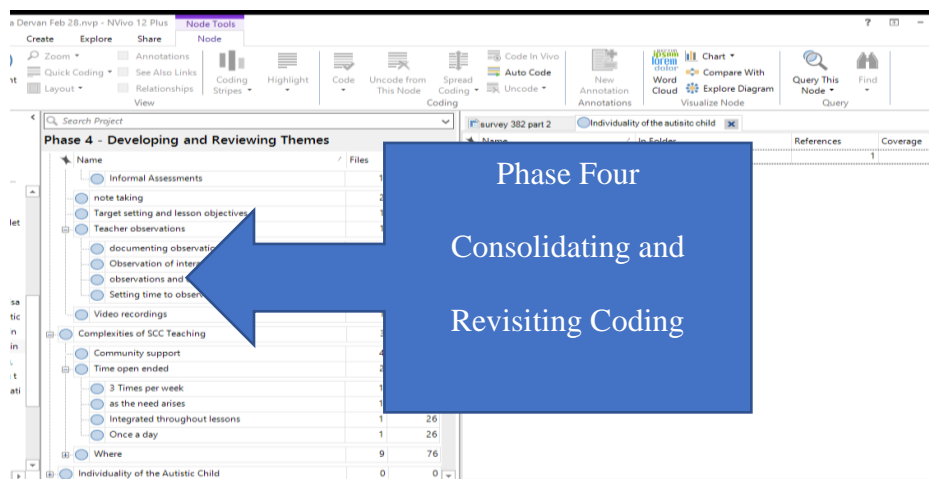


Figure 334: Consolidating Candidate Codes to Reflect Richer Themes with NVivo software

Through the coding on process in Phase Four, the twenty-eight initial categories of codes were consolidated to eight emerging themes and a further twenty refined codes were added as the need arose to ‘rework the code clusters’ (Braun and Clarke 2022, p.99). Undertaking such a validity check on the initial codes highlighted ‘scope for better pattern development’, a feature of the Phase Four in RTA (Braun and Clarke 2022, p.97). A sample of this is evident in Figure 35. (The full Phase Four Codebook is available in Appendix 16 as part of the audit trail).

Codebook\\ Phase 4 Developing and Reviewing Themes (coding on)

Phase 4 - Developing and Reviewing Themes (28 initial themes consolidated to 8 and 20 refined codes added at phase 4)	Surveys Coded	Units of Meaning Coded
Assessment	1	162
Need for More Assessment Supports and Knowledge	1	27
Formal Assessments	1	6
Informal Assessments	1	22
Note Taking	1	3
Target Setting and Lesson Objectives	1	15
Teacher Observations	1	46
Documenting Observations	1	10
Observation of Interactions	1	18
Observations and Collaboration	1	2
Setting Time to Observe	1	2
Video Recordings	1	1
Complexities of SCC Teaching	1	178
Consistency and Inclusion	1	16
Time Open Ended	1	79
Less Than 3 Times Per week	1	25
As the Need Arises	1	14
Permeated Throughout Lessons	1	26
Once a Day	1	26
Where	1	76
Class Outings	1	14
Home	1	6
Other Locations	1	56

Figure 345: Sample of Phase Four Codebook

Eight provisional themes emerged at this stage that captured the story; the detail pertinent to each theme was represented by the sub-theme. The original themes in the initial map represented topic summaries that were reflective of the way the dataset was gathered. Such an approach meant the sub-themes were thin and there was overlap across the themes and within the themes that was often contradictory; for example, the theme of ‘assessment’ had positive practices, the values of assessment as well as factors inhibiting assessment and lack of assessment. As these are distinctively different and were contradictory in their detail, they reflect more of a topic summary than a rich theme (Braun and Clarke 2022). Shifting the focus away from the way data were gathered into the story, helped the researcher to extrapolate stronger themes. Phase Five involved reviewing these themes.

6.8.3.5 Phase Five – Defining and Naming Themes

Phase Five was primarily concerned with development and amendment of themes in NVivo, a sample is depicted in Figure 36. The purpose was to support the researcher in the write-up of the analysis by preparing the structure and reporting. Theme development and refining involved the task of writing-up the abstract of each theme, noting the ‘scope, boundaries and core concepts’ (Braun and Clarke 2022, p.108).

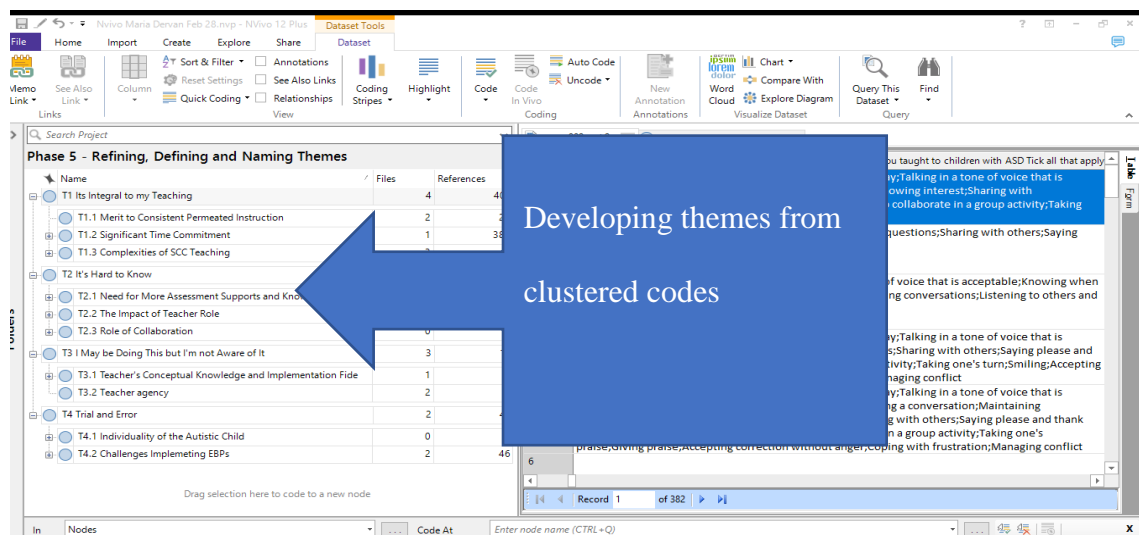


Figure 356: Generating Themes from Clustered Codes using NVivo Software

Further to theme development was the refinement of names; in RTA, capturing the core concept of the theme in a creative and attractive manner is advocated. The refined thematic map for Phase Five is presented in Figure 37.

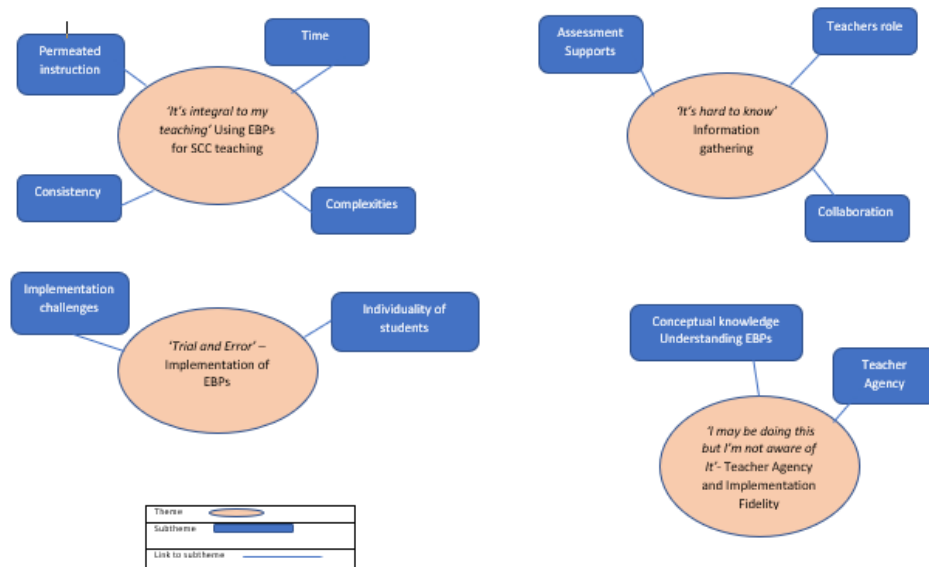


Figure 37: Finalised Refined Thematic Map Based on Braun and Clarke (2022)

Theme definitions for each of the four themes represented in Figure 37 were then detailed with a view to capturing how each theme could contribute to the overall qualitative analysis of data. (The Refined Thematic Map is also available in Appendix 17.) In Phase Five, the process was focused on defining and naming the themes by conceptually mapping and collapsing the initial eight themes from Phase Four into four themes that were representative of a broader thematic framework. A sample of the Phase Five Codebook is provided in Figure 38, with the full codebook available in Appendix 18 as part of the audit trail.

Codebook\\Phase 5 Refining, Defining and Naming Themes (Developing a Thematic Framework)	
Phase 5 - Defining, Refining and Naming Themes (4 themes refined, defined and named at phase 5)	Units of Meaning Coded
T1 Its Integral to my Teaching	645
T1.1 Merit to Consistent Permeated Instruction	21
T1.2 Significant Time Commitment	446
Both Formal and Informal	30
Formal	10
Informal	25
T1.3 Complexities of SCC Teaching	178
Consistency and Inclusion	16
Generalisation	77
T2 It's Hard to Know	175
T2.1 Need for More Assessment Supports and Knowledge	103
Assessment	70
Note Taking	8
Lack of Certainty	25
Teacher observations	46
T2.2 The Impact of Teacher Role	23
Not suitable for class -SET role	12
Teacher role	11
T2.3 Role of Collaboration	50

Figure 38: Sample from Phase Five Codebook

The four themes represented a narrative that was consistent with the dataset and relevant to answering the research questions. A sample of the flow from codes to categories to themes is available in Appendix 19. The themes were representative of a ‘coherent and internally consistent account of the data’ (Byrne 2022, p.1407), with care taken to provide an accurate representation of the journey through data analysis. The culmination of the work was represented in Phase Six.

6.8.3.6 Phase Six – Writing-Up

Although Phase Six comes at the end of the analysis as such, it does not represent a final stage. The write-up in RTA featured from the outset with note-making, memos and reflexive journal entries (see Appendix 34) that documented the journey through the analysis. Phase Six provided the space to pull this together to represent and report the key components (Braun and Clarke 2022), which feature in Chapter Seven and in the discussion that takes place in Chapter Eight. Phase Six was concerned with

producing the report and involved the creation of analytic memos to conduct a review of the framework developed in Phase Five to analyse, report and ask questions of the dataset. Memos reduced data from a series of themes to a series of documents explaining the outcomes of analysis and theme content, a sample of which is available as Figure 39 (and in Appendix 20 as part of the audit trail).

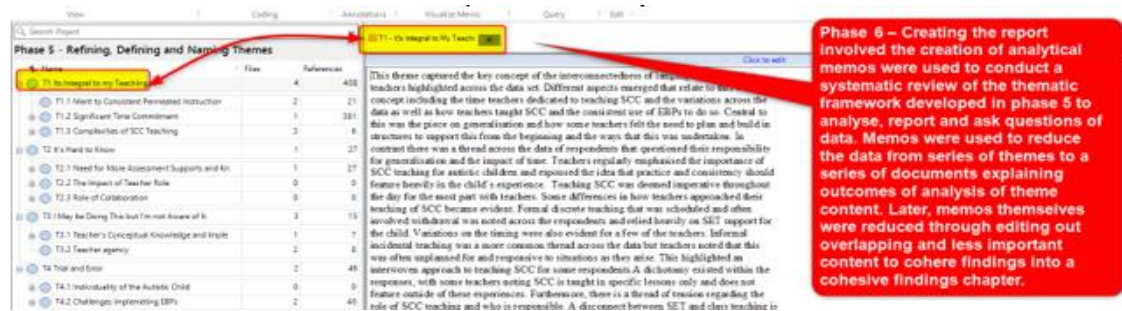


Figure 39: Example of Analytical Memo

Later the memos themselves were reduced by editing out overlapping and less important content to cohere findings into a cohesive findings chapter. The development of themes that derived from RTA involved a process of immersion and interpretation in which the findings are not just descriptive but are theorised (Braun and Clarke 2022), as influenced by the sociocultural theoretical framework. The Phase Six write-up involved the focused description and presentation of the research journey.

In this section, a detailed description of the researcher’s journey through qualitative analysis and the decisions and journey has been provided. The researcher adopted the RTA process to guide the qualitative stage of the analysis ‘at the intersection of the researcher, the dataset, and analytic and data contexts’ (Braun and Clarke 2022, p.45). Upon completion of the qualitative analysis, the researcher

returned the attention to the mixed-methods protocol guiding the study design. From here both forms of data collection were married through triangulation to represent an overall account of the dataset gathered. The findings generated from the overall analysis of the entire dataset were merged through the interpretative process.

6.9 Interpretive Data Analysis

Completing analysis of the different data types served as the first and second phases of analysis in the study. The findings produced through the descriptive and inferential statistics in Phase One were used to produce a national representation of the phenomenon. A further, deeper understanding of the experiences and opinions of teachers from the survey analysed in Phase Two provided a more robust, richer explanation of the research questions. Subsequent analysis involved the merging of the different method results from Phases One and Two by triangulation, with equal weighting given to both methods. Hyett *et al.* (2014) highlight that the triangulation of data allows the researcher to reveal as much depth as possible in the findings. Consideration for the ‘nexus at which the two types of data actually meet’ (Mertens 2015, p.446) is imperative when planning for the interaction between both sets.

To facilitate merging and deeper analysis of both datasets, the process of triangulation involved the researcher relating the different modes of data analysis together to produce consistency in the information gathered (Creswell and Poth 2018). Through triangulation, efficacy in the work covered is promoted and validation for the robust findings is consequential (Almalki 2016). The method of comparison was seen as effective if one delivered the modes of data collection from the same aspect of the research problem (Ponce and Pagán-Maldonado 2015), such as the

case in this study. Triangulation was an essential part of the design as its enhanced validity facilitated ‘inferences and conclusions that can be stated about the findings’ (Ponce and Pagán-Maldonado 2015, p.126).

The research design embodied a convergent triangulation design, as illustrated in Figure 40. Through this design, the central focus was to merge the separately analysed quantitative results with qualitative outcomes to find contrasts and comparisons (Turner *et al.* 2017). For this research study the themes from the qualitative data were compared to the statistical results gleaned from the quantitative analysis in an integrative approach and displayed using an illustrative table (Creswell and Guetterman 2021). A representative table was used to embed the findings from both the quantitative and qualitative modes through triangulation, producing rich, deep findings (Brinkmann and Kvale 2018).

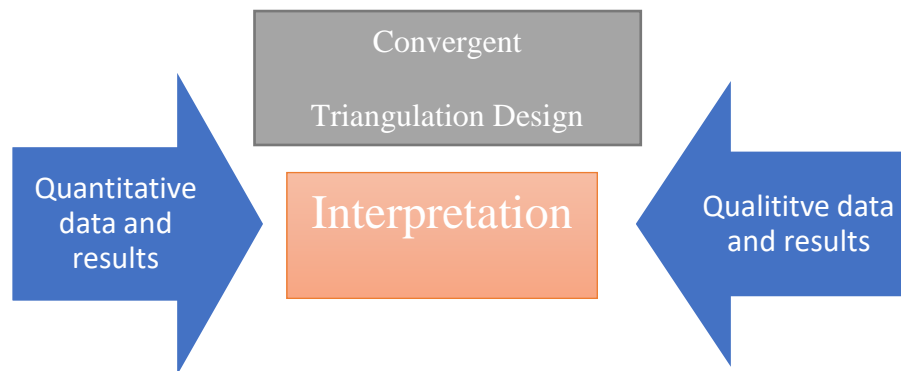


Figure 40: Diagram of Convergent Triangulation Research Design, Adapted from Creswell and Plano-Clark (2011)

The interpretation phase of data analysis involved a complex interchange of research analysis, which can be challenging for researchers (Bazeley 2020). The use of an illustrative results table was produced as it was seen as supportive for

interpretation of the results (Creswell and Guetterman 2021). The results that emerged from Phase Three of the analysis are discussed and conceptualised in Chapter Eight through the theoretical framework and literature reviewed. Further to the three phases of data analysis, it was also important for the researcher to provide evidence of the ethical considerations that featured throughout the study. These are now addressed in the subsequent sections.

6.10 Ethical Considerations

Throughout the study, the responsibility lay with the researcher to ensure that the investigation had ethical principles at its core and adhered to ethical guidelines (Felzmann *et al.* 2010). These guidelines included protection, informed consent and confidentiality, as described by the Teaching Council in the research support framework (Teaching Council 2015). According to sociocultural theory, the researcher needed to be mindful of the ‘historical context of one’s viewpoint, for we always “see” something against a larger background of tradition, history and community’ (Brinkmann and Kvale 2005, p.161). Furthermore, the researcher was mindful to produce knowledge that was balanced by upholding ethical respect and integrity for the research participants (Brinkmann 2013). Through the study, the researcher became more knowledgeable of what it is to be ethical in research. The implications of sociocultural theory on the research led the researcher to consider two forms of ethics at play in the study.

First, micro ethics was concerned with participant consent, confidentiality, the right to withdraw and the quest for positive change (Brinkmann and Kvale 2005). According to Rogoff (2003), being an ethical researcher within sociocultural theory means

one must take an objective view of the participants, and be cognisant of researcher bias, and the imposition of personal viewpoints and culture during the process. Furthermore, the socioculturalist researcher must have ‘an openness and direct desire to learn about another’s culture, history, and the dynamics that mould them, moving beyond a deficit-oriented mentality’ (McBride 2011, p.8).

Second, ‘macro ethics’ was considered where the researcher needed to pay attention to how the ‘knowledge produced will circulate in the wider culture and affect humans and society’ (Brinkmann and Kvale 2005, p 167). Applying sociocultural theory to the study meant being aware of the culture that surrounds the relevant stakeholders, the autistic children, families, teachers and schools and the impact of the research outcomes for them. The researcher was mindful of the teacher’s roles as the MKO with valuable knowledge and experience that warranted respect, and adopted a mixed-methods approach that facilitated capturing their experience. The researcher advocated for the ideal of emancipation for teachers (Hopkins 2008) to provide the opportunity for them to voice their experience and have their contributions acknowledged within the landscape of research in special education. The subsequent sections discuss the micro ethics component of informed consent, efficacy and privacy; and the macro ethics component of trustworthiness of the study, validity, researcher bias and reflexivity. According to Lewis (2009), researchers must account for ethical considerations, regardless of whether their analysis is qualitative, quantitative or a combination of the two methods.

6.11 Micro Ethics

The three component areas of micro ethics addressed by the researcher include informed consent, efficacy and the right to privacy for the participants. These are addressed separately in the following sections.

6.11.1 Informed Consent

Sociocultural theory dictates that ‘openness, comprehensiveness, and unity’ are core values of research (McBride 2011, p.8); therefore, the onus was on the researcher to obtain permission from all study participants to have their experiences and opinions documented. Distribution of the research survey took place electronically through Google Docs™. Dissemination followed a specific trajectory: emailing all the school principals in eligible primary schools in Ireland and asking them to distribute the questionnaires if they permitted staff to complete them. Once the participants opened the document, they had to read through a detailed information sheet which set out the criteria necessary to complete the survey; by ticking the box, they agreed to the criteria and gave informed consent (Appendix 6).

Principals and teachers had the opportunity to reflect on the study information and provided informed consent (sample in Appendix 5 and Appendix 6). All participants were fully informed of the potential risks and benefits of the project and furnished with the option for withdrawal (Mertens and McLaughlin 2004). Felzmann *et al.* (2010) propose that to conduct research, it is the responsibility of the researcher to always be mindful of the need to both protect and respect the participants. The research gained ethical approval from Mary Immaculate Research Ethics Committee, available in Appendix 21, before the participants were

contacted, and adhered to the relevant legal, professional and ethical standards outlined in these guidelines.

During the research, and in curating the findings and discussion, it was ethically important to ensure that all participants remained anonymous and unidentifiable, as discussed below.

6.11.2 Efficacy

The design of the research study involved the participation of teachers sharing their expertise and opinions on teaching SCC to autistic children. In research, ‘beneficence requires researchers to assess and balance risks and benefits’ (Strike 2007, p.69). The study created a sharing environment for teachers to relay their experiences teaching SCC to autistic children. A sociocultural theoretical approach applied to the research added ‘comprehensiveness and cohesion as well as bolster[ed] human connectivity and compassion’ (McBride 2011, p.8). The research produced information from teachers for teachers regarding EBPs used in schools. The researcher promoted a positive experience with clear information letters and a data collection instrument that was easily accessible and had clear, concise questions, so the teacher participants that volunteered to engage in the project felt valued and included. Providing clear information sheets and an email address for participants to seek any clarity promoted efficacy. The methods used in the research to address ethical issues reflected the ideal that ‘educational research must be underpinned by respect for others and the intention to achieve positive change’ (Atkins and Wallace 2012, p.45).

6.11.3 Right to Privacy

The study carefully adhered to the principle of the participants' right to privacy. The researcher was cognisant of the moral issue of placing people's professional and private lives in the public domain (Brinkmann and Kvale 2005). The participants are not identifiable in the research as their names are anonymised using ID numbers and their schools referred to numerically according to category. It is also important to address gender issues in relation to privacy, so the teachers involved had a title and numerical pseudonyms, such as SET1. We must reconcile these privacy rights, according to Atkins and Wallace (2012), if the research will be available in the public domain. The participants were given clear information before they engaged with the survey, so they felt informed and reassured.

6.12 Macro Ethics

To address the macro ethics components in the study, the researcher was concerned with documenting all affecting variables to provide a truthful representation of how data collection took place from all aspects involved (Mertens 2015). The documentation of the process ensured others had in-depth knowledge to trust the outcome of the study (Stahl and King 2020). Table 19 details the methods that were used to promote trustworthiness in the research process.

Methods Adopted to Promote Trustworthiness	
Validity and credibility	Mixed-methods convergent triangulation. Comprehensive codebooks from both quantitative and qualitative analysis produced. Critical friend support. Rich description and account of the research process as a whole, including analysis process.
Trustworthiness and dependability	Mixed-methods, convergent triangulation of data. Systematic audit trail through both types of data.
Objectivity and confirmability	Consistent methodological use of all the above. Accounting for researcher bias.

Table 19: Methods Adopted to Promote Trustworthiness

6.12.1 Validity and Credibility

Addressing the methods of data collection proposed also accounted for how the researcher, imposed standards of quality on generated data. ‘Quality of research’ refers to both ‘internal criteria such as validity, reliability, and trustworthiness and external criteria such as the relevance and usefulness of research-based knowledge for practice and policy-making’ (Tangen 2014, p.679). Validity of the research is aligned with the possibility of generating reproducible findings and whether the research is consistent throughout (Brinkmann and Kvale 2018). In mixed-methods research, it is important to account for standards of quality in both the quantitative data (validity) and the qualitative data collections (credibility) (Tashakkori and Teddlie 2009). From the outset, the researcher was mindful to meet the highest standards in relation to the validity of the study. Research Integrity Training was completed by the researcher through the Epigeum training programme in 2019 in advance of the study design and

data collection. The research integrity training programme promoted responsible research standards, so that high integrity ideals are achieved in research (Epigeum 2023). Furthermore, in terms of the validity of data, the researcher used the systematic review to construct the criteria for data collection. This process provided a foundation for content validity, where data measured was rooted in systematic research. Furthermore, the results can be compared to the original research by means of convergent validity, or the ‘degree to which the measurement outcomes representing a construct agree (are consistent) with other indicators of the same construct’ (Tashakkori and Teddlie 2009, p.184).

Credibility in qualitative research refers to the trustworthiness of data findings produced (Lincoln 2009). Research findings must adhere to the principle of truth and correctness, and must be valid in their claims (Brinkmann and Kvale 2018). The processes of interpretation and of embedding both qualitative and quantitative data together to enhance credibility (Patton 2014; Levitt *et al.* 2018) promoted integrity in the study. The study adopted a systematic process throughout, from the literature review, through the phases of data collection and into the analysis, to ensure that the research gathered the requisite data. A detailed audit trail was produced for both the quantitative and qualitative analysis phases, with evidence made available throughout which promoted credibility for the method used. Brinkmann and Kvale 2018 (pp.142–143) highlight that validity of research ‘pertains to the degree that a method investigates what it is intended to investigate’; to do so, the researcher engaged in ‘continually checking, questioning, and theoretically interpreting the findings’, which was done through the sociocultural theoretical lens.

6.12.2 Trustworthiness and Dependability

The study was rooted in a systematic literature review which clearly signposted the research path to account for the EBPs that emerged. The review was registered on PROSPERO, having undergone a peer-review process. The PROSPERO database has created an international database of prospectively recorded systematic reviews in different disciplines. Its aim is to provide

[a] comprehensive listing of systematic reviews registered at inception to help avoid duplication and reduce opportunity for reporting bias by enabling comparison of the completed review with what was planned in the protocol.

(PROSPERO 2020)

Trustworthiness was promoted through the confirmability of research, which demands that ‘findings are corroborated or confirmed by others who examine the data, which reduces inappropriate biases impacting on data analysis’ (Korstjens and Moser 2018, p.121). The researcher sought confirmability of data by engaging in ‘audience validation’ (Brinkmann and Kvale 2018, p.145) or by checking the research with a critical friend. The process was important to provide unbiased advice and critique (Creswell and Plano-Clark 2018) and ‘critical common-sense understanding’ (Brinkmann and Kvale 2018, p.145) that assured that confirmability happened in the research (Mwangi and Bettencourt 2017; Levitt *et al.* 2018). The convergent mixed-methods research design adopted throughout the study gave ‘strength of confirmatory results drawn from quantitative multivariate analyses, along with deep structure explanatory descriptions as drawn from qualitative analyses’ (Castro *et al.* 2010, p.342). These variables were all made transparent through the codebooks, which were produced to provide evidence of the different stages of analysis. The guidance provided by Pallant (2006) for the quantitative

analysis ensured that the researcher followed a systematic procedure to analyse the quantitative data. The RTA process from Braun and Clarke (2022) provided for the forensic distillation of data through a coding process that saw fifty-seven initial codes collapsed to twenty-eight candidate codes; these were further distilled to eight emerging categories of codes, which produced four final themes. (Evidence for this is made available in the audit trail in Appendices 12 to 20.)

6.12.3 Objectivity and Confirmability

Throughout the study, the researcher remained cognisant of the fact that ‘experience must be interrogated; the production of knowledge itself analysed’ (Henry 2006, p.349). Consistent analysis of the research, by adopting a systematic approach, was effective to curtail the invested attitudes of the researcher in the process. This reflective practice is more than a narrative detail, as the key component was the researcher accounting honestly for their place and influence in the study (Creswell and Poth 2018). As the primary instrument of data collection, the researcher accounted for bias by putting data analysis through the sociocultural theoretical lens. Data were generated ‘first on the social plane (interactions with others) and then on the psychological plane’ (Wang *et al.* 2011b), within the researcher. Efficacy to the theoretical perspective and the pragmatist paradigm led the researcher to take an active role in data collection and analysis, which meant planning for researcher bias in the procedure. Furthermore, the study was rooted in evidence and literature from the outset, gained from the systematic literature review. Obtaining the relevant evidence to inform data collection through the systematic review promoted trustworthiness and authenticity in the process (King

et al. 2018). However, to ensure the credibility of the research, addressing reflexivity was also important.

6.12.4 Reflexivity

Reflexivity refers to the extent to which researchers make their personal values and beliefs explicit in the research report (Yilmaz 2013). As a pragmatist, the researcher was part of the creation of the information and should not be viewed as a passing observer. As a SET, this researcher had a stake in the proposed study. Therefore, to attend to the bias component, several reflexive factors were filtered into the study. From the outset, the researcher informed the participants of her position and keen interest in the study. Creswell and Poth (2018) advocate that the researcher openly discuss their role and position themselves within the research. The researcher's work came under the scrutiny of an academic critical friend to ensure the best outcomes for all involved. The literature describes the idea as using dual vision for reflection on practice (Kelly 2006), and consideration for this filtered throughout the analysis of the research as it progressed. The reflective practice and self-monitoring of the researcher within the study by pilot testing the research instrument over phases fostered a stronger trustworthiness in the findings of the research, in addition to the learning afforded by the pilot. Adopting a mixed-methods convergent research design helped promote the reduction of bias through the quantitative aspect of the research. Marrying this to the qualitative aspect using RTA (Braun and Clarke 2022) meant the researcher had to be forthcoming about the vested interest and role in analysis, which was accounted for in the reflexive journal. At all times the researcher has made known her role in each of the stages and processes in order to be reflexive and open.

6.13 Limitations of the Study

Considering the limitations of the study in advance was an important measure to ensure the researcher was mindful of the focus of the research and adhered to the guidelines noted for validity and trustworthiness. Educational research often faces a dilemma ‘between the legally and morally binding principles of protection of participants on the one hand, and the standards and criteria of quality and relevance of research on the other’ (Tangen 2014, p.678). Earlier discussion in the chapter highlights the importance of maintaining critical standards of self within the research, but it worth reiterating that the researcher kept to the aims of the study.

Extensive discussions throughout the literature note the limitations of both quantitative and qualitative research methods (Bell 2010; Mertens 2015; Bryman 2016; Creswell and Plano-Clark 2018). These writers describe limitations as flaws, but in this study, the limitations were assuaged through the mixed-methods research design adopted, which combined analyses to provide more robust answers to research questions (Turner *et al.* 2017). The convergent mixed-methods research design used has the advantage of including ‘straightforwardness and opportunities for the exploration of the quantitative results in more detail’ (Ivankova *et al.* 2006, p.2), ensuring a reduction in the number of limitations.

The research focused on teachers working with autistic children between the ages of four and eight. This can be construed as a limitation, as the research confined itself to a specific age bracket of children and teacher audience. Readers should factor this in when reading the recommendations. Capturing teacher perspectives on teaching SCC to autistic children provides an honest account that

reflects what teachers are experiencing and creates educational discourse related to the learning and teaching for young autistic children. The study adopted a single mode of data collection, one that contained both types of data, in response to the global Covid-19 crisis at the time. Consideration was originally given to the idea of gathering qualitative and quantitative data sequentially from the same respondents, but due to the societal changes it was decided to combine the methods into one data collection mode in order to gain as great a response as possible. The single data collection mode can be considered a limitation, but the design and thorough analysis was implemented to offset the concerns. In other studies, researchers may wish to engage with additional data collection modes in a more exploratory design. However, for the purposes of answering the research questions in this study, the cross-sectional survey was appropriate.

The sociocultural theoretical framework applied also has its limitations. The theory emphasises the role and place of the teacher and others supporting children's learning. Thus, the participants in this study were chosen specifically for generating knowledge on the use of EBPs to teach SCC to autistic children and were treated as MKOs. In other studies, different participants may produce different findings; when adopting the sociocultural theoretical framework, carefully 'selecting appropriate participants to suit the aims of the research or course design is very important' (Wang *et al.* 2011b, p.305). Researchers have documented the lack of use of EBPs to support autistic children by teachers in their work (Barry *et al.* 2021). The primary focus in this study, however, was to take the EBPs highlighted as supportive of SCC learning for autistic children and see how teachers experienced and used them. This may be considered a limitation as only eight EBPs,

drawn from the systematic review, were chosen as they had been researched in the classroom, as opposed to in clinic settings. Further studies may wish to include the full range of EBPs but for the focus of this study the practices incorporated were specific to the classroom and deemed effective by empirical studies.

6.14 Conclusion

Chapter Six has provided a detailed account of the research study exploring teachers' perspectives on effective EBPs for learning and teaching SCC to autistic children in early years Irish classrooms. The chapter has provided a detailed overview of the methodological approach used in this study. The overall aims and embedded questions are key to the methodology design and feature throughout. Adhering to the advice on thinking through a study from beginning to end (Stake 2010), this chapter has endeavoured to map out coherently each stage of the research process for the reader. A thorough discussion provided a detailed rationale for utilising a mixed-methods analysis, framed by a pragmatist epistemology. The chapter discussed the survey design as the methodological tool used in the mixed-methods study. Furthermore, the survey took the evidence produced from a thorough literature review and mapped the results onto the practice of teachers working with autistic children on SCC. Data produced served to capture the experiences and perspectives of a wider audience of teachers, which was in line with the study design (Almalki 2016).

Both the quantitative and qualitative data collection elements were subjected to rigorous analysis to produce valid and trustworthy evidence that added to the field of education research. Through a sociocultural theoretical lens, the pragmatic researcher believes the power of sharing experience for knowledge creation is imperative

(Vygotsky 1978; Hudson *et al.* 2016) and provided such a platform for teachers, one which can potentially positively impact on the learning and teaching of SCC for autistic children. Reflecting on the practice and highlighting the key aspects identified by the teachers in their role as MKOs espoused the sociocultural theory, which is further detailed in Chapter Eight. Chapter Seven will present analysis from the convergent mixed-methods research design, whereby quantitative data and qualitative data were collected simultaneously but analysed separately.

CHAPTER SEVEN

PRESENTATION OF FINDINGS

7.1 Introduction

Chapter Six discussed and defined the overall research and embedded questions. The methodological approach designed to answer these questions, which incorporated a convergent triangulation mixed-methods research design, was detailed. Through prolonged data analysis of quantitative data and subsequent analysis of qualitative data, the researcher refined the findings from both methods, with interpretative analysis. To address the research question, the mixed-methods survey captured a broad national sample and provided an account of teacher experiences and perspectives using evidence-based practices (EBPs) for teaching social communication competency (SCC) to autistic children. Guided by the literature, the researcher followed data preparation procedures to ensure that all data were accurate (Swift 2006) initially, and then analysed the information using the SPSS and NVivo software programs. The adoption of a convergent research design determined a specific strategy whereby the analysis of quantitative data and the analysis of qualitative data were treated separately, and then integrated to produce findings (Levitt *et al.* 2018). Descriptive statistics of the quantitative data were used initially to uncover the relevant information for the research questions (Mertens 2015). Subsequently, the inferential analysis of the survey results highlighted interesting features of the data which warranted further detailed investigation with the qualitative analysis. Inferential statistical analysis facilitated the ‘quantifying and illustrating of relationships’, which is known as the ‘bedrock of psychological research’ (Howitt and Cramer 2020, p.91). Afterwards, the qualitative

information extrapolated was processed with RTA, following the guidelines set down by Braun and Clarke (2022). Both sets of findings were further subjected to interpretive analysis, which uncovered rich, relevant information. In accordance with recommendations from experts in the field of education research, the presentation of statistics gathered from the quantitative data is presented separately to the analysis of the qualitative data (Mertens 2015; Creswell 2019; Creswell and Guetterman 2021).

7.2 Findings and Analysis Phase One – Quantitative Results

To address the research question, the survey was designed to capture teacher perspectives on EBPs for teaching SCC to autistic children. The analysis began with descriptive statistics representing some of the demographic information, preparing data and revealing key elements for further analysis (Brace *et al.* 2016). The descriptive statistics were important as they uncovered relevant information and helped develop hypotheses for inferential analysis (Mertens 2015; Pallant 2016). As outlined in Chapter Six, the study was guided by the overarching research question and supporting embedded questions; these are noted as the key areas of investigation and are detailed in Figure 41.

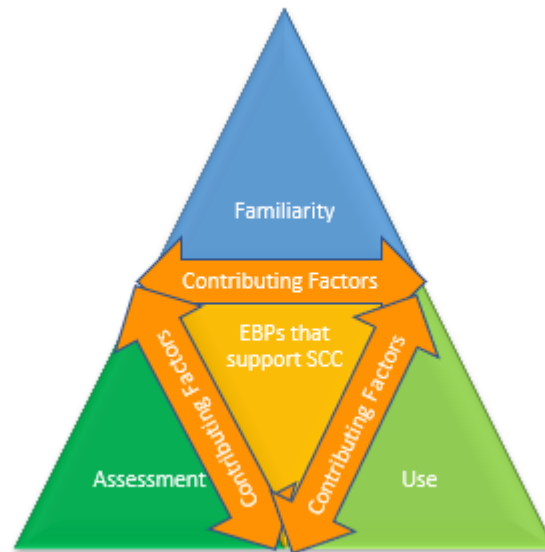


Figure 41: Key Areas of Investigation

The embedded questions, noted in Section 6.2, guided the development of the headings for the analysis; this included ascertaining the familiarity, use and assessment of EBPs, as outlined in Figure 41, with contributing factors to each component framed as key elements to identify. The pertinent information relevant to revealing answers to these questions, drawn from data analysis, is detailed below.

7.2.1 Descriptive Statistics – Demographic Information

Demographic information provided the research with a contextual representation of the research participants (Mertens 2015) and key information related to their experience and teaching roles, which was used in the analysis. The information gleaned through the demographic questions was important in establishing a reference point regarding the experience and eligibility of the respondents to complete the survey, which contributed to the rigour associated with outcomes (Creswell and Guetterman 2021).

Data are presented to provide some background information of the study respondents and their experience with Autism Spectrum Difference (ASD).

The distribution of teacher surveys to 3,125 primary school principals in Ireland took place in May 2020. The survey was closed with 393 responses in total. In the preparation process of the raw data, eleven outliers in total were identified, leaving 382 responses for analysis, as discussed in Section 6.7. Survey sample characteristics provided the variables measuring the demographic information about the participants (Creswell and Guetterman 2021). These are detailed first to present an overall profile of the research participants from the national survey response.

Demographic Survey Data		
Teacher Respondent Role		
	Frequency	Percent
Mainstream class teacher	148	38.7
Teacher in a mainstream special class for children with ASD	75	19.6
Special education teacher supporting children with ASD	153	40.1
Other	6	1.6
Total	382	100
Teacher Respondent Experience Working with Autistic Children		
	Frequency	Percent
1–3 years	120	31.4
4–6 years	90	23.6
7–9 years	51	13.4
10–12 years	39	10.2
12+ years	82	21.5
Total	382	100

Table 20: Teacher Roles and Experience

Table 20 shows that 39% (n=148) of respondents were mainstream class teachers (CTs), 20% (n=75) of respondents were mainstream special class teachers (SCT) and 40% (n=153) of respondents were working as special education teachers (SETs). These teachers provided information on their experience in supporting autistic children, with 22% (n=82) of respondents amassing over twelve years of experience. Comparing the roles of teachers and their experience required furthering the descriptive statistics and using cross-tabulation to illustrate the relationship between the teacher's role and their experience in supporting autistic children. The results from that analysis are presented in Figure 42. From this dataset, we can see that CTs and SETs had most experience in supporting autistic children, with SCTs having the least amount overall. Furthermore, the results show that 31% (n=120) of the teachers surveyed had less than three years of experience teaching autistic children, as depicted in Figure 42, which was the highest category variable overall.

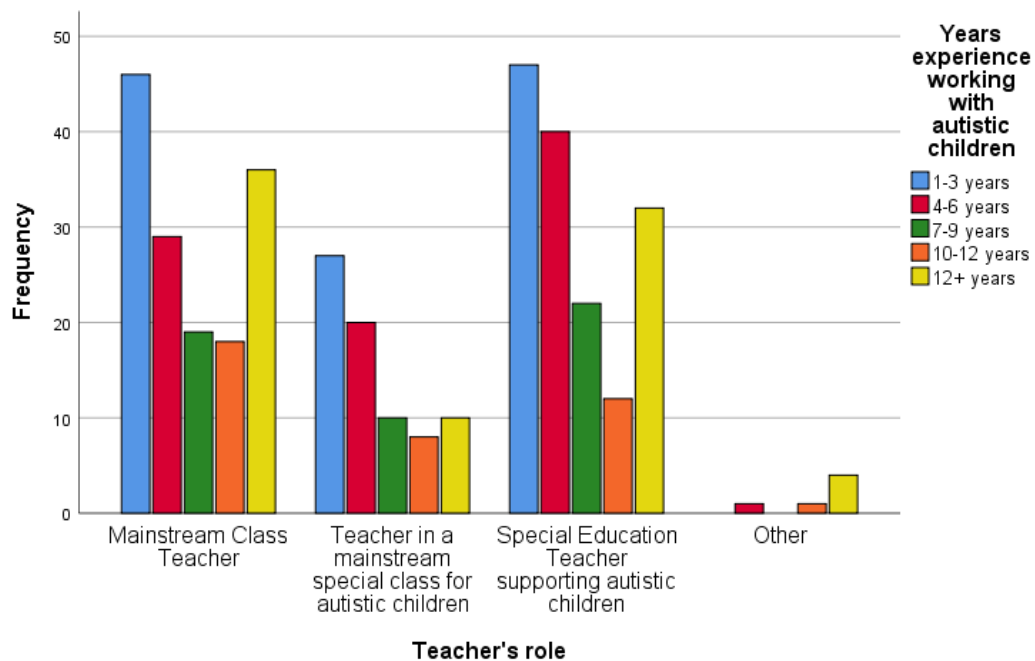


Figure 4236: Teacher Experience in Relation to School Role

The survey sought out information regarding teachers' use of EBPs to support autistic children in developing SCC. Relevant data were gathered from the outset to ascertain if teachers were supporting SCC development. The systematic literature review and the SCC list by Westwood (2015), which captured much of the relevant extant literature, served as the basis of the responses from the teachers, as presented in Figure 43 below. Data extrapolated clearly indicates that teachers surveyed saw merit in teaching SCC to autistic children, with taking one's turn the most taught competency, as identified by 93% (n=354) of respondents, and smiling accounting for the lowest number, with 47% (n=180) of teachers teaching it.



Figure 373: Frequency of Social Communication Competencies Taught

A total of twenty-one SCCs were presented to the teachers and the response was indicative of a commitment to supporting such social development for autistic children.

Furthermore, in relation to the commitment of teachers to supporting SCC, questions were posed regarding the proportionality of teaching time dedicated to this form of learning and teaching. The results depicted in Figure 44 indicate that 68% (n=261) of respondents taught SCC to autistic children daily and a cumulative 78% (n=296) of teachers taught SCC more than three times per week, with SCC.

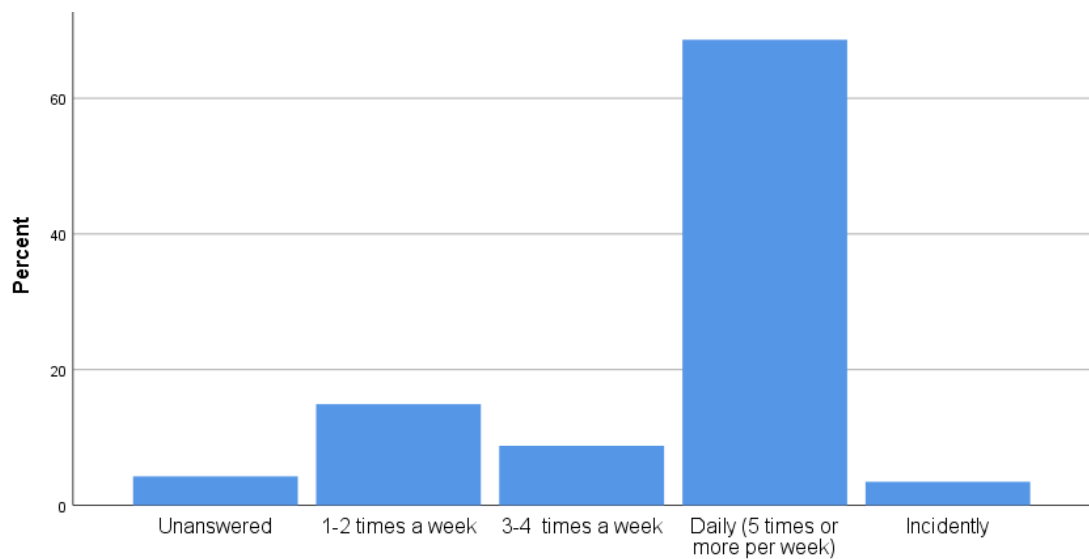


Figure 384: Time Spent by Teachers on Social Communication Competency

Analysis of 382 responses and eight different EBPs involved corroborating 3,056 responses overall. Data showed that across the eight types of EBP, each respondent identified using at least one, which confirms that from the sample 100% (n=382) of respondents used an EBP to support SCC learning in their settings overall. Figure 45 below provides a breakdown of the EBPs adopted by the teachers. From the sample of 382 respondents, modelling was the most prevalent EBP, with 98% (n=374) of respondents using it to teach SCC to autistic children; only 13% (n=51) had used pivotal response treatment, the least used EBP. Apart from modelling, prompting and

using social narratives were the next most used EBPs, with pivotal response treatment and video modelling identified as the least used EBPs.

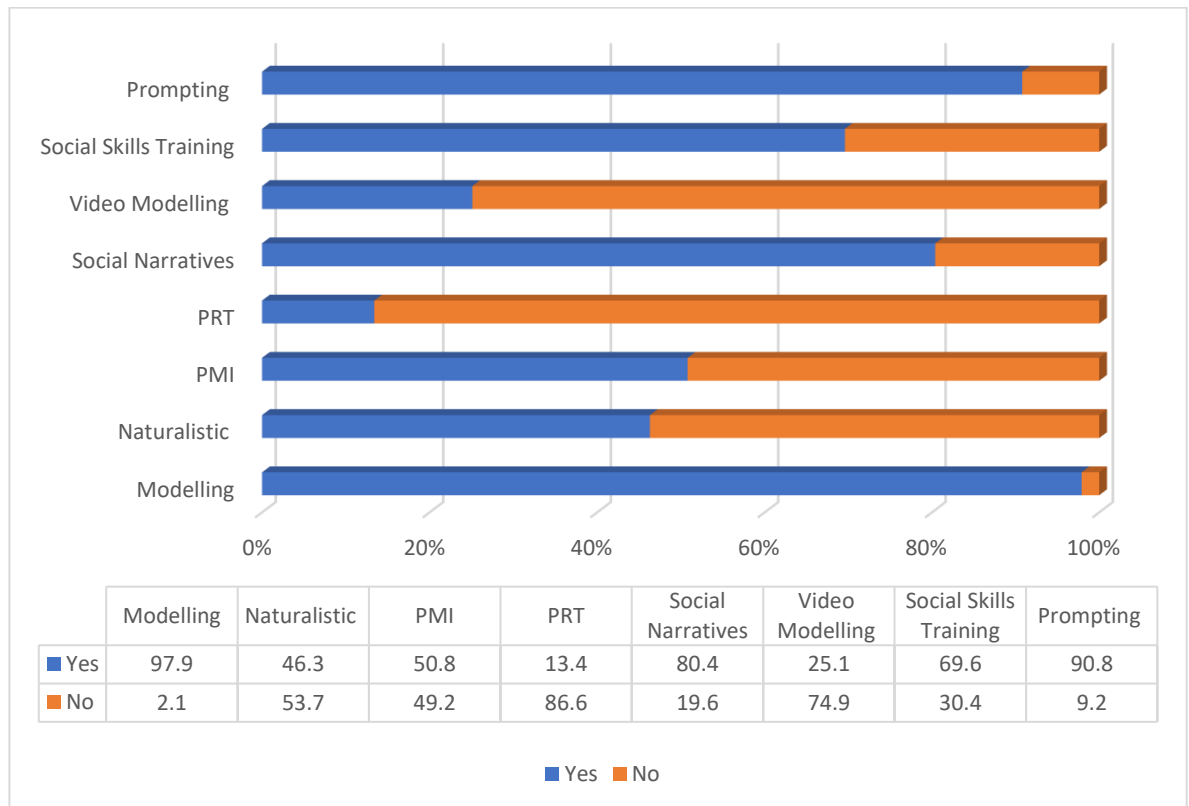


Figure 45: Frequency of Evidence-Based Practices Used by Teachers

Analysis of data in respect of the teacher’s role showed that similar perspectives on the most effective EBPs were evident across the sample. The chart in Figure 46 below details how modelling, social skill training and social narratives were the most effective EBPs according to the teachers overall, and that video modelling and pivotal response training were deemed least effective.

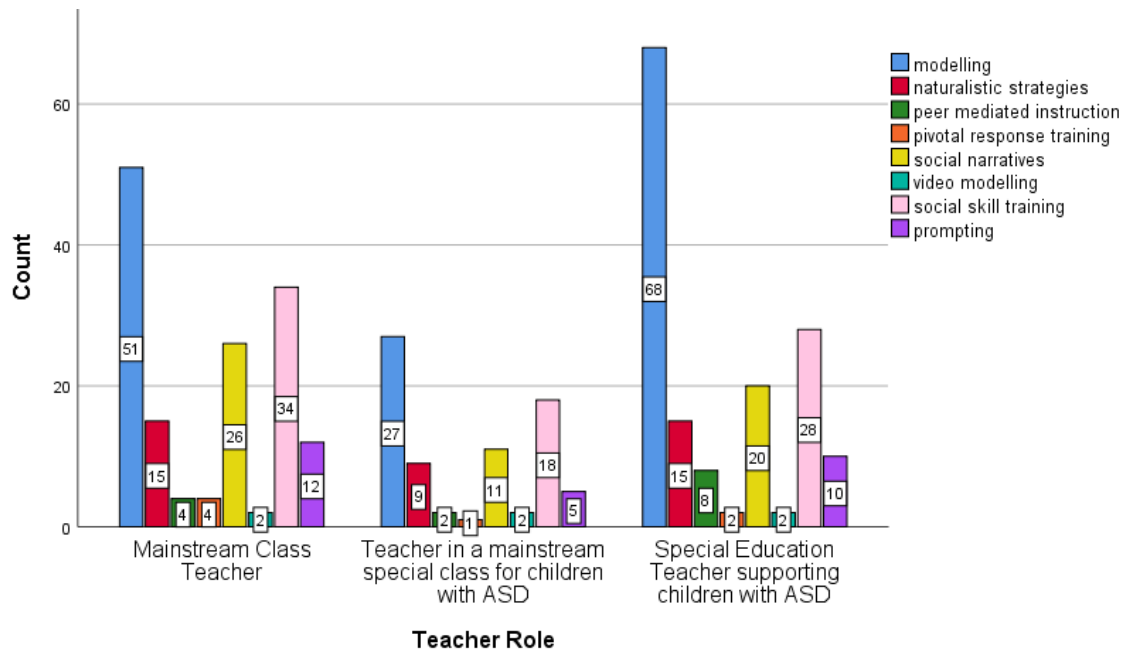


Figure 396: Effectiveness of Evidence-Based Practices According to the Teacher Role

The descriptive statistics presented an interesting snapshot of the survey responses. Further statistical analysis was warranted to investigate the familiarity, use and assessment of the EBPs to teach SCC among teachers of early years autistic children.

Analysing data and extrapolating the correct information required the development of research hypotheses for inferential statistics. A hypothesis is used in statistical analysis to ‘predict that there will be a difference between conditions, or that there will be an association between variables’ (Brace *et al.* 2016, p.4). The variables considered in the study were twofold. The dependent variable was identified as the characteristic of the study that is affected by an independent variable or attribute (Jupp and Sapsford 2006). The dependent variable identified in the study was the adoption of EBPs by teachers. The independent variables were the antecedent factors that affect the adoption of EBPs and were noted as teacher role, school setting and assessment. The

independent variables were identified as they aligned the embedded questions set down for the study. Furthermore, for the purposes of testing the hypotheses on the variables, it is important to note that the null hypotheses (H0) were also identified for the study, which specifies that there is no statistical difference in relationship between variables (Creswell and Guetterman 2021).

7.2.2 Teachers' Familiarity with Effective Evidence-Based Practices that Support Social Communication Competency Learning for Autistic Children

The first research question sought to uncover teachers' familiarity with the use of EBPs to teach SCC to autistic children and whether the teacher's role impacted the adoption of EBPs. The findings detail that 100% of the respondents (n=382) indicated that they used at least one of the EBPs to support SCC for autistic children in their schools. In order to account for variance in the teacher role, only the three categories – CT, SCT, and SET – are included for the analysis; this removes six further variables in the 'other' category, where respondents had more than one role in the school and were the administrative principals. The total number analysed in this section is 376.

To extrapolate pertinent information in relation to teacher familiarity, it was important to set down parameters of expectations. Familiarity in this context referred to teachers' conceptual knowledge, or their understanding of EBPs. In order to measure their understanding across the EBPs, a range of EBP variables was created from the dataset as some teachers used more than once. The variable houses the number of EBPs that were known to each of the teacher respondents. Recent research has highlighted that teachers have little knowledge and understanding of EBPs (Barry *et al.* 2021), but acceptance of such finding is dependent on teachers all having the same understanding

and accuracy in terms of EBP definition. In this study, it was important to ascertain the knowledge that teachers have across the range of eight EBPs, before and after they were provided with a clear definition, mitigating against extenuating factors in the comparability of respondents' understanding. The researcher also notes that the assumptions of normality were considered for the sample statistics. As the sample size is large, the Central Limit Theorem accounted overall for any non-normality that may exist when the sample size is >30 ($n=376$) (Field 2009, p.782).

The following hypothesis was tested and analysed:

H0: The teacher's role has no impact on their knowledge of the EBPs to support SCC learning for autistic children in early years classes.

H1: The teacher's role has an impact on their knowledge of the EBPs to support SCC learning for autistic children in early years classes.

Teachers were asked to indicate whether they used each of the eight EBPs in their teaching initially. Data were then correlated to form a range of EBPs without definition variable that encapsulated all the responses to the eight EBPs. Subsequently, the teachers were provided with a definition of each of the EBPs, in the second section of the survey, and asked again if they adopted the EBP. The responses were then correlated into a range of EBPs with definition. A repeated measures ANOVA was performed to analyse the effect of range of EBPs with definition and the range of EBPs without definition on the teacher role. As there are only two measures for consideration, tests of sphericity were assumed. The effects of definition across the teacher role detail a significant statistical result. Tests of Within-Subjects contrasts (see Appendix 22) show that the definition led to a change in EBPs reported by teachers ($F = [57.56]$, $p = [<.05]$, $\eta_p^2 = [.13]$) and this differed by the role of the teacher ($F = [6.85]$, $p = [<.05]$, $\eta_p^2 = [.04]$). Analysis on the range of EBPs adopted, across the teaching roles, detailed

that there was a discrepancy in results between teachers having a definition of the EBP or not. Post hoc analysis with a Bonferroni adjustment outlined the interaction effect between the variables. A pairwise comparison (see Appendix 23) revealed that the effect change between range of EBPs with and without definition had a statistical impact on CTs (1.26 (95% CI -.96 to 1.56) $p = <.05$) and SETs (.71 (95% CI, .47 to 1.00), $p = <.05$), but no impact on SCTs (.33 (95% CI, -.09 to .75), $p = >.05$). Figure 47 below presents the estimated marginal means plot of each of the individual roles and provides a visual representation of the effects of definition on the teacher’s familiarity and conceptual understanding of the EBPs. Notably, the point of understanding depicted by the plot converges on a similar point, which is indicative of an acute response across the three teaching roles.

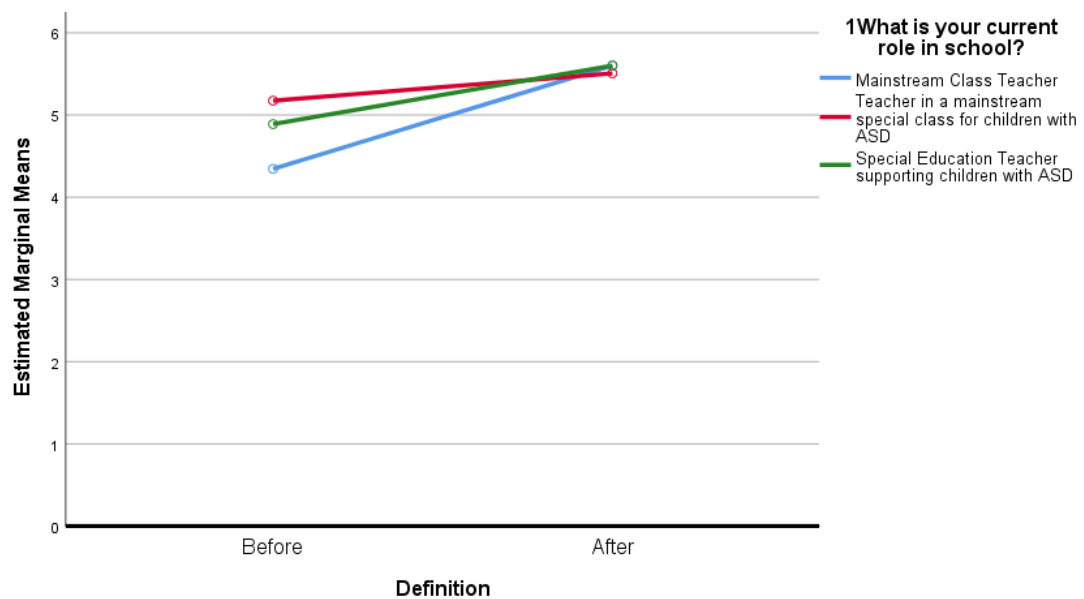


Figure 47: Estimated Marginal Means of Teacher Role

Further to this, non-parametric correlations were conducted to ascertain if the number of years of experience of the teacher respondents had any impact on the teacher’s

adoption of the EBPs. Spearman's Rho correlation (see Appendix 24) was computed to assess the relationship between teachers' years of experience and the range of EBPs without definition. There was no statistically significant correlation between the two variables, $r(374) = [.03]$, $p = [.551]$. Spearman's Rho was also conducted to assess the correlation between the teacher's years of experience and the range of EBPs with definition (see Appendix 25). Results indicate a statistically significant relationship between the two variables $r(374) = [.13]$, $p = [.015]$, which confirms that the years of experience has a positive impact on the teachers' understanding of the EBPs defined.

The chart in Figure 48 below depicts the level of effect that providing a definition had on teachers' identification of the use of EBPs. Noticably, video modelling, social narratives, social skills training and pivotal response training were the EBPs that were impacted most by the definition. Teachers identified having more familiarity with these EBPs once they understood what the terms meant.

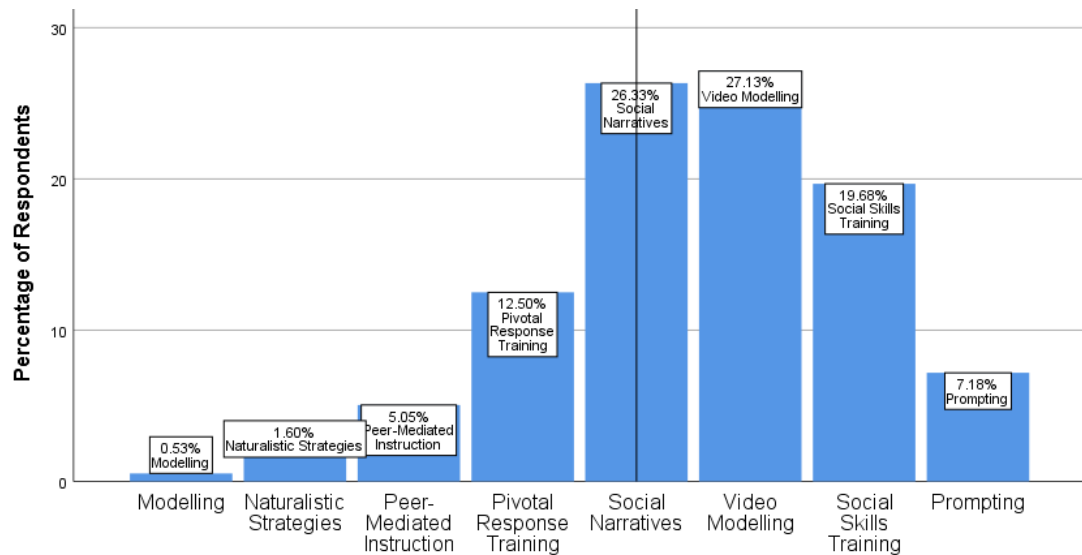


Figure 408: Cross-Tabulation of Difference Between Evidence-Based Practices Defined and Undefined

Findings indicate how teachers reacted differently once they were provided with a definition of the EBPs. It was considered important to ascertain how having this definition was influential across the teacher roles.

7.2.3 Use of Evidence-Based Practices to Develop Social Communication Competency for Autistic Children

The second research question was concerned with ascertaining how teachers were implementing EBPs to support autistic children learning SCC in schools. The researcher sought to identify the contributing factors in relation to EBP use in an effort to support the understanding for others and provide the teachers with a platform to delineate their practice and the use of EBPs outside of clinical settings and in the schools. The hypothesis proposed tests if there was a statistical significance between the school setting (where) and the adoption of EBPs. The following hypothesis is tested:

H0: School setting has no impact on the use of defined EBPs to support SCC learning for autistic children in early years classes.

H1: School setting has an impact on the use of defined EBPs to support SCC learning for autistic children in early years classes.

Teacher respondents were asked to identify areas in the school where they had implemented EBPs. The options provided included: in a mainstream class; in a special class; in a SET room; in the yard; outside school on outings; and a combination of settings. Data were combined into a variable specific to the range of settings from each EBP. This was then measured against the range of defined EBPs overall adopted by the teachers as they were asked about the setting only once they had read the definition.

Results from a one-way repeated measures ANOVA (see Appendix 26) showed that the adoption of EBPs was affected by school setting. Mauchly's test of sphericity was violated $\chi^2(14) = 1233.01, p < .05$; therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .723$). The results showed that the adoption of EBPs by the teachers was impacted by the settings within the school $F(4, 1354.89) = 169.98, p < .05$. The results indicated that the null hypothesis is rejected and the alternative, that school setting has an impact on EBPs adopted, is accepted. Teachers were asked to identify the specific areas in which they had adopted EBPs for SCC in the school. Figure 49 shows the mean use of the settings across the teacher roles overall.

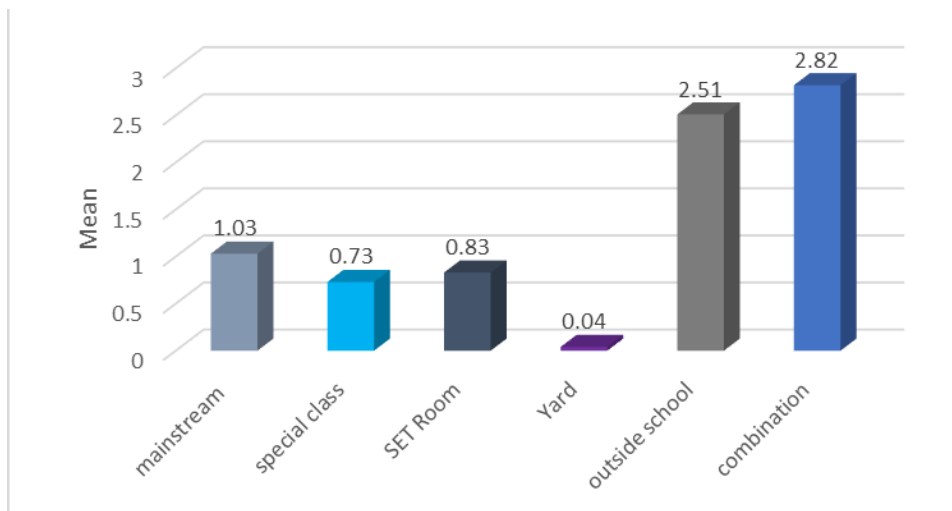


Figure 419: Chart of the Mean Range of Settings Adopted by the Respondents

A post hoc, pairwise comparison was used to identify specific areas of statistical significance in relation to the adoption of defined EBPs. The Bonferroni correction was applied in order to reduce the chance of a Type 1 error across multiple comparisons. Analysis of data indicates that in relation to teacher preference, ‘outside school’ ($p < .05$) and ‘combination’ ($p < .05$) produced statistically significant results when compared with mainstream, special class and SET room, respectively. Therefore, we can conclude that the results for the ANOVA indicate a significant effect on the adoption of EBPs in school settings, including outside the classroom and a combination of settings.

In order to ascertain how the teachers were implementing the EBPs to support SCC learning for autistic children in schools, they were asked to indicate the instructional strategy most appropriate to the adoption of EBPs. They were provided with five options across the eight EBPs: small group teaching; whole class teaching; lunchtime instruction; one-to-one instruction; and a combination of

instructional strategies. Each of the strategies was counted across all eight of the EBPs and presented as a range of how the EBPs were adopted.

The following hypothesis was tested:

H0: Instructional strategy has no impact on the use of EBPs to support SCC learning for autistic children in early years classes.

H1: Instructional strategy has an impact on the use of EBPs to support SCC learning for autistic children in early years classes.

The range of each instructional strategy was then measured against the teacher's adoption of EBP with definition range. The results from a one-way repeated measures ANOVA showed that the adoption of EBPs was affected by the instructional strategy. Mauchly's test of sphericity was violated $\chi^2(9) = 1131.72, p < .05$; therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .446$) (see Appendix 27). The results showed that the adoption of EBPs by the teachers was impacted by the instructional strategy the teachers use to implement the EBPs, $F(2, 669.08) = 776.37, p < .05$. Analysis states that the null hypothesis is rejected and the alternative, that instructional strategy has an impact on the use of EBPs, is accepted. The combined instructional strategies detailed by the teachers are presented in the graph in Figure 50 below. Overall, teachers identified that using a combination of instructional strategies favoured the implementation of the EBPs.

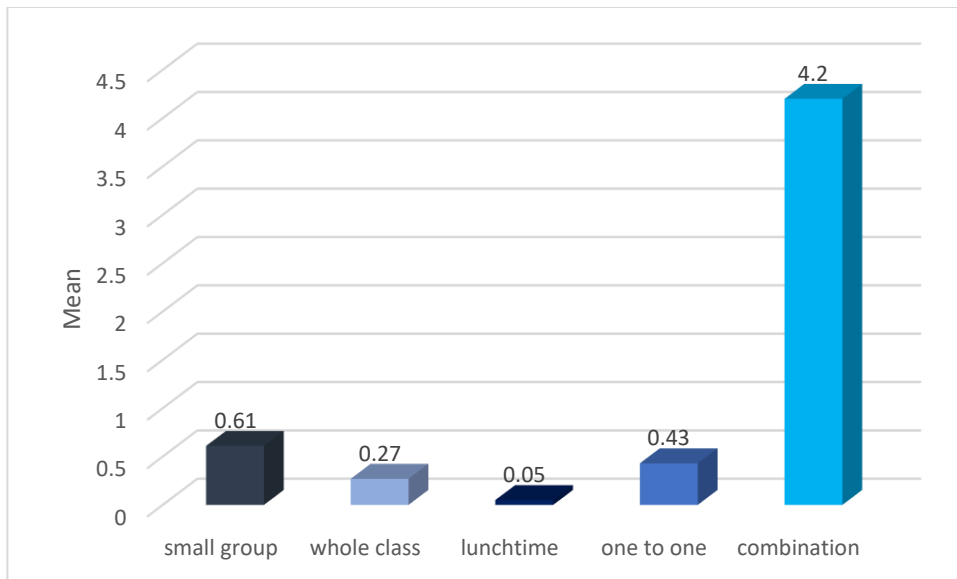


Figure 50: Graph of Mean Range of Instructional Strategies Adopted

A post hoc, pairwise comparison using the Bonferroni correction showed the adoption of EBPs across all the instructional strategies. As expected, there was no statistical significance between whole class and one-to-one ($p > .05$), meaning that teachers do not adopt both. Overall scores indicate that the most favourable choice involved implementing the EBPs through a combination of instructional strategies. It was then deemed important to seek out how teachers were assessing the EBPs.

7.2.4 Assessment and Evidence-Based Practices to Develop Social Communication Competency for Autistic Children

In the current study, teachers were asked to indicate their use of assessment to support EBP use for autistic children learning SCC. The results show that 75% ($n=282$) of teachers overall used assessment; however, 42% ($n=158$) reported having difficulty with assessment of SCC in autistic children. Teachers were asked to identify the types of assessment they were familiar with using. In order to ascertain the overall use of assessment across the teacher roles, a range of assessment variable was used in the

analysis. The findings are detailed in Figure 51 below. Summative assessment, including teacher-designed assessment, was most favoured, with 34% (n=12) of teachers across the range of assessment identifying with this as their preference. Diagnostic assessments, which included standardised SCC assessments, were adopted by 25% (n=94) across the range. Formative assessments, including those that come with specific social communication programmes, were adopted by 13% (n=49) of the respondents. Only 4% of the teachers used a parental questionnaire and 24% indicated that they used none of the above.

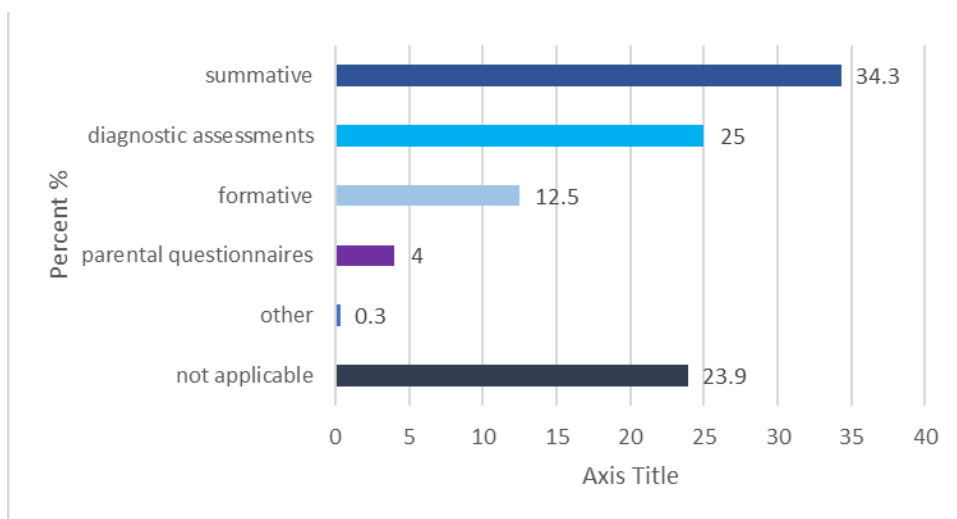


Figure 51: Range of Assessment Use Across Teacher Roles

In order to further understand the current practice of teachers using assessment to support autistic children learning SCC, the following hypothesis was then tested:

H0: The teacher's role has no impact on assessment of EBPs to support SCC learning for autistic children in early years classes.

H1: The teacher's role has an impact on assessment of EBPs to support SCC learning for autistic children in early years classes.

A chi-square test of independence was performed to examine the relationship between the teacher role and assessment of EBPs. The teacher roles included CT, SCT and SET. In the survey, respondents who identified using assessment to measure the effectiveness of the EBPs on children’s SCC were provided with five assessment options. These options were: summative, including teacher-designed assessment; diagnostic, such as standardised social communication checklists; formative, such as SCC programme-specific assessments; parental questionnaire; or other. Results from the Pearson chi-square test indicates that the relationship between these variables is significant, $\chi^2(2, N = 376) = 19.052, p < .05$ (see Appendix 28). The chi-square results indicate that we reject the null hypothesis and accept the alternative that there was a significant relationship between the teacher role and use of assessment to measure EBPs effectiveness. Table 21 below gives a cross-tabulation of the teacher role and assessment use. Details indicate that 90% (n=68) of SCTs and 80% of SETs (n=122) used assessment. However, the results of the cross-tabulation across the teacher roles indicate that only 65% (n=97) of CTs used assessment to measure the effectiveness of EBPs for SCC teaching.

Cross-Tabulation of the Teacher Role and Assessment of Social Communication Competency.				
		Assessment of Social Communication Competency		
		No	Yes	Total
The teacher's role	Mainstream Class Teacher	51	97	148
	Teacher in a mainstream special class for children with ASD	7	68	75
	Special Education Teacher supporting children with ASD	31	122	153
Total		89	287	376

Table 21: Cross-Tabulation of the Teacher Role and Assessment

Analysis was conducted to determine the influence of the teacher role in comparison to the type of assessment identified. As noted above, the teachers were asked to identify their use of assessment in relation to EBPs supporting SCC. Statistical analysis using chi-square was conducted with a Bonferroni adjustment applied to account for multiple comparisons. The results illustrated that a significant relationship was identified between the teacher role and summative assessment $\chi^2(2, N = 376) = 18.507, p < .05$ (see Appendix 29); the teacher role and formative assessment $\chi^2(2, N = 376) = 10.374, p < .05$ (see Appendix 30); and the teacher role and parental questionnaires $\chi^2(2, N = 376) = 22.683, p < .05$ (see Appendix 31). There is no significant relationship between the teacher role and diagnostic standardised assessments $\chi^2(2, N = 376) = 2.509, p > .05$ (see Appendix 32). In total, 24% (n=91) of teachers indicated that they did not use assessment. However, it worth noting that 32% (n=29) of these respondents did identify other means of assessment that they engage with. Further analysis provided a detailed breakdown of the teacher role and adoption of assessment. Both CTs and SETs favoured summative assessments, including teacher-designed data gathering, whereas SCTs indicated that they relied more on diagnostic assessments, as evident in Figure 52.

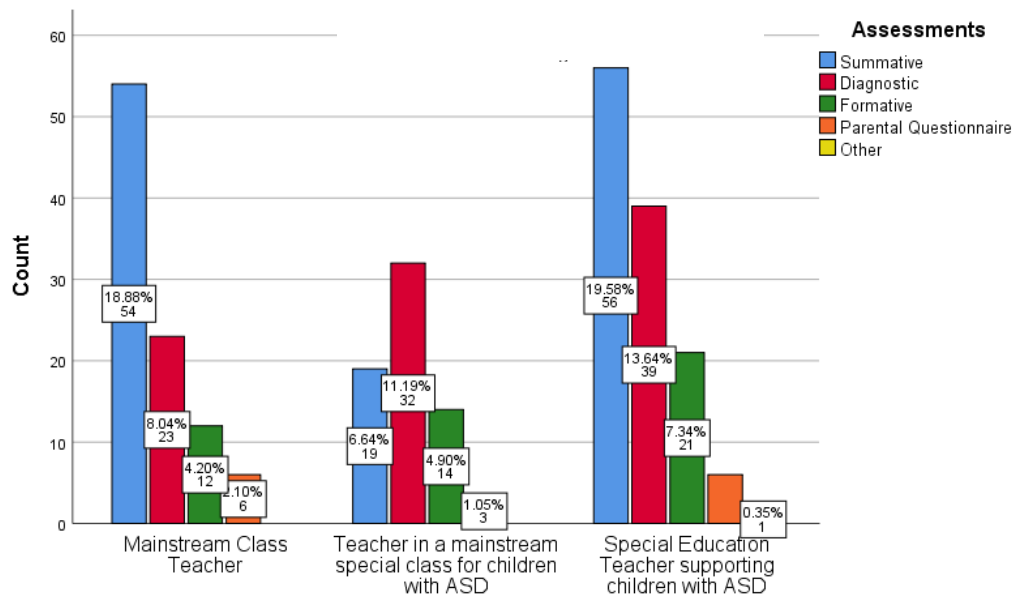


Figure 52: Chart Representing the Use of Assessment for Evidence-Based Practices According to the Teacher Role

To gain further insight into the factors that affect teachers' use of assessment for EBPs to support autistic children learning SCC, the following hypothesis was tested:

H0: The teacher's experience has no impact on assessment of EBPs to support SCC learning for autistic children in early years classes.

H1: The teacher's experience has an impact on assessment of EBPs to support SCC learning for autistic children in early years classes.

Statistical analysis using chi-square (see Appendix 33) illustrates that there was no statistically significant relationship identified between the teacher's experience and assessment of EBPs $\chi^2 (4, N = 376) = 5.563, p > .05$. P-value is greater than .05; therefore, we accept the null hypothesis that the teacher's experience had no impact on the assessments adopted.

7.2.5 Quantitative Results – Conclusion

Quantitative analysis of data in the national survey was conducted using inferential statistics. The results provided evidence in relation to the teacher's familiarity and knowledge of EBPs to support SCC for autistic children. Comparisons and analysis of

teaching roles, school settings and teacher experience have all been presented. The role of assessment and the impact of this for teachers is evidenced in the findings. Statistical relationships and correlations are presented throughout to provide key information in relation to the three identified areas of familiarity, use and assessment. The next section will explore the qualitative data analysis.

7.3 Findings and Analysis Phase Two – Qualitative Results

The researcher adopted Reflexive Thematic Analysis (RTA) as the guide for the qualitative analysis of the cross-sectional survey which captured teachers' perspectives on effective EBPs to support SCC learning for autistic children. The researcher's account of engaging in the stages of RTA is provided in Chapter Six (Section 6.8). The adoption of RTA was attractive as it offered what is essentially 'a compass and a map' (Braun and Clarke 2022, p.11) in the form of 'conceptual tools, heuristics, practice guidelines and processes to facilitate a deep, rich and robust engagement with data for knowledge production' (Braun and Clarke 2022, p.11). The tools promoted as part of RTA provided different opportunities and processes for the researcher to those afforded by inferential quantitative analysis. From the outset, a reflexive journal was used to capture the researcher's engagement in this process and served as a sounding board for the analysis, as detailed in Chapter Six. The findings produced include those which inform practice, or highlight problems; some offer insights, while others are used to tackle specific issues (Lester *et al.* 2020). Regardless of the outcomes of the study, one shared agreement is that the theoretical framework pertinent to the study must influence the type of data analysis method employed (Mertens 2015; Creswell 2019). The adoption of RTA facilitated both inductive and deductive analysis, the former usually owing to 'investigations related to participant perspectives or

experience and the latter having a theory driven orientation’ (Braun and Clarke 2022, pp.56–57). Both types of analysis were intertwined in the study as the research question sought out the perspectives of teachers, while the researcher was tuned into sociocultural theory throughout as the theoretical framework.

The findings from the qualitative phase of the study are presented separately from the discussion chapter to reflect the overall mixed-methods convergent protocol. The researcher engaged in the six stages recommended by Braun and Clarke’s (2022) RTA, iteratively moving back and forth through the different levels of coding in the survey to generate themes. This involved the forensic distillation of data through a coding process that saw fifty-seven initial codes collapsed to twenty-eight candidate codes; these were further distilled to eight emerging categories of codes, producing four final themes. (Evidence of this is made available in the audit trail in Appendix 18.) The four themes convey the central concepts of the qualitative analysis findings.

- Theme One – *It’s integral to my teaching.*

This theme captured the key concept of the interconnectedness of language and SCC that teachers highlighted across the dataset. Different aspects emerged that relate to this central concept, including the time teachers dedicated to teaching SCC and the variations across the data, as well as how teachers taught SCC and the consistent use of EBPs to do so. Central to this was the piece on generalisation and how some teachers felt the need to plan and build in structures to support this from the beginning and the ways in which this was undertaken. In contrast, there was a

thread across data of respondents that questioned their responsibility for generalisation and the impact of time.

- Theme Two – *It's hard to know*.

The theme *It's hard to know* looked at information-gathering and identification of need. The theme captured the nuances across data and highlighted many tensions in this thread. Questions arose relating to the role and value of assessment, and the mechanics involved, which are often context-bound. Furthermore, the participation and collaboration of teachers, parents, the student and access to outside and external agencies were all key concepts uncovered that were relevant when exploring the theme.

- Theme Three – *I may be doing this but I'm not aware of it*.

This theme explored the concept of teacher agency and implementation fidelity. The relationship between teacher knowledge and understanding of EBPs, and the role of professional learning were explored. This has a direct impact on the confidence of teachers to make decisions that impact on the use of EBPs and teaching SCC. The place and importance of programme fidelity in relation to EBPs was noted and the teacher's knowledge in relation to the value and impact of planning explored.

- Theme Four – *Trial and error*.

The theme *Trial and error* captured the perspective of teachers in relation to the implementation of EBPs. In particular, two fundamental aspects were seen across data that warranted discussion and representation. EBP implementation

challenges are noted throughout, especially in relation to SCC teaching. These can range from difficulties related to the mechanics of implementation to barriers in relationships between teachers, management and parents. Furthermore, policies and context were both seen as factors that affected implementation. Another tension noted is the individuality and unique profiles of autistic children; this posed a challenge for teachers implementing EBPs.

The four themes represent a narrative that was consistent with the dataset and relevant to answering the research questions. The themes are representative of a ‘coherent and internally consistent account of the data’ (Byrne 2022, p.1407), with care taken to provide an accurate representation of the journey through data analysis. Findings related to each of these themes is presented and the interpretation discussed briefly throughout. A scaling mechanism, presented in Table 22, was used to represent the qualitative reporting of the findings from the question responses.

Scaling Mechanism for Qualitative Reporting	
Almost all	More than 90%
Most	60–90%
Some	30–60%
A few	Less than 30%

Table 22: Scaling Mechanism for Qualitative Reporting

7.3.1 *It’s Integral to My Teaching*

Teachers regularly emphasised the importance of SCC teaching for autistic children and espoused the idea that practice and consistency should feature heavily in the child’s experience. For the most part, teaching SCC was deemed imperative throughout the day with some respondents noting: *social communication is part of every day and staff model appropriate communication strategies* SCT (ID104) and again SCT (ID49)

teaches it *continuously throughout each day*. Similar sentiments are expressed by CT (ID92) *it is integral to my teaching so every day* and SCT (ID65) *all day every day!*

However, differences in how teachers approached their teaching of SCC became evident. Formal discrete teaching that was scheduled and often involved withdrawal was noted across the respondents and relied heavily on SET support for the child. Variations on the timing were also evident for a few of the teachers: *child gets withdrawn for thirty minutes social skills a day* CT (ID80), with further variation seen by SET (ID107) teaching it *once per week to groups of children in discrete lessons* and SET (ID311) doing *discreet withdrawal social communications lessons once or twice a week*.

A dichotomy existed within the analysis, with some teachers noting that SCC was taught in specific lessons only and did not feature outside of these experiences and some favouring a permeated approach throughout the day and across contexts. Furthermore, there was a thread of tension regarding the role of SCC teaching and who was responsible. A disconnect between SET and class teaching was apparent for a few, which contrasts with the ideal of teaching SCC across contexts to promote generalisation such as: CT (ID42) who notes *the pupil is withdrawn for discrete time by support teacher on a daily basis*. CT (ID44) relays that *last year I had one student and she worked with her SET teacher on social skills every week* which is also stated by CT (ID141) who notes that SCC is covered *daily with SET*. CT (ID261) confirms with *I don't, but the learning support teacher does*, like CT (ID269) *AEN teacher does discrete lessons weekly*.

Informal incidental teaching was a more common thread across data but teachers noted that this was often unplanned and responsive to situations as they arose. This highlighted an interwoven approach to teaching SCC for some respondents such as the comment from SET (ID32) who relays that it is done *incidentally, not planned for or targeted* and CT (ID123) who teaches SCC *every day but not in a standalone lesson I try to integrate it into every interaction with the child*. The sentiment is concurred by SET (ID241) *explicitly none however it occurs regularly in an implicit manner*.

Overall, it became apparent in the analysis that most of the respondents felt that there was merit gained from adopting a combination of both planned and incidental teaching to support SCC learning for autistic children, and that it should feature throughout the day and across teaching contexts: like CT (ID42) who says it is taught *constantly on an informal basis. The pupil is withdrawn also for discrete time by support teacher on a daily basis*. This is confirmed by the CT (ID148) statement *I try to have at least one class per day of social communication but it is an undercurrent of all the subjects*. For SCT (ID168) *it forms part of my daily interactions with the children. Some are still at the pre-verbal stage and the emphasis here is often on joint attention, imitation, turn-taking*. Similarly,

I think this is something that is done on an ongoing basis. There are three Communication and Language sessions and three Social and Emotional Learning sessions per week. It is during these lessons that direct teaching is done.

SCT (ID198)

Teachers noted how inclusive SCC teaching should be and it featured across subjects and in and out of the classroom, with some teachers noting the importance for all children, not just those with specific differences in SCC. Consistency and planning

for generalisation from the outset were seen as attributes that promoted success for children as evidenced by one who recounts

I taught it daily. I knew it was of benefit to all the students as well as the child ASD. At the beginning of the school year my social communication lessons were very intentional. They were senior infants at the time and I would try create ways for the children to practise their social and emotional skills throughout the day. I felt that having well planned intentional social communication lessons at the start of the school year would help foster a safe and caring classroom environment for the rest of the year

CT (ID133)

This was a view shared by other CTs such as CT (ID47) *who emphasises the importance of teaching it daily regardless of having children with SET or not. They stress I would teach/practise it every day with my class, every day; CT (ID249) 2–3 times for all pupils regardless of ASD and CT (ID317) everyday within social scenarios presented in the classroom. [I am teaching] in juniors some children currently have no diagnosis.* Such views were evident in responses from SCTs also such as SCT (ID78) who describes teaching it *daily as different situations arise for each pupil and these situations usually are different for each. Also play paired games weekly and do PE each day with a great emphasis placed on social skills during the session and SCT (ID173) utilising inclusion: PE, breaktimes and pair work with games.*

Promoting inclusivity was also apparent with the involvement of peers to support autistic children learning SCC. Peers were noted as actively involved in teaching, as well as in promoting the SCC development for the child: *Pupils from mainstream class accompany pupil with ASD to play board games and do exercises SET (ID14) and CT (ID75) states that I have found that over the years the 6th class mentors at break times are also a great asset to monitor this with the group of children involved in the peer mediated instruction.* Also, SCT (ID146) states that *to teach it I*

have a mix of special class and mainstream class pupils together and SET (ID159) notes I promote it during social inclusion activities with peers.

Interpretation of data from the teachers has been documented to present the story of how teachers feel using EBPs for SCC learning is integral to their teaching and is of fundamental importance for autistic children. *As I moved through the data and created candidate codes, I could see commonalities that emerged which held similar sentiments and captured what the teachers were promoting or relaying* (MD Reflexive Journal 22). Teachers were keen to show the time commitment given, as well as how the relationships and roles across the school are involved in supporting SCC for autistic children.

Qualitative analysis of data using RTA also recognises the experience of the researcher as an important part of data analysis and interpretation. *The code of 'its ongoing – language and social communication are intertwined' resonated with my own feelings on teaching SCC – it must be intertwined, it must be referred to throughout the day, over learning and experience are key components in how I taught SCC and used EBPs to promote this* (MD Reflexive Journal 22). The reflexive journal entries (Appendix 34), documented the experience and afforded an opportunity to capture the themes as they developed. The next theme presented captured the core concepts related to information-gathering and identification of need through the sentiment of *It's hard to know*.

7.3.2 It's Hard to Know

Teachers regularly evoked the impression of having difficulty identifying children's needs in the area of SCC and using the best EBPs to support their teaching. This is

evident across the dataset, but in particular in relation to the use of assessment. The majority of teachers identified using informal assessment measures to identify needs and measure the effectiveness of EBPs used. However, there was a degree of uncertainty evident in the teacher accounts and a desire for more formal structures for some respondents: *I find this aspect very difficult and probably have not measured effectively up to now* CT (ID82) and SET (ID107) *would like to have a more formal way of doing it but I find it difficult to find one.* SCT (ID172) tells that *it is a mixture of everything going on and it is difficult say with certainty that the assessment procedures are reliable or valid* and CT (ID317) who says *I don't know how or where to start when it comes to assessing children's social skills.*

When relaying experiences in relation to assessment procedures, it became apparent that most of the teachers had tried multiple methods of assessment to identify need and evaluate their use of EBPs. However, a few self-identified as not using assessment. When probed about how they measured the effectiveness of the EBPs and procedures that they used, most in this group named teacher observation. Upon reflection, it is noteworthy that these teachers did not include teacher observation as a valid form of assessment from the outset: *You as a teacher can see if it is working* CT (ID45) and again *I observe behaviour and if something is effective I use it again* SET (ID24). For CT (ID92) it is about *progress, reaction, improvement* whereas SCT (ID97) relies on *teacher observation, diaries tracking interactions and specific incidents. Hopefully with evidence of fewer incidents and more examples of positive progress over time.* For SET (ID266) assessment is done *only through teacher observation, parent feedback and if there is any information in reports this would inform teaching.*

While some respondents felt confident using the formal methods of standardised assessment, formative assessment and summative assessment, most teachers felt that they needed to include other types of support to help them identify needs and measure the effectiveness of EBPs. Collaboration was a key area of support that teachers used when measuring the effectiveness of EBPs and progress in SCC. Fellow teachers held a significant supportive role for some of the respondents: For CT (ID13) it is about *liaising with SET who works with child* as does CT (ID87) *I consult with and feed back to the SET and we assess together* and SET (ID96) who collaborates through *liaise[ing] with the SET lead in the school, discussion with class teacher, discussion with the other teachers who support her*.

A few teachers also placed an emphasis on including special needs assistants (SNAs) as part of their assessment and reflection such as: SCT (ID36) who notes *observation, discussions with SNAs and mainstream teachers involved in the integration of my pupils* and likewise CT (ID40) places importance on collaboration *with SET and SNA* and CT (ID48) who uses *communication with special needs assistant*.

For a few, value was also placed on parental collaboration and the place of individualised education planning (IEP) meetings as a roundtable discussion format for children with special educational needs (SEN): such as SCT (ID36) who has *parental discussions at IEP meetings* and CT (ID46) who holds *regular IEP review with resource teacher and parents*. Similarly SET (ID89) has *meetings with parents and SEN team* and SCT (ID96) has *meetings with parents*.

The need and value of collaborative support from others was apparent across data; however, differences existed in the process. Overall, a significantly small number of teacher respondents, 4% (n=15), identified the autistic child themselves as a source of information for assessing the effectiveness of EBPs; this was usually relayed alongside part of the parent communication: such as in the response of SET (ID73) who notes the role of *child, parent and teacher response* and CT (ID92) uses *communication with parents, teacher, and informed by child also*.

Furthermore, the role of outside agencies was not identified as valuable and was even met with criticism: from SET (ID1) *proper support needed from relevant professionals who can feed into targeted school support plans and would be available to give individualised sustained support as issues emerge* and again *access to help from outside agencies is very limited, almost non-existent* (CT) ID81.

The theme *It's hard to know* captured the sentiments of uncertainty and difficulty expressed by teachers throughout data in relation to identifying SCC needs and measuring the effectiveness of the EBPs they used. *Surprising comments and data have emerged across the analysis but one of the most interesting comes about when analysing the assessment piece. 70% of respondents identified using assessment to measure SCC and the effectiveness of the EBPs. In this group 61% of the teachers relied on formative assessment which was mostly made up of their own checklists and teacher designed assessments. By comparison only 16% had standardised formal assessments to use* (MD Reflexive Journal 22). Respondents noted their need for collaboration with others, and the lack of conviction in their own observations was evident at times. It is noteworthy to mention the absence of teacher respondents that also valued the autistic child's voice in relation to the process. *One of the most startling observations is the*

obvious lack of value placed on accessing the student voice in this area. Is this due to the nature of the differences in question as it is SCC or is it reflective of a lack of understanding for the ways we can access the student voice? (MD Reflexive Journal 22) Further researcher reflections on this theme are espoused in detail in the reflexive journal entry in (Appendix 34).

The next theme that will be explored is *I may be doing this but I'm not aware of it* and discusses the core concepts of implementation fidelity and teacher agency.

7.3.3 I May Be Doing This but I'm Not Aware of It

Implementation fidelity in relation to EBPs is an important feature as a lack of integrity to the original approach can weaken the overall outcome for the child. The importance remains of striking a balance between matching support to the autistic child's needs and remaining true to the primary components of the EBP. It has become apparent across data that conceptual understanding of EBPs was at times a difficulty for the teachers and featured in relation to all of the EBPs, as is evident in Table 23.

Percentage of Most Reasons for Not Using Evidence Based Practices				
	I do not know about this EBP	I do not have time to implement this EBP	The EBP does not match the needs of the child	The EBP is too difficult to implement
Modelling	32	16	43	9
Naturalistic intervention	84	9	5	2
Peer-mediated instruction	55	9	27	9
Pivotal response training	91	3	5	1
Social narrative use	40	26	34	0
Video modelling	41	28	20	11

Multiple strategy social skills groups	50	14	34	2
Prompting	47	16	37	0
Cumulative percentage	55	15.125	25.625	4.25

Table 23: Percentage of Reasons for Not Using Evidence Based Practices

Table 23 details the cumulative percentage of most reasons for not using EBPs, with lack of knowledge the largest factor under *I do not know*. This was the main reason cited by the teachers for not implementing EBPs. The sentiment is further evidenced across most teacher responses: *the term is new to me; however, we often do this informally*. CT (ID29). Likewise, CT (ID48) says *I may have been doing this* and SET (ID61) states *I may be doing it but not aware of it*. Data from SET (ID102) notes *I feel like I naturally use this to a certain extent in one-to-one settings but was not aware of it as being a specific strategy*. Similar sentiments are seen in the response *from reading it I've used elements of it but don't refer to it as Naturalistic Intervention* as relayed by SET (ID117). Also SET (ID161) details that *[I] don't have enough knowledge about the programme to implement it but aspects of it are addressed informally* which is corroborated by SET (ID179) in *it sounds like settings I have used but I am unaware of its title* and again *I've used elements of this, but I don't know if it is classified as PRT [pivotal response training]* CT (ID227).

Teachers noted that they had some knowledge of the EBP, but gaps were evident. Furthermore, some respondents identified that they do not necessarily plan for SCC teaching through EBPs when it is done *informally and generally rather than specifically* CT (ID72) and SET (ID32) who does it *incidentally, not planned for or targeted*. Similar sentiments are seen in responses from SET (ID121) who teaches it *indirectly every day but I don't plan for it* and CT (ID348) who says *I don't teach it*

formally, but I have to address the issue. For SET (ID349) it means that currently, I take a child with ASD as part of a literacy group so teaching social communication is not the focus of the lesson but I model and praise eye contact, turn taking, etc.

Across data it was evident that most teachers wanted specific professional learning in relation to EBPs that support SCC for autistic children, which impacts on programme fidelity: *it is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD (SET) ID5 and CT (ID98) would like more training on same before trying to implement. Sentiments from SET (ID99) state that teaching in an Irish medium school. No ASD class or unit for advice and working between two schools and CT (ID317) states I have received very little training on how to teach social skills. I don't know where to go to get training on this. For SCT (ID367) it is helpful when peer-reviewed resource is recommended in professional report but can be difficult to find.*

Sourcing suitable EBPs to teach SCC to autistic children was seen as problematic, with 76% of the respondents identifying having difficulty with this, as shown in Figure 53.

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	No	92	24.1	24.1	24.1
	Yes	290	75.9	75.9	100.0
Total		382	100.0	100.0	

Figure 53: Percentage of Teachers Who Have Difficulty Sourcing Suitable Strategies

Teacher agency was highlighted as an area needing support: 98% of the 382 teacher respondents felt there was merit in the availability of guidelines documenting the EBPs suitable for teaching SCC to autistic children in early years Irish classroom and the programme components that should feature suggesting lack of confidence in their knowledge and use of EBPs. *When teachers become more aware of these missing components, they are more likely to act. Throughout data teachers noted at times how engaging with the survey has made them more aware of what they need to work on themselves or even different practices that they need to research. Seeing the link between teacher agency and adherence to programme fidelity became evident through the coding and categories. If teachers do not have the conceptual knowledge of the practice, it is hard to adhere to the critical components that are part of the EBP remit.* (MD Reflexive Journal 22).

Reflecting on the theme of *I may be doing this but I'm not aware of it* provides context for how this theme was identified to capture the sentiments related to teacher agency and programme fidelity, and was documented in detail in the reflexive journal (Appendix 34).

The final theme, *Trial and error*, explored the implementation of EBPs from the perspective of teachers. Two main sub-themes were addressed, concerning pertinent details related to implementation challenges and the individuality of autistic children.

7.3.4 Trial and Error

Teacher respondents identified many different aspects relating to the implementation of EBPs in their settings. References were made to where the EBPs took place and how teachers identified the EBP to use. However, the respondents noted the individuality of

the autistic child as one of the most influential factors for implementing EBPs. As a result of such children's unique profiles, implementing EBPs for them has created divergent experiences for teachers and impacts on using EBPs to teach SCC for most respondents: *all my pupils have a significant intellectual disability therefore any strategies I use are personalised and tailored to suit the needs of individuals rather than groups and this poses difficulties as I need to juggle the varying needs of my pupils* ID106 (SCT). Similarly SET (109) states that *in many cases, ASD children have complex needs and social skills deficits that are very personal to them*. Furthermore SCT (ID140) notes that *each of my children are at different stages and I use a variety of social communication, so the challenge is that not one skill fits all. Teachers need to be able to adapt to all children's needs*. For SCT (ID188) *high attention needs within the classroom makes it difficult to regularly assess children's communication skills, making it harder to tailor the programme to the child*. Similarly, CT (ID250) tells that *it can be overwhelming, I found that no one way worked best all the time, I felt it depended on each individual situation trying to be taught and the particular child it was being taught to – the same skill could be required to be taught differently and repetitively to each child who may need that skill*.

Furthermore, teachers discussed the demands of teaching SCC on an individual basis, as well as reaching academic goals, which created conflict for a few: *it is highly individualised, which makes timing difficult when you have multiple children all with different social needs, in addition to meeting curricular expectations* SCT(ID18). Also, CT (ID81) tells that *in a mainstream setting, pupils are to have access to the curriculum and each pupil works on an individual programme so the pressure of time to achieve the many goals we have set is an issue*. For SET (ID117) there were *timetabling issues*,

feeling under pressure to get x done before you need to be in your slot on timetable doesn't allow you adequate time to focus on social needs i.e. academic/curricular targets prevail.

The individuality of each autistic child means it is often necessary to personalise a programme to suit and encourage a child. Some teacher respondents expressed the need to create motivating ways for children to engage: such as CT (ID170) *finding the most motivating way to do so in order for them to generalise the skill – a lot of trial and error* and again CT (ID178) *discusses how some children can be reluctant to engage with many interventions/skills based social learning like modelling and some social stories*. For others like SCT (ID283) *it can be hard to keep the children on track when being taught the skills as they nearly need one-to-one support*. Moreover, SET (ID379) relays that *I have the resources, time, strategies and skills but motivating the child to engage in any intervention can be challenging*.

The sentiments of the teachers in relation to the individuality of autistic children relate specifically to the need for additional personnel support, which can be difficult for some teachers in schools and across teaching roles: *most of these children require one-to-one support in order to have their communication needs met* CT (ID170). According to SCT (ID166) *working with a class of six who all have different social skills deficits can be challenging when trying to establish my version of normal – I am the odd one out in the room. I have had to enlist the help of their peers from mainstream class to help broaden and hone basic social skills in a real context*. Similarly, CT (ID170) notes *I am still learning about some strategies but am comfortable enough with using them when I have the time to do so. However, this is often difficult to achieve due to the level of demand within the class, behavioural in particular*. For SCT (ID250)

lack of personnel to help support other children while individual skills are trying to be taught makes it difficult to achieve goals as quickly as one would like. However, having the support to keep the children on task when being taught the skills as they nearly one to one support was highlighted by CT (ID282). Also, apparent difficulties are evident from CT (ID348) I usually have 29–31 children in my class. I rely on the SEN teachers to support me by teaching the skills intensively.

Teachers regularly evoked the notion of the individuality of the autistic child in their discussion but, further to this, they discussed challenges they experienced in relation to the implementation of EBPs broadly. Data presented in Figure 54 shows that lack of adequate time and knowledge of the EBPs were the greatest challenges teachers relayed regarding teaching SCC to autistic children.

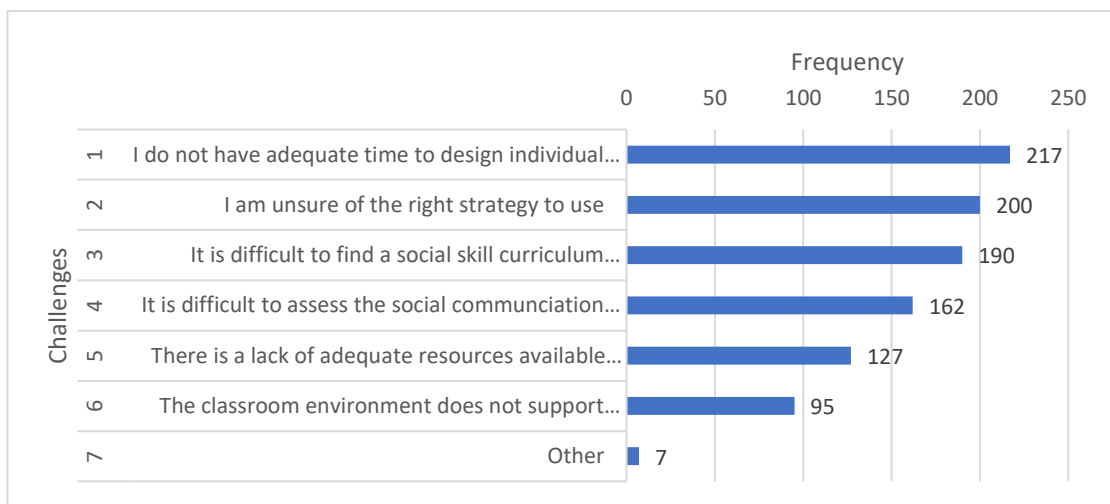


Figure 424: Frequency Ranking of Challenges Faced

Time was frequently identified as a challenge across data for the teachers supporting the children:

time, it takes time to develop these skills for children with autism SET (ID12) and CT (ID42) discusses honestly, school moves at a furious pace and researching or making resources takes up a lot of time. For SET (ID109) social skills need time to be acquired and implemented. It takes many occasions and with many varying circumstances for children to truly acquire one social skill. In many cases, ASD children have complex needs and social skills deficits that are very personal to them. It can be time-consuming to first identify these deficits, plan and teach children the skills and allow them the time and occasions to practise the skill. The challenge is further captured by SCT (ID126) sentiments in it takes a lot of trial and error over the course of the year/2 years teaching the child to find a strategy/few strategy that really works well as well as by SET (ID299) as all children with ASD are unique, it is difficult to find appropriate resources to suit each individual child's specific needs. It is time-consuming as many interventions need to be tailor-made to suit the child, continuously monitored and changed! Extremely challenging yet rewarding! Likewise, SCT (ID334) feels that time is a challenging factor when the children in your class all respond best to a different strategy. A statement from SET (ID354) overall relays that time and resources can be an issue, but I find that you may need different methods for different children and this can impact on scheduling and the amount of time available to support kids when caseload is heavy and needs are great.

Resources were noted across data and while some teachers relayed positive experiences in relation to availability, resources including funding and technology were also seen as a challenge for a few who were trying to implement EBPs to teach SCC such as: the CT (ID100) who notes that it is *difficult to find resources online suitable for Gaelscoil* and SET (ID122) says *I have read about the benefits in research articles*

and suggested it but no funding. A comparable response comes from CT (ID143) who notes we do not have the technology to allow for this. Also, CT (ID242) says that we don't have the resources in the school.

Furthermore, a few teacher respondents relayed challenges external to their class that affected the implementation of EBPs. These included policy and parents as mitigating factors: *although I have used this strategy, it can be difficult with teaching Social Skills due to new GDPR [General Data Protection Regulation] regulations and parents not wanting the child's social difficulties becoming a focus with their peers* SET (ID37). For some the *parent doesn't like ICT used with her child* SET (ID109), *video modelling is contentious given GDPR regulations* SCT (ID146) and *it can depend on the priority for parents* SCT (ID327).

The theme *Trial and error* captured the sentiment appearing in data whereby teachers expressed how the implementation of EBPs was not straightforward. *Analysing the data, I have observed a trend whereby the teachers are almost saying that at times implementing EBPs can be hit and miss for them. There are so many factors that influence this in data and teachers are keen to show the impact of the difficulties for their teaching and on the autistic child* (MD Reflexive Journal 22). Considering the needs of the autistic child, the school context and personnel, the time and resources needed, as well as the wishes of parents and policy, the implementation of EBPs comes across as on a trial and error basis. The journey towards this theme was discussed in the reflexive journal (extract Appendix 34).

7.3.5 Qualitative Results – Conclusion

Section 7.3 presented findings related to the qualitative analysis of the national questionnaire. It captured the four themes – *It's integral to my teaching*; *It's hard to know*; *I may be doing this but I'm not sure*; and *Trial and error* – that were developed from data using RTA. The themes and their related sub-themes were briefly discussed, with specific details extracted from the teacher respondents used to 'evidence the analytic claims' (Braun and Clarke 2022, p.133) and illustrate the story components related to each theme. In accordance with the recommendations put forward by RTA, the researcher documented her own experiences engaging in the analysis as the primary source of interpretation, to help the reader understand how the themes were identified and what the researcher's thoughts were on what they meant. The proponents of RTA are keen to show how the researcher arrives at their interpretation and meaning making (Braun and Clarke 2022).

The next stage in the convergent mixed-methods data analysis journey involved bringing together the quantitative data, analysed using inferential statistics, and the qualitative data, analysed using RTA, in the third phase – interpretative data analysis.

7.4. Findings and Analysis Phase Three – Interpretative Analysis

Phase Three of the convergent mixed-methods data analysis merges the results from quantitative and qualitative analyses to generate robust findings related to the research question (Mertens 2015). The purpose of the convergent triangulation investigation was to validate findings produced from separate analysis of data, and also identify any difference or conflicts. The concurrent use of qualitative detail and quantitative data adds to the depth and scope of the findings (Creswell and Guetterman 2021). Through

convergent triangulation of the data, the pragmatic researcher was afforded the means to produce more robust and valid data interpretation using qualitative and quantitative data to corroborate the findings (Creswell 2014). Chapter Six (Section 6.9) provides key details for the rationale and the method for utilising triangulation in the research study.

The results from the quantitative analysis were compared to and contrasted with the results of the qualitative analysis in order to provide a detailed representation of the research. Creswell (2019) notes that in a study design the researcher should plan to address the same core concepts with both the qualitative and quantitative data in order to support the subsequent merging of the analysis. Such a design featured in the study and the researcher used illustrative tables for both data collections initially (Table 24 and Table 25), identified commonalities and then merged both together to produce the interpretive results (illustrated in Figure 55). The process is documented below to promote the clarity and transparency of the findings.

7.4.1 Quantitative Data – Consolidation

As outlined, the results from the quantitative data analysis findings were extracted and presented in a table to allow for ease of interpretation (Creswell and Guetterman 2021). The researcher documented the findings related to each of the key variables and succinctly consolidated the analysis. The sections were colour-coded to match the original data analysis framework presented in **Figure 38** (Section 7.2), with grey representing the descriptive statistics relevant to SCC teaching, blue representing familiarity, light green representing the use of EBPs and dark green representing the

assessment of EBPs. Table 24 below provides the relevant aspects that were extracted by the researcher.

Quantitative Results			
Variables analysed	Findings produced	Statistical test/ procedure	Results
Descriptive statistics	Teachers surveyed saw merit in teaching SCC to autistic children.	Frequency	Data extrapolated clearly indicates that taking one's turn was the most taught skill, identified by 93% (n=354) of respondents, and smiling accounting for the lowest number, with 47% (n=180) of teachers ever teaching the skill.
	Teachers dedicate a significant proportion of teaching time supporting autistic children learn SCC.	Percentage of time weekly	Results indicate that 68.32% (n=261) of respondents taught SCC to autistic children daily and a cumulative 77.5% (n=296) of teachers taught SCC more than three times per week.
	Every teacher surveyed indicated using at least one EBP to teach SCC.	Corroborating over 3,056 responses	Data shows that across the eight types of EBP each respondent identified using at least one, which confirms that from the sample, 100% (n=382) of respondents used an EBP to support SCC learning in their settings overall.
	Teachers across their respective roles had similar perspectives on	Frequency	Modelling, social skill training and social narratives were the most favoured across the

	the most effective EBPs.		teacher roles; video modelling and pivotal response training were deemed least effective out of the eight EBPs across the teacher roles.
Familiarity with EBPs	Definition leads to a change in EBPs understood and used.	A repeated measures ANOVA was performed to analyse the effect of range of EBPs with definition, and range of EBPs without definition on the teacher role.	Tests of Within-Subjects effect show that the definition leads to a change in EBPs reported by teachers ($F = [57.56]$, $p = [<.05]$, $\eta_p^2 = [.13]$) and this differs by the role of the teacher ($F = [6.85]$, $p = [<.05]$, $\eta_p^2 = [.04]$).
	Familiarity with specific EBPs is impacted by definition.	Post hoc testing using non-parametric correlations.	Video modelling, social narratives, SST and pivotal response treatment were identified as EBPs that teachers needed defined, with 84% of the respondents noting these specifically.
	Teachers' role has an impact on the familiarity defined EBPs.	Post hoc analysis with a Bonferroni adjustment outlined the interaction effect between the variables.	Results revealed that the effect change between range of EBPs with and without definition had a statistical impact on mainstream CTs (1.26 (95% CI -.96 to 1.56) $p = <.05$) and SETs (.71 (95% CI, .47 to 1.00), $p = <.05$), but no impact on SCT (.33 (95% CI, -.09 to .75), $p = >.05$).
	Years of experience has a	Spearman's Rho was conducted to assess	Results indicate a statistically

	positive impact on teachers' familiarity with EBPs defined.	the correlation between the teacher's years of experience and the range of EBPs with definition.	significant relationship between the two variables $r(374) = [.13], p = [.015]$.
Use of EBPs	Adoption of EBPs is affected by school setting.	A one-way repeated measures ANOVA was used to assess if the adoption of EBPs is affected by school setting. Mauchly's test of sphericity was violated $\chi^2(14) = 1233.01, p < .05$; therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .723$).	The results show that the adoption of EBPs by the teachers is impacted by the settings within the school $F(4, 1354.89) = 169.98, p < .05$.
	Specific areas of the school setting were favoured by teachers to support implementation of EBPs to teach SCC.	A post hoc pairwise comparison was used to identify specific areas of statistical significance in relation to the adoption of defined EBPs. The Bonferroni correction was applied in order to reduce the chance of a Type 1 error across multiple comparisons.	Analysis of data shows that in relation to the teacher's preference 'yard' ($p < .05$), 'outside school' ($p < .05$) and 'combination' ($p < .05$) produced statistically significant results when compared with mainstream, special class and SET room, respectively.
	The adoption of EBPs by the teachers is impacted by the instructional strategy used.	Results from a one-way repeated measures ANOVA show that the adoption of EBPs is affected by the instructional strategy. Mauchly's test of sphericity was violated $\chi^2(9) = 1131.72, p < .05$, therefore degrees of	The results show that the adoption of EBPs by the teachers is impacted by the instructional strategy the teachers use to implement the EBPs, $F(2, 669.08) = 776.37, p < .05$

		freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .446$).	
	Teachers favoured implementing the EBPs through a combination of instructional strategies.	A post hoc pairwise comparison using the Bonferroni correction was used.	There is no statistical significance between whole class and one-to-one ($p > .05$), meaning that teachers do not tend to adopt both. Results indicate that the mean number of teachers used a combination of small group, whole class, one-to-one and lunchtime as instructional strategies to implement the EBPs.
Assessment and EBPs	There is a significant relationship between the teacher's role and use of assessment to measure EBPs effectiveness.	A chi-square test of independence was performed to examine the relationship between the teacher's role and the assessment of EBPs.	Results from the Pearson chi-square test indicate that the relationship between these variables is significant, $\chi^2(2, N = 376) = 19.002, p < .05$.
	SCT and SETs used assessment more than CT.	Cross-tabulation of the teacher's role and assessment use.	Details indicate that 90% (n=68) of SCT and 80% of SETs (n=122) use assessment. However, the results of the cross-tabulation across the teacher roles indicate that only 65% (n=97) of

			mainstream CTs use assessment.
	The type of assessment adopted is affected by the teacher's role.	Statistical analysis using chi-square was conducted with a Bonferroni adjustment applied to account for multiple comparisons.	Results illustrate a significant relationship between the teacher's role and summative assessment $\chi^2(2, N = 376) = 18.507, p < .05$, the teacher's role and formative assessment $\chi^2(2, N = 376) = 10.374, p < .05$, the teacher's role and parental questionnaires $\chi^2(2, N = 376) = 22.683, p < .05$; there is no significant relationship between the teacher's role and diagnostic standardised assessments $\chi^2(2, N = 376) = 2.509, p > .05$. Both mainstream and SETs favoured summative assessments, including teacher-designed data gathering, whereas SCT indicated that they relied more on diagnostic assessments.
	The teacher's experience had no impact on the use of assessment to measure	A chi-square test of independence was performed to examine the relationship between years of	Statistical analysis using chi-square illustrates that there is no statistically significant relationship

	effectiveness of EBPs to teach SCC.	experience and use of assessment.	identified between the teacher's experience and assessment of EBPs $\chi^2 (4, N = 376) = 5.563, p > .05$. P-value is greater than .05.
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Table 24: Consolidated Quantitative Findings

7.4.2 Qualitative Data – Consolidation

The key qualitative data analysis findings were consolidated and presented in table format for ease of interpretation (Table 25). To support the interpretation, the researcher mapped the commonalities by colour-coding the relevant sections that had complementary findings between both data types.

Qualitative Findings			
Theme	Sub-theme	Interpretation	Evidence
It is integral to my teaching.	Time (i.e., when).	Teaching SCC was deemed imperative throughout the day for the most part with teachers.	<i>Social communication is part of every day and staff model appropriate communication strategies. ID104 (SCT)</i> <i>Continuously throughout each day. ID49 (SCT)</i> <i>It is integral to my teaching so every day. ID92 (CT)</i> <i>All day every day! ID65 (SCT)</i>
			<i>I taught it daily. I knew it was of benefit to all the students as well as the child ASD. At the beginning of the school year my social communication lessons were very intentional. They were senior infants at the time and I would try create ways for the children to practise their social and emotional skills throughout the day. I felt that having well-planned intentional</i>

			<p><i>social communication lessons at the start of the school year would help foster a safe and caring classroom environment for the rest of the year. ID133 (CT)</i></p> <p><i>Daily as different situations arise for each pupil and these situations usually are different for each. Also play paired games weekly and do PE each day with a great emphasis placed on social skills during the session. ID78 (SCT)</i></p> <p><i>Daily regardless of having children with SEN or not. I would teach/practise it every day with my class, every day. ID47 (CT)</i></p> <p><i>2–3 times for all pupils regardless of ASD. ID249 (CT)</i></p> <p><i>Every day within social scenarios presented in the classroom. [I am teaching] in juniors some children currently have no diagnosis. ID317 (CT)</i></p> <p><i>Inclusion: PE, breaktimes and pair work with games. ID173 (SCT)</i></p>
	How SCC is taught.	Formal discrete teaching that was scheduled and often involved withdrawal was noted across the respondents and relied heavily on SET support for the child. Variations on the timing were also evident.	<p><i>Child gets withdrawn for 30 minutes social skills a day. ID80 (CT)</i></p> <p><i>Once per week to groups of children in discrete lessons. ID107 (SET)</i></p> <p><i>Discreet withdrawal social communications lessons once or twice a week. ID311 (SET)</i></p>
	Teacher role.	There is a thread of tension regarding the role of SCC teaching	<p><i>The pupil is withdrawn for discrete time by support teacher on a daily basis. ID42 (CT)</i></p>

		<p>and who is responsible. A disconnect between SET and class teaching is apparent for some, which contrasts with the ideal of teaching SCC across contexts to promote generalisation.</p>	<p><i>Last year I had one student and she worked with her SET teacher on social skills every week. ID44 (CT)</i></p> <p><i>Daily with SET. ID141 (CT)</i></p> <p><i>I don't, but the learning support teacher does. ID261 (CT)</i></p> <p><i>AEN teacher does discrete lessons weekly. ID269 (CT)</i></p> <p><i>Incidentally, not planned for or targeted. ID32 (SET)</i></p> <p><i>Every day but not in a standalone lesson I try to integrate it into every interaction with the child. ID123 (CT)</i></p> <p><i>Explicitly none; however, it occurs regularly in an implicit manner. ID241(SET)</i></p>
	<p>Generalisation.</p>	<p>Most of the respondents felt that there was merit gained from adopting a combination of both planned and incidental teaching approaches to support SCC learning for autistic children and that it should feature throughout the day and across teaching contexts.</p>	<p><i>Constantly on an informal basis. The pupil is withdrawn also for discrete time by support teacher on a daily basis. ID42 (CT)</i></p> <p><i>I try to have at least one class per day of social communication but it is an undercurrent of all the subjects. ID148 (CT)</i></p> <p><i>It forms part of my daily interactions with the children. Some are still at the pre-verbal stage and the emphasis here is often on joint attention, imitation, turn-taking. ID168 (SCT)</i></p> <p><i>I think this is something that is done on an ongoing basis. There are three Communication and Language sessions and three Social and Emotional Learning sessions per week. It is during these lessons that direct teaching is done. ID198 (SCT)</i></p>

	Consistency and inclusion.	Consistency and planning for generalisation from the outset were seen as attributes that promoted success for children.	<p><i>Pupils from Mainstream class accompany pupil with ASD to play board games and do exercises. ID14 (SET)</i></p> <p><i>I have found that over the years the 6th class mentors at break times are also a great asset to monitor this with the group of children involved in the peer mediated instruction. ID75 (CT)</i></p> <p><i>To teach it I have a mix of special class and mainstream class pupils together. ID146 (SCT)</i></p> <p><i>I promote it during social inclusion activities with peers. ID159 (SET)</i></p>
	Informal teaching.		<p><i>Incidentally, not planned for or targeted. ID32 (SET)</i></p> <p><i>Every day but not in a standalone lesson I try to integrate it into every interaction with the child. ID123 (CT)</i></p> <p><i>Explicitly none; however, it occurs regularly in an implicit manner. ID241 (SET)</i></p>
It's hard to know.	Need for more assessment support.	The majority of teachers identified using informal assessment measures to identify needs and measure the effectiveness of EBPs used. However, there was a degree of uncertainty evident from the teachers' accounts and a desire for more formal structures.	<p><i>I find this aspect very difficult and probably have not measured effectively up to now. ID82 (CT)</i></p> <p><i>Would like to have a more formal way of doing it but I find it difficult to find one. ID107 (SET)</i></p> <p><i>It is a mixture of everything going on and it is difficult say with certainty that the assessment procedures are reliable or valid. ID172 (SCT)</i></p> <p><i>Only through teacher observation, parent feedback and if there is any</i></p>

			<p><i>information in reports this would inform teaching. ID266 (SET)</i></p> <p><i>I don't know or where to start when it comes to assessing children's social skills. ID317 (CT)</i></p>
		<p>The majority of teachers tried multiple methods of assessment for identifying need and evaluating their use of EBPs. However, a significant proportion self-identified as not using assessment even though they noted using teacher observation.</p>	<p><i>You as a teacher can see if it is working. ID45 (CT)</i></p> <p><i>I observe behaviour and if something is effective I use it again. ID24 (SET)</i></p> <p><i>Progress, reaction, improvement ID92 (CT)</i></p> <p><i>Teacher observation, diaries tracking interactions and specific incidents. Hopefully with evidence of fewer incidents and more examples of positive progress over time. ID97 (SCT)</i></p> <p><i>Only through teacher observation, parent feedback and if there is any information in reports this would inform teaching. ID266 (SET)</i></p>
	<p>Collaboration to support assessment.</p>	<p>Collaboration was a key area of support that teachers used when measuring the effectiveness of EBPs and progress in SCC. Fellow teachers held a significant supportive role.</p>	<p><i>Liaising with SET who works with child. ID13 (CT)</i></p> <p><i>I consult with and feed back to the SET and we assess together. ID87 (CT)</i></p> <p><i>Liaise with the SET Lead in the school, discussion with class teacher, discussion with the other teachers who support her. ID96 (SET)</i></p>
		<p>Teachers also placed an emphasis on including SNAs as part of their assessment and reflection.</p>	<p><i>Observation, discussions with SNAs and mainstream teachers involved in the integration of my pupils. ID36 (SCT)</i></p> <p><i>In collaboration with SET and SNA. ID40 (CT)</i></p>

			<i>Communication with special needs assistant. ID48 (CT)</i>
		Value was also placed on parental collaboration and the place of IEP meetings as a form of assessment	<i>Parental discussions at IEP meetings. ID36 (SCT)</i> <i>Regular IEP review with Resource teacher and parents. ID46 (CT)</i> <i>Meetings with parents and SEN team. ID89 (SET)</i> <i>Meetings with parents. ID96 (SCT)</i>
		Lack of support from outside agencies.	<i>Proper support needed from relevant professionals who can feed into targeted school support plans and would be available to give individualised sustained support as issues emerge. ID1 (SET)</i> <i>Access to help from outside agencies is very limited, almost nonexistent. ID81 (CT)</i>
I may be doing this but I'm not aware of it.	Implementation fidelity.	It has become apparent across data that conceptual understanding of EBPs is at times a difficulty for the teachers	<i>The term is new to me; however, we often do this informally. ID29 (CT)</i> <i>I may have been doing this. ID48 (CT)</i> <i>I may be doing it but not aware of it. ID61 (SET)</i> <i>I feel like I naturally use this to a certain extent in one-to-one settings but was not aware of it as being a specific strategy. ID102 (SET)</i> <i>From reading it I've used elements of it but don't refer to it as Naturalistic Intervention. ID117 (SET)</i> <i>Don't have enough knowledge about the programme to implement it but aspects of it are</i>

			<p><i>addressed informally. ID161 (SET)</i></p> <p><i>It sounds like settings I have used but I am unaware of its title. ID179 (SET)</i></p> <p><i>I've used elements of this but I don't know if it is classified as PRT [pivotal response training]. ID227 (CT)</i></p>
		<p>Teachers noted that they had some knowledge of the EBP in question but the responses indicate that was not enough to ensure fidelity to the strategy. Furthermore, this affects how planning for SCC, and using EBPs is done with some respondents identifying that they do not necessarily plan for it.</p>	<p><i>Informally and generally rather than specifically. ID72 (CT)</i></p> <p><i>Incidentally, not planned for or targeted. ID32 (SET)</i></p> <p><i>Indirectly every day but I don't plan for it. ID121 (SET)</i></p> <p><i>I don't teach it formally, but I have to address the issue. ID348 (CT)</i></p> <p><i>Currently, I take a child with ASD as part of a literacy group so teaching social communication is not the focus of the lesson but I model and praise eye contact, turn taking etc. ID349 (SET)</i></p>
	Teacher agency.	<p>Across data it is evident that teachers need specific professional learning in relation to EBPs that support SCC for autistic children which impacts on programme fidelity.</p>	<p><i>It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD. ID5 (SET)</i></p> <p><i>Would like more training on same before trying to implement. ID98 (CT)</i></p> <p><i>Teaching in an Irish medium school. No ASD class or unit for advice and working between two schools. ID99 (SET)</i></p> <p><i>I have received very little training on how to teach social skills. I</i></p>

			<p><i>don't know where to go to get training on this. ID317 (CT)</i></p> <p><i>Helpful when peer reviewed resource is recommended in professional report but can be difficult to find. ID367 (SCT)</i></p>
		Sourcing suitable EBPs to teach SCC to autistic children is seen as problematic.	75.9% of the respondents identifying having difficulty finding a suitable EBP and 98.7% of the 382 teacher respondents felt there is merit in the availability of guidelines documenting the EBPs suitable for teaching SCC to autistic children.
Trial and error	Individuality of the autistic child.	The respondents noted the individuality of the autistic child as one of the most influential factors for implementing EBPs. As a result of their unique profiles, implementing EBPs for autistic children has created divergent experiences for teachers and impacts on using EBPs to teach SCC.	<p><i>All my pupils have a significant intellectual disability therefore any strategies I use are personalised and tailored to suit the needs of individuals rather than groups and this poses difficulties as I need to juggle the varying needs of my pupils. ID106 (SCT)</i></p> <p><i>In many cases, ASD children have complex needs and social skills deficits that are very personal to them. ID109 (SET)</i></p> <p><i>Each of my children are at different stages and I use a variety of social communication so the challenge is that not one skill fits all. Teachers need to be able to adapt to all children's needs. ID140 (SCT)</i></p> <p><i>High attention needs within the classroom makes it difficult to regularly assess children's communication skills making it harder to tailor the programme to the child. ID188 (SCT)</i></p>

			<p><i>It can be overwhelming, I found that no one way worked best all the time, I felt it depended on each individual situation trying to be taught and the particular child it was being taught to – the same skill could be required to be taught differently and repetitively to each child who may need that skill. ID250 (CT)</i></p>
		<p>The demands of teaching SCC on an individual basis as well as reaching academic goals.</p>	<p><i>It is highly individualised which makes timing difficult when you have multiple children all with different social needs, in addition to meeting curricular expectations. ID18 (SCT)</i></p> <p><i>In a mainstream setting, pupils are to have access to the curriculum and each pupil works on an individual programme so the pressure of time to achieve the many goals we have set is an issue. ID81 (CT)</i></p> <p><i>Timetabling issues, feeling under pressure to get x done before you need to be in your slot on timetable doesn't allow you adequate time to focus on social needs i.e., academic/curricular targets prevail. ID117 (SET)</i></p>
		<p>The need to create motivating ways for autistic children to engage.</p>	<p><i>Finding the most motivating way to do so in order for them to generalise the skill – a lot of trial and error. ID170 (CT)</i></p> <p><i>Some children can be reluctant to engage with many interventions/ skills based social learning like modelling and some social stories. ID178 (CT)</i></p> <p><i>Hard to keep the children on track when being taught the skills as they nearly need one to one support. ID283 (SCT)</i></p>

			<p><i>I have the resources, time, strategies and skills but motivating the child to engage in any intervention can be challenging. ID379 (SET)</i></p>
		<p>The need for additional personnel support to help meet individual needs can be difficult.</p>	<p><i>Most of these children require one-to-one support in order to have their communication needs met. ID170 (CT)</i></p> <p><i>Working with a class of 6 who all have different social skills deficits can be challenging when trying to establish my version of normal – I am the odd one out in the room. I have had to enlist the help of their peers from mainstream class to help broaden and hone basic social skills in a real context. ID166 (SCT)</i></p> <p><i>I am still learning about some strategies but am comfortable enough with using them when I have the time to do so. However, this is often difficult to achieve due to the level of demand within the class, behavioural in particular. Most of these children require one-to-one support in order to have their communication needs met. ID170 (CT)</i></p> <p><i>The lack of personnel to help support other children while individual skills are trying to be taught makes it difficult to achieve goals as quickly as one would like. ID250 (CT)</i></p> <p><i>Having the support to keep the children on task when being taught the skills as they need one to one support. ID282 (CT)</i></p> <p><i>I usually have 29–31 children in my class. I rely on the SEN</i></p>

			<i>teachers to support me by teaching the skills intensively. ID348 (CT)</i>
	Challenges implementing EBPs.	Time and the demand on this for both the teachers and the children.	<p><i>Time. It takes time to develop these skills for children with autism. ID12 (SET)</i></p> <p><i>Honestly, school moves at a furious pace and researching or making resources takes up a lot of time. ID42 (CT)</i></p> <p><i>Social skills need time to be acquired and implemented. It takes many occasions and with many varying circumstances for children to truly acquire one social skill. In many cases, ASD children have complex needs and social skills deficits that are very personal to them. It can be time-consuming to first identify these deficits, plan and teach children the skills and allow them the time and occasions to practise the skill. ID109 (SET)</i></p> <p><i>It takes a lot of trial and error over the course of the year/2 years teaching the child to find a strategy/few strategy that really works well. ID126 (SCT)</i></p> <p><i>As all children with ASD are unique, it is difficult to find appropriate resources to suit each individual child's specific needs. It is time-consuming as many interventions need to be tailor-made to suit the child, continuously monitored and changed! Extremely challenging yet rewarding! ID299 (SET)</i></p> <p><i>Time is a challenging factor when the children in your class all respond best to a different strategy. ID334 (SCT)</i></p>

			<p><i>Time and resources can be an issue, but I find that you may need different methods for different children and this can impact on scheduling and the amount of time available to support kids when caseload is heavy and needs are great. ID354 (SET)</i></p>
		<p>Resources including funding and technology are also seen as a challenge for teachers that are trying to implement EBPs to teach SCC.</p>	<p><i>Difficult to find resources online suitable for Gaelscoil. ID100 (CT)</i></p> <p><i>I have read about the benefits in research articles and suggested it but no funding. ID122 (SET)</i></p> <p><i>Do not have the technology to allow for this. ID143 (CT)</i></p> <p><i>We don't have the resources in the school. ID242 (CT)</i></p> <p><i>Tailoring resources/activities to motivate children whose interest could vary week to week is both time consuming and costly, often funded out of teacher's own pocket. ID349 (SET)</i></p>
		<p>External challenges that affected the implementation of EBPs.</p>	<p><i>Although I have used this strategy, it can be difficult with teaching Social Skills due to new GDPR regulations and parents not wanting the child's social difficulties becoming a focus with their peers. ID37 (SET)</i></p> <p><i>Parent doesn't like ICT used with her child. ID109 (SET)</i></p> <p><i>Video modelling is contentious given GDPR regulations. ID146 (SCT)</i></p> <p><i>It can depend on the priority for parents. ID327 (SCT)</i></p>

Table 25: Consolidated Qualitative Findings

Through the use of the colour-coding, patterns were identified between data types which supported further consolidation into an interpretive analysis table.

7.4.3 Interpretive Data Analysis Findings

The researcher colour-coded across both types of data analysis to source convergence or similarities in the findings. Through the process the themes from the qualitative data were juxtaposed with the quantitative results and a clearer portrayal emerged. At this point, the researcher decided to continue with the themes as they represented the overall data precisely and were illustrative of the content across both sets of results. The interpretation of the findings did, however, derive new combined sub-themes; these are evident in Figure 55 in the integrated results illustration.



Figure 55: Interpretive Data Analysis – Integrated Results

The next chapter will present a discussion of the interpreted and integrated data that emerged from the triangulation followed in the study. The themes and sub-themes identified will be discussed in conjunction with the literature and theorised using Vygotsky’s sociocultural theory. Furthermore, the research questions and embedded questions will be answered through the findings, leading to the recommendations and conclusion of the study.

CHAPTER EIGHT

DISCUSSION

8.1 Introduction

This study set out to explore teachers' perspectives on effective evidence-based practices (EBPs) that support learning and teaching social communication competency (SCC) for young autistic children in Irish classrooms. The complications that can manifest from poor social competence for autistic children have been discussed throughout the literature (O'Connor and Stagnitti 2011; Conn 2014; O'Sullivan 2018) and detailed in Sections 1.1 and 4.4. Challenges have also been put forward to some of the claims of difference with SCC for autistic children in work by Milton (2012) and Silberman (2015), who refute the idea of difficulty and rather suggest that a lack of shared understanding between neurodivergent and neurotypical individuals leads to perceived areas of challenge for autistic children. We are told, however, that if differences in SCC are not addressed, challenging behaviour, disengagement, social exclusion, feelings of anxiety, isolation and compounded communication challenges can become evident (Adams *et al.* 2004; Petticrew and Roberts 2006; Barnett 2018; Brock *et al.* 2020). According to evidence from Brock *et al.* (2020) and Feldman *et al.* (2019), as noted in Section 1.1, teachers and schools should adopt a proactive approach to the development of social skills to empower the autistic child and address such needs. Indeed, although he disputes much of the research into Autism Spectrum Difference (ASD), Milton (2012) suggests that looking at the social world of the autistic child is more favourable in terms of supporting their learning. The proactive approach that teachers can take in the social world of school for autistic children must also be

grounded in trustworthy research, so that practices are effective and evidence-based (Conn 2014). Reports from Parsons *et al.* (2009) and Bond *et al.* (2016), however, note the lack of research in real school settings relevant to supporting SCC learning for autistic children in Ireland, as discussed in Section 5.1. Furthermore, Boudreau *et al.* (2015) warn of a discrepancy in the reliable implementation of effective EBP models for autistic children. The discussion in Section 4.13 contextualises how the threat of this discrepancy is problematic when we consider that appropriate implementation of EBPs promotes the best possible experience and learning for autistic children (Odom *et al.* 2005; Goldstein *et al.* 2014; King *et al.* 2018). Encouraging the adoption of EBPs ensures that teachers such as, class teachers (CTs), special education teachers (SETs) and special class teachers (SCTs), base their educational decisions on scientific evidence garnered from rigorous research, which will ‘eschew the tradition of following pronouncements and theories of authorities in the field’ (Goldstein *et al.* 2014, p.262). Vygotsky (1978), whose work is explored in Chapter Two, postulated that to develop our understanding of learning and development we must intervene in the process. In the classroom, ‘this entails designing pedagogical programmes that create the conditions under which developmental processes may be set in motion and observed’ (Van Compernelle and Williams 2013, p.278). Observing the unique social world of the autistic child and implementing appropriate EBPs that support learning in that environment are key (Government of Ireland 2022). Although we know the value of using EBPs, teachers have been noted to struggle with this process (DES 2020; Barry *et al.* 2021); they report feelings of inadequacy, as they lack varied instructional strategies to meet targets and goals in new ways (Datnow 2017). We are, therefore, called to uncover the contributing factors that affect the implementation and use of EBPs (Cooper and Jacobs 2011).

The research–practice gap was highlighted in the literature in Chapter One (Parsons *et al.* 2013, Joyce and Cartwright 2020) and informed the decisions made around the study trajectory and the design of the research and embedded questions. From the outset, the researcher rooted the study in an evidence base by adopting a systematic literature review, relayed in Chapter Five, which made synthesis of the literature transparent and facilitated the identification of effective practices (Gough *et al.* 2013; King *et al.* 2018). Results from the review were used to inform the data collection mode of the study. The findings from the systematic review highlighted eight practices that were noted as effective for teaching SCC to young autistic children in schools, as discussed in Chapter Five. These eight practices included social narratives, peer-mediated instruction, social skills groups, pivotal response training, video modelling, naturalistic strategies, modelling and prompting. The strategies were then presented to teachers through a comprehensive national survey, distributed to all primary schools in Ireland, which garnered a strong response from a purposeful sample of participants (n=393). The survey followed a convergent triangulation design, mixing both qualitative and quantitative data to foster a more complete representation of the participants’ perspectives (Creswell and Guetterman 2021). The study design was born from the pragmatic worldview, detailed in Section 6.3, which is known to focus attention on the research problem, while a pluralistic approach was adopted to seek answers to the problem (Tashakkori and Teddlie 2010). A combination of mainstream class teachers (CTs) (n=148), special education teachers (SETs) (n=153), special class teachers (SCTs) (n=75) and principals (6) completed the surveys. Subsequently, data collected was quantitatively analysed using inferential statistics (Field 2009) through SPSS; separately, it was qualitatively analysed with reflexive thematic analysis (RTA) (Braun and Clarke 2022), supported by NVivo. Thoroughly analysing the survey using

both methods separately reflected the convergent triangulation design (Creswell and Guetterman 2021) set down by the study in Chapter Six. Through convergent triangulation, the researcher was able to combine the benefits of separated analysis of quantitative (see Section 7.2) and qualitative data (see Section 7.3), supporting the ‘generalisability’ and information about ‘context and setting’ in research (Creswell and Guetterman 2021, p.603). The final phase of analysis involved merging both data analyses taken from CTs, SCTs and SETs (see Section 7.4.3) to identify the commonalities that represented the dataset as a whole (Morgan 2017). The findings from the triangulated data are discussed in this chapter, using the qualitative themes as the headings under which the quantitative statistical results are confirmed and discussed with qualitative quotations (Creswell and Guetterman 2021). Furthermore, the research outlined in Chapter Two provides an account of the decisions made in relation to aligning the study with a theoretical framework. Vygotsky’s sociocultural theory characterised children’s development through the involvement of key components, including the Zone of Proximal Development (ZPD), the More Knowledgeable Other (MKO) and culture-specific tools of intellectual adaptation (Vygotsky 1978), and the use of these lenses informed the analysis.

This penultimate chapter addresses these findings in conjunction with the embedded research questions set down in Chapter One:

- Are teachers familiar with effective EBPs to develop SCC for autistic children?
- How do teachers report that these EBPs are being implemented and used in schools?
- How do teachers measure the effectiveness of EBPs?
- What are the contributing factors that influence the adoption of EBPs for teachers?

Each question will be addressed with pertinent findings from Chapter Seven and explanations drawn from the extant literature discussed in Chapters One to Five, as well as the key theoretical assumptions cultivated by sociocultural theory. The Phase Three interpretive data analysis outlined in Section 7.4.3 combined the qualitative and quantitative analysis through triangulation to represent the key concepts that emerged. The four themes presented in the findings in Chapter Seven are as follows; Theme One: *I may be doing this but I'm not aware if it*; this delved into teacher agency and implementation fidelity in relation to knowledge and understanding of EBPs, how teachers engaged with planning and the impact of professional learning and teacher confidence in this area. Theme Two: *It's integral to my teaching*; this reflected evidence from teachers on why EBPs are used for SCC and how this takes place in schools. Theme Three: *It's hard to know*; highlighted processes related to information-gathering for identification of need and the role of assessment, the role of the teacher and collaboration with others. The last theme: *Trial and error*; this illustrated patterns across data that discussed the implementation of EBPs and the related challenges that teachers experienced in schools, as well as the impact of the individuality of autistic students on how teachers embedded EBPs in their work. The triangulated data relevant to each theme will be discussed to answer each of the embedded questions, as outlined in Figure 56.

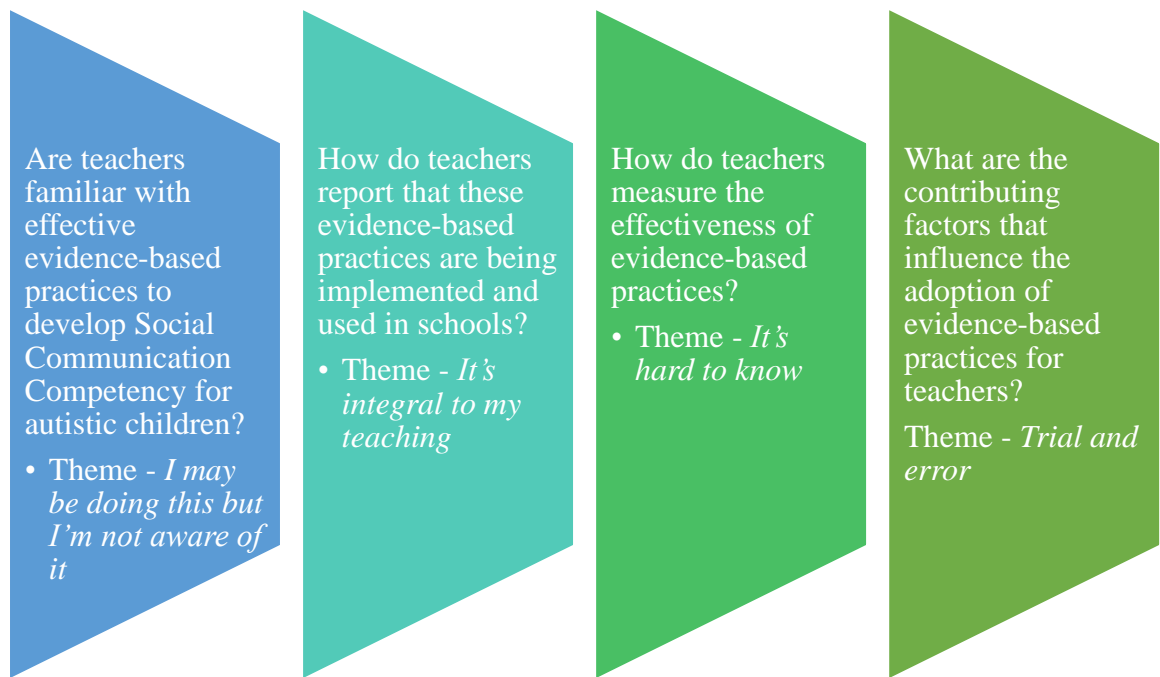


Figure 436: Embedded Questions and the Relevant Themes

Following the discussion and theorisation of the analysis supported by the literature, the implications of the research will be outlined, as well as identified strengths and limitations, culminating with suggestions for future research and developments.

8.2 Are Teachers Familiar with Effective Evidence-Based Practices to Develop Social Communication Competency for Autistic Children?

Theme One: I May Be Doing This but I'm Not Aware of It

The adoption of effective EBPs has been documented as the cornerstone of education for autistic children (Goldstein *et al.* 2014; Egan 2018) and evidence of a plethora of practices for teachers to draw from exists throughout education research (Parsons *et al.* 2013). In this study, teachers were presented with eight specific EBPs, drawn out of the systematic review, deemed effective to support SCC teaching in early years classrooms

for autistic children. The findings related to uncovering teachers' familiarity with these EBPs are represented under the theme of *I may be doing this but I'm not aware of it*, with the sub-themes of the teacher's conceptual knowledge, implementation fidelity and teacher agency capturing the relevant evidence.

8.2.1 The Teacher's Conceptual Knowledge and Implementation Fidelity

Autistic scientist and advocate Temple Grandin stated that regarding education, 'I cannot emphasise enough the importance of a good teacher' (Grandin 2006). Imperative to the role is teachers becoming 'critical and reflective practitioners who are able to consider and adjust their own practice' (Conn 2014, p.129) in order to facilitate specialist teaching based on evidence to meet the needs of autistic children (Griffin and Shevlin 2011; Brock *et al.* 2020). According to sociocultural theory, teachers must therefore strive to develop engaging pedagogical approaches and activities that facilitate child interaction with peers and teachers as they learn and develop their understanding (Putnam 2009). In Ireland today, teachers are guided by legislation and policies driven by the DES, renamed the Department of Education in October 2020. Current policy manifesto dictates that in relation to priorities in schools, it is imperative that 'pupils with the greatest needs are supported by teachers who have the relevant expertise, and who can provide continuity of support' (DES 2017, p.49), as outlined in Section 3.7. Findings detail that all (n=382) the teachers in this study used at least one of the eight EBPs to support SCC for autistic children, but differences in adoption across the EBPs were also evident. Such difference concurs with reports from Daly *et al.* (2016) and the Department of Education and Skills (DES) (2020), who noted teachers were implementing EBPs but advocated for further research to document the teachers' practices. Findings from the study by Barry *et al.* (2020), however, argue that

there is a lack of EBPs being implemented in schools for autistic children and highlight a lack of knowledge and professional learning as heavily influential factors. Their findings are solely focused, however, on mainstream classroom teachers, which is not representative of all the teacher roles in the school. In this study, 98% (n=374) of teachers indicated that they used modelling to teach SCC to autistic children, which was the most used EBP, in contrast to 13% (n=50), who used pivotal response training, which was the least used strategy. Figure 42 in Section 7.2 provides a detailed breakdown of the EBPs identified.

There is an understanding that placing an emphasis on the adoption of EBPs ensures that professionals base their educational decisions on ‘rigorous research and scientific evidence’ (Goldstein *et al.* 2014, p.262). The teachers were provided with supportive literature to inform them of the detail pertaining to each of the EBPs as it was important to ascertain the knowledge that teachers have across the range of eight EBPs, before and after they are provided with a clear definition to mitigate against extenuating factors in the comparability of respondents’ understanding. Once provided with a definition of each of the eight EBPs, inferential analysis using a repeated measures ANOVA shows that more teachers indicated using the eight EBPs. Tests of Within-Subjects effect show that the definition led to a change in EBPs reported by teachers ($F = [57.56]$, $p = [<.05]$, $\eta_p^2 = [.13]$). Arguably, providing a definition of the EBPs inspired a change in teachers’ conceptual understanding of the range of EBPs. In their recent report, Joram *et al.* (2019) highlight that a lack of knowledge and certainty for teachers regarding adopting teaching approaches and changes to practice can act as a systemic barrier to implementation. In the study, an overall lack of knowledge about an EBP was the greatest barrier for seven out of the eight practices posed to teachers,

as evidenced in Table 23. One of the SET statements captured the feeling, by saying: *I don't have enough knowledge about the programme to implement it but aspects of it are addressed informally* (ID161). Qualitative findings corroborate the statistical results throughout and it became apparent across data that conceptual understanding of EBPs is at times a difficulty for the teachers; which featured in relation to seven of the EBPs with modelling the only one that had no difficulty. Teachers' lack of certainty, evidenced in the statistical result above, is confirmed from a sample of the respondents who state: *I may have been doing this* (ID48 CT) and again *I may be doing it but not aware of it* (ID61 SET) and *I feel like I naturally use this to a certain extent in one-to-one settings but was not aware of it as being a specific strategy* (ID102 SET). The lack of certainty is corroborated by Knight *et al.* (2018), whose findings from their survey of 535 teachers working with autistic children and children with intellectual disabilities noted that lack knowledge of and preparedness is a heavily influential factor in teachers' confidence using EBPs. This corroborates with the lack of conceptual understanding highlighted in this study for some of the teachers. Some of the respondents noted the terminology as a perceived difficulty, with one class teacher stating: *the term is new to me; however, we often do this informally* (ID29); a SET noted that *it sounds like settings I have used but I am unaware of its title* (ID179). Providing the definition was statistically proven to impact on the teachers' responses but this is also confirmed from some of the teachers, who noted *from reading it I've used elements of it but don't refer to it as Naturalistic Intervention* (ID117 SET) and again *I've used elements of this but I don't know if it is classified as pivotal response treatment* (ID227 CT). In a similar study by Brock *et al.* (2014), who surveyed 456 teachers, SETs and managers, findings showed that teachers were not confident implementing EBPs.

Each of the sentiments from the respondents above captured the degree of ambiguity experienced in relation to implementing EBPs. It is noteworthy that the responses were from CTs and SETs. Further statistical analysis using the repeated measures ANOVA, which analysed the effect of range of EBPs with definition and range of EBPs without definition on the teacher roles, highlighted the difference. The Tests of Within-Subjects effect showed that results differed by the role of the teacher ($F = [6.85]$, $p = [<.05]$, $\eta_p^2 = [.04]$). A post hoc analysis with a Bonferroni adjustment outlined the interaction effect between the variables. The results revealed that the effect change between range of EBPs with and without definition had a statistical impact on CTs (1.26 (95% CI -.96 to 1.56) $p = <.05$) and SETs (.71 (95% CI, .47 to 1.00), $p = <.05$), but no impact on SCTs (.33 (95% CI, -.09 to .75), $p = >.05$). This confirms that the SCTs in the sample have more conceptual knowledge of the EBPs to support autistic children. A recent report from the Department of Education Inspectorate reflect these findings also, stating that in an evaluation ‘almost all primary special class teachers demonstrated the requisite subject knowledge, pedagogical knowledge and classroom management skills’ (DES 2020, p.5). The report however had concerns that some needed to further develop their knowledge and that disparity still exists for mainstream CTs implementing EBPs (Barry *et al.* 2021). Considering such findings prompts us to ask questions about programme fidelity. It is known that adherence to the main components of EBPs ensures the best possible outcomes for autistic children (Knight *et al.* 2019) and is considered a measure of success for the student, as well as an ‘indicator of intervention quality’ (Stahmer *et al.* 2015, p.181). Teachers in the study note that they had some knowledge of the range of EBPs in question, but a query arises over whether that is enough to ensure overall fidelity to the strategy. Furthermore, it affects how planning for SCC and using EBPs is done, with some respondents

identifying that they do not necessarily plan for it, as suggested by CT (ID72), *I do it informally and generally rather than specifically* and SET (ID32), who discussed using EBPs to teach SCC *as incidentally, not planned for or targeted*. Furthermore, teachers endeavoured to embed the SCC teaching in different contexts without specific planning or targeted support, as is evident from SET (ID349), who details that *currently, I take a child with ASD as part of a literacy group so teaching social communication is not the focus of the lesson, but I model and praise eye contact, turn taking etc*. A similar account is relayed by CT (ID348), who says that *I don't teach it formally, but I have to address the issue*. Although the teachers see the need to teach SCC, the lack of appropriate planning and implementation is evident, as captured by SET (ID121), *who teaches SCC indirectly every day, but I don't plan for it*. Odom *et al.* (2020) also note the limitations and threats to EBP implementation for autistic children due to difficulties with programme fidelity and in their discussions, they note the necessity for a more holistic perspective, one that would lead to use of EBPs with more fidelity by being 'scaled up' (Odom *et al.* 2020, p.2).

As evident from the findings noted, some questions are raised over programme fidelity and the inherent understanding of the importance of apt implementation of EBPs to teach SCC based on their core components to measure effectiveness. The importance of teachers having the requisite knowledge is confirmed by sociocultural theory; Vygotsky (1978) noted that if teachers did not intervene appropriately for children who have difficulty with social interaction, this could reflect a 'progressive divergence in social and natural development', whereby children's needs are not met, leading to social deprivation and the emergence of further delays (Gindis 1999, p.335). Adopting EBPs appropriately fosters teacher confidence that they are implementing the

most valid and reliable research-based interventions, proven effective in improving a child's social competence and educational performance (Cooper and Jacobs 2011). The role of the MKO explicitly emphasises the need for children to have teachers who can engage them with instructional strategies that can influence their individual capabilities and lead them to knowledge extension (Vygotsky 1978). Furthermore, for teachers to understand autistic individuals' social interaction in a situation consideration for 'interactional substrate' is useful as according to Solomon (2015, p.323) it supports an understanding that in certain situations autistic children might be more social than they are in different situations. Developing an awareness and promoting a wider understanding of differences in social situations for autistic individuals that accounts for autistic individuality as well as social partner prejudices, is favourable (Sasson *et al.* 2017) and important for teachers to consider. The findings here show that teachers do not have enough conceptual knowledge to be assured about the effectiveness of the EBPs that they are adopting. The fact that providing a definition of the EBPs directly impacted on their understanding, as well as the uncertainty expressed by some of the respondents, would confirm such results. Sociocultural theory notes how communication and language mastery are shaped by the demands of regular interactions, which entails creating the right conditions for learning using appropriate pedagogical processes (Vygotsky 1978), confirming the need to adhere to EBP fidelity. Such aspirations are also linked to teacher agency, the subject of the next section.

8.2.2 Teacher Agency

In order to apply EBP programme fidelity, we are told teachers must have 'extensive training, coaching, and time to reach and maintain moderate procedural implementation fidelity' (Stahmer *et al.* 2015, p.181). These activities lead to changes in teacher agency.

Described as an ‘indispensable element of good education’ (Biesta *et al.* 2015, p.624), the concept of agency recognises the critical position of developing teacher capacity in contextualised planning and decision making, as encouraged by professional reflection (Simpson *et al.* 2018). Teachers in the study are noted to have experience in supporting autistic children, with 69% (n=264) having four or more years of experience and 22% (n=84) having twelve or more years of experience, which is supportive of capacity-building (Knight *et al.* 2019). There is a call to understand the contributing factors affecting implementation and decision making around the complex issue of adopting EBPs (Cooper and Jacobs 2011), with some identifying ‘access to training and resources’ as one salient factor; ‘teacher (e.g., experience, education) and setting (e.g., caseload, educational setting)’ are seen as other contributing factors (Knight *et al.* 2019, p.3). Teacher experience is noted as influential for implementation of EBPs (Biesta *et al.* 2015) which is subsequently confirmed by the findings from the study; these show that years of experience has a positive impact on teachers’ familiarity with EBPs defined. Spearman’s Rho was conducted to assess the correlation between the teacher’s years of experience and the range of EBPs with definition. The results indicate a statistically significant relationship between the two variables $r(374) = [.13]$, $p = [.015]$, confirming the vital role of experience. The current policy manifesto from the DES notes the importance of schools maintaining core special educational needs (SEN) teams in order to retain the experience teachers have to foster better outcomes for children (DES 2017b). These findings affirm the DES position: the more experience the teachers have working with autistic children, the greater their understanding of the range of EBPs. However, across data it is evident that teachers want specific professional learning in relation to EBPs that support SCC for autistic children and enhance the development of their conceptual knowledge. In the study CT (ID317) notes

their own inexperience: *I have received very little training on how to teach social skills. I don't know where to go to get training on this.* This is indicative of the need for support for teachers, who can sometimes feel reluctant to use EBPs without the appropriate knowledge, as mirrored by CT (ID98): *I would like more training on same before trying to implement.* The sentiments expressed are suggestive of some of the respondents' frustration with a lack of knowledge, as well as professional learning needs, which impact on the implementation of EBPs. Research conducted by Brock *et al.* (2014), through a survey of 456 teachers and administrators, highlighted similar findings that teachers lacked confidence implementing EBPs for autistic children, and suggested it could be overcome with strategic professional learning based on the needs of the teachers. Teacher agency reflects the ideal that teachers assume responsibility for their own professional development in response to the dynamics of their own teaching experiences, leading them to take action (Biesta *et al.* 2015). Brock *et al.* (2014) caution that not all professional learning approaches impact positively on teachers' implementation of EBPs and highlight that teachers may be more interested in accessing professional learning on specific practices proven effective for their contexts. Such practical application reflects the importance of developing teacher agency, whereby teachers feel empowered to seek out learning to improve practice. The Primary Curriculum Framework launched in Ireland in 2023, underpins what curricula in Irish schools should look like for the future (National Council for Curriculum and Assessment [NCCA] 2023). The framework highlights that teachers must make informed decisions based on children's preferences and learning to design appropriate pedagogical approaches and by doing so exercise their teacher agency (NCCA 2023). However, findings detail that sourcing suitable EBPs to teach SCC to autistic children is seen as problematic, with 76% (n=290) of respondents identifying having difficulty

finding a suitable EBP and 98% (n=374) requesting support in implementing EBPs suitable for teaching SCC to autistic children. Teachers expressed a desire to have recommended resources that they could feel confident to use: *[it is] helpful when peer reviewed resource is recommended in professional report but can be difficult to find* SCT (ID367); and *it is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD* SET (ID5). Teacher agency encapsulates the importance of teachers having autonomy to make everyday decisions about ‘situation-appropriate and context-specific inclusive pedagogies, to intentionally take actions, and to strategically initiate changes’ (Li and Ruppert 2021, p.49). The Primary Language Curriculum (PLC) used in Irish classrooms today promotes teacher advocacy and professional decision making in relation to the journey of each learner (National Council for Curriculum and Assessment [NCCA] 2015a). The PLC and the SEN pathways provide exemplars of children’s language learning. However, the support documents and the curriculum itself are deficient in their recommendations for how teachers should provide the support for autistic children, who may present with greater difference in language and communication, as suggested by Ó Duibhir and Cummins (2012). Comparatively, Syriopoulou-Delli *et al.* (2012, p.756) highlight that harnessing the special education experience of teachers can have a huge impact on how future teachers use education curriculums for autistic children. Potter and Whittaker (2001, p.166) criticise curricular documentation that does not include ‘the use of specific teaching approaches in the areas of communication’ for autistic children. The literature promotes capturing the teacher voice and experience through ‘a flexible educational feedback mechanism [which] would assimilate practical evidence gained at school level’ (Syriopoulou-Delli *et al.* 2012, p.756). Such recommendations, coupled with context-driven professional learning, would

provide some answers to the findings from this study, which highlights the importance of developing teachers' conceptual knowledge and agency relevant to their setting. Such ideals are captured by SET (ID99), who highlights the difficulty: *[I am] teaching in an Irish medium school. No ASD class or unit for advice and working between two schools.* Vygotsky (1978) describes the role of the teacher as MKO which reflects teachers as agents of change that can impact the child's learning (Roth and Radford 2010; Semmar and Al Thani 2015), as discussed in Section 2.5.4.2. Teacher agency encourages teachers to adopt the role of agents of change which is highlighted as imperative and under-researched in special education, even though the opportunity exists to have a huge influence on inclusion and equity for learners (Li and Ruppert 2021). The literature reviewed in Section 4.13 notes how the concept of agency as a theory recognises the critical position of developing teacher capacity in contextualised planning and decision making, encouraged by professional reflection (Simpson *et al.* 2018) which can lead to a change in teacher identity and expertise (Sheridan *et al.* 2022). Findings from this study show that teachers are taking action but that more needs to be done to develop their confidence and agency because the relationship between teacher agency, social equity, justice and inclusion can serve to support teachers in developing inclusive pedagogy competency and a capacity for self-reflection in inclusive education (Pantić and Florian 2015). Further analysis looks at how the teachers implement the EBPs in schools to understand the dynamics that play out in relation to EBP implementation. The theme of *It's integral to my teaching* reflects the analysis and recounts how teachers report on the significant time commitment, merit of consistent permeated instruction and the complexities of SCC teaching, which are outlined in the subsequent section.

8.3 How Do Teachers Report That the Evidence-Based Practices are Being Implemented and Used in Schools?

Theme Two: It's Integral to my Teaching

Vygotsky taught us the importance of social interactions for the development of a child; through sociocultural theory, he affirmed the belief that language was cultivated from social interactions and was driven by communicative purposes (Vygotsky 1987), as discussed in Section 2.5.4.3. Schools are considered optimally placed to facilitate SCC learning (Westwood 2015), so it is important to understand teachers' perspectives regarding implementing EBPs to teach SCC in this environment. The theme *It's integral to my teaching* captures the sentiments expressed by teachers in relation to the significant time commitment, complexities of SCC teaching and the merit of permeated instruction, all of which reflect their experiences teaching SCC to autistic children.

8.3.1 Significant Time Commitment

The majority of respondents see merit in teaching SCC to autistic children, with taking one's turn the most taught skill, identified by 93% (n=354) of respondents, and smiling accounting for the lowest number, with 47% (n=180) teaching the skill. Such merit is further reflected in the time dedicated by teachers to embedding SCC for autistic children. The results indicate that 68% (n=261) of respondents taught SCC to autistic children daily and a cumulative 78% (n=296) of teachers taught SCC more than three times per week. Westwood (2015) supports the ideal that SCC should be developed, where possible, in a natural setting and that these naturally occurring opportunities, described as 'culture' in sociocultural theory (Vygotsky 1978) should be encouraged throughout the day in the classroom (see Section 4.6). Such sentiment

is corroborated in the findings from this study; some teachers also note the need to continually promote SCC during the school day, including SCT (ID104), who felt that *social communication is part of every day and staff model appropriate communication strategies*. Furthermore, SCT (ID65) expresses the view that it featured *all day every day* in their teaching setting. Such sentiments are not just reserved to SCT, as CT (ID92) stresses the fundamental role of SCC teaching, with *it is integral to my teaching so every day*, and SCT (ID49) notes that *it pervades instruction continuously throughout each day*. The importance of teaching SCC is understandable when we know that language comprises the three components of form, content and use (Bernstein and Tiegerman-Farber 2009); however, it is use or the social purpose of communication that is the ‘driving force behind all aspects of language’ (Owens *et al.* 2018, p.19) (see Section 4.3). Westwood (2015) urges teachers to ensure that children with differences in SCC are afforded opportunity, continuity and support (Westwood 2015) to have positive social experiences, discussed in Section 3.7, which should be filtered throughout the day through multiple opportunities.

Moreover, in relation to the time devoted to EBP implementation, the findings show that formal discrete teaching, which was scheduled and often involved withdrawal, is noted by some of the respondents as effective, but relies heavily on SET support and their time for the child. Variations on the timing were also evident from CTs, including (ID80), who states how the autistic *child gets withdrawn for thirty minutes social skills a day*. Furthermore, SET (ID107) states that in their context, SCC teaching using EBPs *happens once per week to groups of children in discrete lessons*, which is similar to SET (ID311), who notes *discreet withdrawal social communications lessons once or twice a week*. These findings are indicative of results from the

systematic literature review, which identified SSGs as an effective practice, that utilises explicit direct instruction with modelling, role-playing and feedback seen as key components. The studies use withdrawal of small groups to support learning and practising social competencies in structured ways (Thomeer 2012; Lopata *et al.* 2013 and Beaumont *et al.* 2015) and detail the effectiveness of this approach to develop SCC (see Section 5.7.3). When analysing the teachers' perspectives on SSGs, 87% (n=332) state that they have experience of this EBP but only 21% of respondents feel it is an effective EBP to support SCC. Furthermore, 88% (n=336) indicate that it is implemented during small group withdrawal. These findings show that SSGs were used by teachers but not regularly and they did not see them as highly effective. Bellini *et al.* (2007) advocate that in order to be effective for autistic children, school-based EBPs should be implemented more frequently across the school day, rather than once or twice a week, allowing treatment fidelity to be monitored (see Section 4.1.3). Differences with social communication are a feature across the autism spectrum (Ernsperger and Wendel 2007; Aspy and Grossman 2012), with approximately 30% of autistic children developing minimal verbal communication (Tager-Flusberg and Kasari 2013). When we consider that communication contributes to the development of social competency, which is at the heart of the education process (Ernsperger and Wendel 2007), the importance of adopting regular sustained support must be emphasised for schools. Although it is perceived by the teachers in the study as needing a significant time commitment, having SCC is fundamentally important as without these competencies autistic children risk losing out in many social interactions (Quill and Stransberry-Brusnahan 2017), which can further inhibit their language development (Aspy and Grossman 2012) and impact on their everyday experience (Ernsperger and Wendel 2007), as outlined in Section 4.3. These findings represent the time commitment that is

evident in teaching SCC using EBPs but also highlights some of the complexities involved, which are further explored below.

8.3.2 Merit of Consistent Permeated Instruction

Findings from the study indicate that school setting influences the use of EBPs to support SCC for autistic children. A one-way repeated measures ANOVA was used to assess if the adoption of EBPs is affected by school setting. Mauchly's test of sphericity was violated $\chi^2(14) = 1233.01, p < .05$; therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .723$). The results show that the adoption of EBPs by the teachers is impacted by the settings within the school $F(4, 1354.89) = 169.98, p < .05$. Furthermore, specific areas of the school setting were favoured by teachers to support the implementation of EBPs to teach SCC. A post hoc pairwise comparison was used to identify specific areas of statistical significance in relation to the adoption of defined EBPs. The Bonferroni correction was applied in order to reduce the chance of a Type 1 error across multiple comparisons. Analysis of data details that in relation to teachers' preferences, 'outside school' ($p < .05$) and 'combination' of settings ($p < .05$) produced statistically significant results when compared with mainstream, special class and SET room, respectively. Data details how teachers promote SCC across multiple sites in order to support children to generalise their learning which would, in turn, serve to address the differences proposed by the cognitive theory of Weak Central Coherence (WCC). According to Aljunied and Frederickson (2011), WCC impacts the ability of autistic children to generalise their learning across contexts, as noted in Section 3.9. Detailed-driven processing and difficulties generalising learning across contexts are factors that influence the social engagement of autistic children (Conn 2014). Furthermore, typical classroom teaching

styles may be more demanding on autistic children's SCC abilities (Aljunied and Frederickson 2011). The permeated use of support was highlighted by most teachers, who saw the merit gained from adopting a combination of both planned and incidental teaching approaches to support SCC learning for autistic children. Such an approach provides for opportunities to generalise learning:

I think this is something that is done on an ongoing basis, there are three communication and language sessions and three social and emotional learning sessions per week. It is during these lessons that direct teaching is done.

SCT (ID198)

Furthermore, some teachers felt it should feature throughout the day and across teaching contexts. Such experience is seen in special classes:

It forms part of my daily interactions with the children. Some are still at the pre-verbal stage and the emphasis here is often on joint attention, imitation, turn-taking.

SCT (ID168)

It was also evident from CT (ID148), who relayed *I try to have at least one class per day of social communication but it is an undercurrent of all the subjects.*

Vygotsky cited in Pressick-Kilborn *et al.* (2005, p.27) theorised that 'enculturation occurs as learners participate in practices in collaboration with more capable others, or with experts' through a nurturing process of cognitive scaffolding, as discussed in Section 2.5.4.4. In order to facilitate such a process, the teacher must structure and scaffold the autistic child to learn the intricacies associated with SCC. The findings from the systematic literature review noted prompting as a scaffold that was efficient, effective and easy to implement as it could draw on a child's special interests (Campbell and Tincani 2011). In the study, 94% (n=361) of the teachers report using prompting to support SCC, and this was ranked the second easiest of the strategies

overall to implement. However, further analysis shows that only 16% (n=63) of the respondents feel it is effective when compared to the other EBPs. The systematic review findings suggest that differences in generalising the social learning through prompting is identified as a limiter for this EBP (Campbell and Tincani 2011), which may account for why it is not seen as effective.

Providing appropriate social engagement opportunities, which permeate the school day (Bellini *et al.* 2007), is considered vital to developing social competency as this has a significant impact on generalisation of learning across contexts (Charman *et al.* 2003; Williams *et al.* 2008; Romero 2017) (see Section 4.4). Romero (2017) proposes that if teaching approaches are well planned and designed to target specific areas for development, they can lead to improvement in social competency. Inclusive teaching approaches are evident across the data, and are used specifically to support generalisation of SCC through EBPs by some respondents. The supportive role of peers as the MKOs, is noted across the teacher roles with SET (ID14) incorporating games in their approach when *pupils from mainstream class accompany pupil with ASD to play board games and do exercises*; another SET (ID159) notes how they specifically implement EBPs for SCC *when I promote it during social inclusion activities with peers*. Such sentiments are not confined to SET responses; CT (ID75) identifies the merit of peer support: *I have found that over the years the 6th class mentors at break times are also a great asset to monitor this with the group of children involved in the peer mediated instruction*. Further collaboration is evident from SCT (ID146), who also draws on peer interaction for instruction: *I have a mix of special class and mainstream class pupils together*. According to Milton *et al.* (2022) good autism practice should rely heavily on relationship and rapport building to promote understanding as opposed

to the preconceived idea of lack of capacity, social deficit and correction. Furthermore, Sasson *et al.* (2017) advocate that teaching approaches which include autistic children and their typically developing peers are likely to create a more comprehensive approach for improving SCC. Findings from the systematic literature review promote pivotal response treatment as a favourable practice to teach SCC using appropriate social settings (Koegel *et al.* 2012; Brock *et al.* 2018 and Vincent *et al.* 2018). Pivotal response treatment combines ‘adult facilitation, repeated social learning opportunities in natural settings with peers and active peer mediation with the autistic children’ (Kamps *et al.* 2015, p.1810). It is promoted as a practice to achieve positive gains in SCC. The practice calls on teachers to foster a communication environment that promotes success based on the individuals’ strengths, rather than modifying experiences to their differences, and facilitates the permeated support that promotes generalisation. Pivotal response treatment utilises motivation and personal interests to promote the engagement of autistic children (Quill and Stransberry Brushnahan 2017), and the most favourable environment is seen as the playground (Koegel *et al.* 2012; Vincent *et al.* 2018). Although teachers identify using a combination of settings for EBP implementation, the findings also show that pivotal response treatment was used by 68% (n=259) teachers, yet it is deemed an effective EBP only by 1.8% (n=7) of respondents. Further examination shows that the most popular setting for pivotal response treatment is the SET room, as identified by 46% (n=57) of teachers which raises the question of consistency and adhering to the efficacy of the EBP concept, when the benefits are notably gained from implementation outside of the classroom. Furthermore, Brock *et al.* (2018) note that although pivotal response treatment is a feasible EBP to implement, school staff must also be trained in its use. Findings from

the study show that the need for content specific professional learning in the EBPs is an important area that needs development for teachers.

Further analysis shows that instructional strategies have an impact on the adoption of EBPs. Teachers were asked for their perspective on the medium of support used when teaching SCC using EBPs, which included small group withdrawal, whole class instruction, during lunchtime, one-to-one and a combination of strategies. The results from a one-way repeated measures ANOVA show that the adoption of EBPs is affected by the instructional strategy. Mauchly's test of sphericity was violated $\chi^2(9) = 1131.72, p < .05$; therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .446$). The results show that the adoption of EBPs by the teachers is impacted by the instructional strategy that the teachers use to implement the EBPs, $F(2, 669.08) = 776.37, p < .05$. Teachers favoured implementing the EBPs through a combination of instructional strategies. A post hoc pairwise comparison with a Bonferroni correction was used to illustrate the findings, which showed that teachers preferred a combination of small group, whole class, one-to-one and support during lunchtime as instructional strategies to implement the EBPs. The commitment of teachers surveyed to promote generalisation of SCC for autistic children is evident from the results.

Concerns have been put forward, however, that interventions designed to improve SCC are not specific to the individual needs of children and show little generalisability and long-term success (Bellini *et al.* 2007; Stichter *et al.* 2007) (see Section 4.13). Furthermore, Cotugno (2009) questions the efficacy of some of the interventions that do not generalise across to real-life settings. The systematic literature review identified naturalistic intervention strategy as a valuable EBP to harness

students' interests and motivations, using peer groups as a support to develop an inclusive approach to SCC learning which promotes generalisability of learning (Andras 2012). In this study, teachers provide their perspectives on naturalistic intervention strategies which occur within natural settings and activities that include individuals' interests, arranged setting and activity, necessary support and natural consequences (Quill and Stransberry-Brusnahan 2017). When provided with the definition, 66% (n=252) of respondents confirm the use of the EBP, while the remaining 34% (n=130) have not used the EBP. Owens *et al.* (2008) find that there are more benefits gained from naturalistic intervention for autistic children than from teacher modelling using a manualised programme. In this study, only 10% (n=38) of respondents identify naturalistic intervention as the most effective. Furthermore, a lack of knowledge is the most cited reason for not using naturalistic intervention strategy by 84% (n=109) of the question respondents. One of the components of naturalistic intervention is noted as the participation of the autistic child throughout the process (Owens *et al.* 2008). Findings from this study note that only 4% (n=15) of the respondents measure the effectiveness of an EBP by asking the child. The lack of engagement of the autistic child can be reflected by sentiments put forward in the double empathy problem, as detailed in Chapter Three, which calls on the need for mutual understanding and shared empathy between autistic individuals and neurotypicals (Chown 2014). The theory goes further, cautioning that the double empathy problem impacts on mental health across the autistic community (Mitchell *et al.* 2021). Milton (2012, p.887) highlights an awareness of 'an increasing complacency around the idea that lead professionals and practitioners have a good understanding of what "good autism practice" entails'. Lack of understanding and knowledge by teachers and professionals supporting autistic children when they advocate for reducing autistic

traits may actually be unethical and have unfavourable outcomes (Milton 2012). Creating an awareness of the double empathy theory for teachers has the potential to support reframing autism from a SCC disorder to a ‘description of a broad range of developmental differences and embodied experiences and how they play out in specific social and cultural contexts’ (Milton *et al.* 2022, p.1902). This then has far reaching consequences and potential influence on what we can perceive as best practice for supporting autistic children. Findings from this study highlight the need for teachers to have context-driven professional learning on how to implement the EBPs to best support SCC for autistic children and an understanding of the concepts of the cognitive theories on ASD; they must also value the incorporation of the child’s voice as a key component. These can be viewed as complex components for teaching SCC and further discussion is detailed in the next section.

8.3.3 Complexities of Social Communication Competency Teaching

According to the overarching policy guidelines specific to supporting children with SEN in Ireland, the responsibility for students’ learning lies within the remit of the class teacher (DES 2017b). Furthermore, the guidelines stipulate that schools should build capacity to support all learners by enhancing teachers’ skills through professional learning. Findings from the study detail that teachers across their respective roles have similar perspectives on the most effective EBPs and are implementing these in their settings, reflecting the sentiment that supporting autistic children to learn SCC using EBPs is indeed integral to their teaching. The supportive approach to teaching SCC is evident in the findings, which show 98% (n=374) of teachers use modelling as an EBP to support SCC. Modelling is described as a support mechanism within sociocultural theory, which validates the role of the teacher as vital to the practice: A ‘good teacher

gently prompts the child to deepen his or her thought processes through modelling’ (Semmar and Al Thani 2015, p.2). Findings from the systematic literature review (see Section 5.7.8) detail how modelling featured in the studies (Andras 2012; Kasari *et al.* 2012; Lopata *et al.* 2013). Analysis of data indicated that 39% (n=149) of respondents feel overall that modelling is the most effective EBP strategy to use and 42% (n=160) feel it is the easiest to implement, factors which impacted on its popularity. Knight *et al.* (2018), as relayed in Section 4.2.3, note that there is a connection between an instructional practice’s usability and the subject area, context and the skill the teacher needs to teach, which could explain the popularity of modelling for all the teachers. Sociocultural theory stipulates that to experience knowledge extension, children must be in the right contexts for social learning to occur (Vygotsky 1978). Accordingly, such learning contexts may include ‘adult or peer tutoring; cognitive apprenticeships between an expert and a novice understanding and use of a cultures skill; and cooperative group learning’ (Putnam 2009, p.87). Through adopting the sociocultural theoretical framework lens, it becomes apparent that studying a child’s development involves understanding that ‘individual, interpersonal and cultural processes are not independent entities’ (Rogoff 1998, p.687), a point discussed in Section 2.5.4.1. Further variations in the way teachers approached SCC learning provide more context.

Frequencies measured show that, overall, 39% (n=149) of teachers identify modelling and 21% (n=81) chose social skill training, while 16% (n=60) feel social narratives are the top three most effective EBPs; 1.5% (n=6) note that video modelling and 1.8% (n=7) pivotal response training are least effective when compared to the other EBPs. However, despite these corroborations, a difference exists in relation to the teacher role. A thread of tension regarding the role of SCC teaching, and who is

responsible, is noted. Findings show that a divide between SET and class teaching is apparent for some respondents, raising a query regarding who should assume responsibility for SCC teaching since, according to CT (ID261), *I don't, but the learning support teacher does*. Other CTs expressed similar practices, including (ID42): *the pupil is withdrawn for discrete time by support teacher on a daily basis*. Again, CT (ID141) states that *the autistic child is withdrawn for SCC*. Some respondents note differences in their practices regarding SCC teaching *which happens daily with SET* CT (ID141). Similarly, another CT (ID44) recalls that *last year I had one student and she worked with her SET teacher on social skills every week*, while another notes how responsibility is placed *with AEN teacher who does discrete lessons weekly* ID269 (CT). It is important to highlight that the respondents here are all CTs, which is noteworthy in light of the explicit instructions provided by the Special Education Teacher Allocation Model (SETAM) (DES 2017a) concerning the teacher's roles (see Section 1.3). Collaboration between teachers to support SCC learning is considered valuable when providing effective initiatives to best support autistic children from an early age (Strunk *et al.* 2017). However, findings from the study raises the question regarding the nature of SCC teaching and what is considered good practice. We are told that improving children's social competence decreases the probability of future negative consequences, especially for those with SCC differences (Walker and Barry 2018), as discussed in Section 4.9. Identifying factors that may contribute to the development of more effective social competency is essential given the strong association between inactive social experience and adverse life outcomes for autistic people (Haven *et al.* 2013). Vygotsky stressed the importance of the MKO interaction to help a child advance from their own ZPD or individual areas of strength (McLeod 2020) (see Section 2.5.4.2). Understanding the complexities associated with social

competence for autistic children can help teachers use the knowledge of what the child can do rather than their deficits (Westwood 2015), such as in the ZPD (Vygotsky 1978) (see Section 2.5.4.1). The onus is on teachers to provide appropriate social engagement opportunities as a failure to do so may lead to lack of generalisation of learning across settings (Charman *et al.* 2003; Williams *et al.* 2008; Romero 2017). The findings presented here reflect a need for more collaboration among the teachers and professional learning opportunities to reinforce the guiding principles put forward by SETAM (DES 2017a). Developing the collegial responsibility of the teacher has been identified as a key component in the Action Plan for Education 2016–2019 (DES 2016). The Action Plan notes that in terms of special education, collegial responsibility needs to be promoted not only for sharing teacher expertise but also for promoting participation in the collegial work of the school ‘in raising standards, creating innovations, and assessing, monitoring, and improving students’ learning’ (DES 2016, p.35). These were considered focal points of ongoing teacher professional development reform. The study highlights that there are still gaps in this practice and that measures need to be adopted to support the development of collegial support in schools to foster more favourable outcomes for autistic children learning SCC.

Commensurate with such outcomes, sociocultural theory highlights the importance of pedagogical activity or teaching interventions as a means to understand human cognition and the way the mind develops (Van Compernelle and Williams 2013). The importance of understanding the characteristics and cognitive processes relates to how we identify autistic children’s needs in SCC; as implied by Vygotsky (1978), only then can we use EBPs appropriately to minimise the occurrence of further challenges (Daniels 2009). Analysis of the teachers’ perspectives on assessment from

the study are captured by the theme *It's hard to know*, with processes relating to the need for more assessment, impact of the teacher's role and the role of collaboration discussed.

8.4 How Do Teachers Measure the Effectiveness of Evidence-Based Practices?

Theme Three: *It's Hard to Know*

Vygotsky's sociocultural theory is widely recognised for his explanation of how children's learning can be maximised when their MKOs understand what the child can achieve within their ZPD (Vygotsky 1978) (see Section 2.5.4.1). Learning SCC within the ZPD is particularly relevant as understanding what the child's strengths and needs are provides an insight into what that individual is 'able to perform independently and the ability to perform a more difficult task with assistance, yet without frustration' (Semmar and Al Thani 2015, p.2). Teachers in Ireland are called to use the Continuum of Support (CoS) framework to guide and structure the systems of support within their schools. These guidelines advocate the use of a 'problem-solving approach' underpinned with 'careful monitoring of progress' (DES 2017b, p.6). An emergent theme from the study highlights teachers' perspectives in relation to assessment and is captured by the sentiment *It's hard to know*. From a sociocultural perspective, it is important to ascertain how teachers monitor the use of EBPs and autistic children's progress in SCC.

8.4.1 The Need for More Assessment Support

Findings from this study show that 75% (n=287) of teachers identified using assessment to monitor autistic children's progress learning SCC through EBPs; however, 42% also

separately stated having difficulty with assessment. Findings from the report *Evaluation of Education Provision for Students with Autism Spectrum Disorder in Ireland* (Daly *et al.* 2016) note similar sentiments; there is a ‘sense in all sites of teachers/tutors being overwhelmed by the multifaceted requirements of the assessment process’ (Daly *et al.* 2016, p.193). Furthermore, the report highlights the variety of practices in relation to assessment; these are evident across education settings in Irish classrooms. Most teachers 61% (n=231) in this study indicate that their preferred assessment method is summative in the form of teacher-designed assessments, with only a few 16% (n=61) indicating that they used standardised assessments. Hargreaves *et al.* (2015) discuss the importance of teachers using data in more effective ways to make better informed judgements and educational decisions in what is known as ‘data driven instruction’ (Hargreaves 2009, p.95) (see Section 4.13). Through this approach, each teacher is tasked with ‘setting a goal, gathering data, analysing data, using data to inform a plan of action, evaluating the results, and repeating the cycle with refinements’ (Datnow *et al.* 2017, p.354); which will in turn foster better outcomes for children. However, research tells us that there is an ongoing difficulty for teachers who struggle with the process due to time constraints, leadership problems and issues with collaboration (Hargreaves 2009). There is a degree of uncertainty evident from some of the teachers’ accounts in this study, as mentioned by CT (ID82): *I find this aspect very difficult and probably have not measured effectively up to now.* A similar sentiment is expressed by CT (ID317): *I don’t know or where to start when it comes to assessing children’s social skills.* Teachers in the study report a desire for more formal structures for the assessment of EBPs, ones that support SCC, as noted by SET (ID107), who requested *[a] more formal way of doing it but I find it difficult to find one.* Teacher’s report using multiple methods of assessment for identifying need and evaluating their use of EBPs, including

SCT (ID172), who also questions the reliability of such a method: *[I]t is a mixture of everything going on and it is difficult say with certainty that the assessment procedures are reliable or valid.* Similar uncertainty is evident for the 25% (n=95) of teachers that self-identify as not using assessment. When probed about how they measure the effectiveness of the EBPs and procedures that they use, 51% (n=48) of the group name teacher observation. The findings show that this is reflected across teacher roles in the sample, with CT (ID45) stating their own personal view that *when it comes to assessing EBP effectiveness you as a teacher can see if it is working.* Ongoing progress is a considerable factor for CT (ID92), *who observes progress, reaction and improvement,* and also SET (ID24), who operates from the rule that *I observe behaviour and if something is effective, I use it again.* Some respondents had a more formal approach to gathering evidence, bringing together

teacher observation, diaries tracking interactions and specific incidents, hopefully with evidence of fewer incidents and more examples of positive progress over time.

SCT (ID97)

Furthermore, SET (ID266) also notes that *assessment is done only through teacher observation, parent feedback and if there were any information in reports this would inform teaching.* Upon reflection, it is noteworthy that these teachers do not recount teacher observation as a valid form of assessment from the outset. According to Datnow (2017), when teachers do not adopt correct data-driven teaching interventions, it can lead to feelings of inadequacy and a lack of varied instruction, which explains the lack of confidence for a few documented here, in the assessment methods employed. According to Vygotsky's sociocultural theory, as discussed in Section 2.5.4.1, a child's ZPD is the distance between actual learning and potential development in

the presence of others (Vygotsky 1978). Within the mode of mediation or teaching, assessment and instruction are interlinked in the same activity, which uncovers a child's challenges and provides opportunity to surmount the challenges with the teacher (Poehner 2008). In contrast to prioritising the individual experiences of the autistic child, the results highlight that only 4% (n=15) of teachers assess the use of EBPs by consulting with the autistic child. Recommendations put forward by Daly *et al.* (2016) emphasise the need for autistic children to be involved in self-assessment of their learning; however, findings from the study provide evidence that this is still an ongoing issue. Learning in the ZPD is driven by the learning activities and sociocultural experiences of each individual autistic child (Conn 2014), and EBPs are seen as cornerstones of teaching (Egan 2018). Vygotsky's theory of ZPD is in opposition to the findings shown here and determines that the ZPD should impact upon how teachers predict and influence the learning ability of each individual child, the decisions regarding their teaching pedagogies, as well as assessment approaches (Wang 2009). We can therefore deduce that the sociocultural theory advocates accessing the child's voice, and the individuality of the autistic child, in relation to their learning and that assessment is a key component of the process. Vygotsky's sociocultural theory advocates cognitive scaffolding based on a learner's unique needs; through accessing the ZPD, teachers can understand these needs and the best practices to scaffold individual learning Vygotsky (1978) (see Section 2.5.4.1). Therefore, through their community, 'enculturation occurs as learners participate in practices in collaboration with more capable others, or with experts' (Pressick-Kilborn *et al.* 2005, p.27). The study highlights the need for better methods and the use of assessment to access the ZPD of each individual autistic child in relation to their SCC learning. Data from the study also illustrates that although teachers' experience had a positive impact on the

conceptual knowledge of EBPs, as noted earlier, there was no statistical difference between teacher experience and assessment. A chi-square test of independence was performed to examine the relationship between years of experience and use of assessment. Statistical analysis using chi-square illustrates that there is no statistically significant relationship identified between the teacher's experience and the assessment of EBPs $\chi^2(4, N = 376) = 5.563, p > .05$, P-value is greater than .05. The results show that assessment practices varied but were not impacted by experience. In order to gain a greater insight into the teachers' use of assessment, further analysis was warranted and the impact of the teacher's role became evident.

8.4.2 The Impact of Teacher Role on the Assessment of Evidence-Based Practices

The study findings illustrate how teachers across their respective roles used assessment. A chi-square test of independence was performed to examine the relationship between the teacher's role and the assessment of EBPs. Results from the Pearson chi-square test indicates that the relationship between these variables is significant, $\chi^2(2, N = 376) = 19.002, p < .05$, and highlight that SCTs and SETs used assessment more than CTs. Cross-tabulation of the teacher's role and assessment use provided key details pertaining to the teacher role. Details indicate that 90% (n=68) of SCTs and 80% of SETs (n = 122) use assessment. However, the results indicate that only 65% (n=97) of mainstream CTs use assessment. The type of assessment adopted is also affected by the teacher's role. Statistical analysis using chi-square was conducted with a Bonferroni adjustment applied to account for multiple comparisons. The results illustrate that there is a significant relationship between the teacher's role and summative assessment $\chi^2(2, N = 376) = 18.507, p < .05$, the teacher's role and formative assessment $\chi^2(2, N = 376) = 10.374, p < .05$, and the teacher's role and parental questionnaires $\chi^2(2, N = 376) =$

22.683, $p < .05$), and that there is no significant relationship between the teacher's role and diagnostic standardised assessments $\chi^2(2, N = 376) = 2.509, p > .05$). Assessment is regarded as playing a critical role in special education (DES 2007), which is important when we consider the complexity of learners' needs that can feature for autistic children (see Section 3.3). Teachers supporting autistic children need to be knowledgeable in a range of assessment methods and feel skilled in data interpretation (Hargreaves 2009). The findings show that both CTs and SETs favour summative assessments, including teacher-designed data gathering, whereas SCTs indicate that they rely more on diagnostic assessments. The lack of formal assessment was identified in the findings across the teacher roles. These shortcomings may be due to the need for more professional learning in specialised, ASD-specific assessments, which has been highlighted by the inspectorate in their report of education provision for special classes in 2020. The importance of using specialised assessments and diagnostic testing to create more reliable baselines for identifying autistic children's learning needs, particularly in areas of emergent learning, was emphasised in the report (DES 2020). Recommendations from the report by Daly *et al.* (2016, p.193) are also mirrored in this study findings; they put forward suggestions that teachers in mainstream primary schools should access professional learning in ASD-specific assessments, noting that was particularly important for 'language and communication, behaviour, social and emotional development and independence'. The importance of assessment has been highlighted in educational discourse in special education and features as part of the Education for Persons with Special Educational Needs (EPSEN) Act (2004). The Act imposed discernible changes focused on providing education for children with SEN in inclusive settings, advocating for assessment as well as providing state-funded educational support (Kenny *et al.* 2020), as noted in Section 3.6. Findings from this

study show that there is still scope for improvement in formal assessment measures for teachers but provides a positive account of teachers' use of various assessment modes. Further analysis of data details that assessment of EBPs to teach SCC highlights collaboration among teachers, and we are told that this should take place to understand the best ways to support the child (DES 2017b). In addition to assessment tools, collaboration on assessment is also evident from the teacher respondents.

8.4.3 Role of Collaboration

In total, 35% (n=134) of teachers initially indicated that they use collaboration with others to measure the effectiveness of EBPs adopted. Some of the respondents discuss the involvement of fellow teachers in assessment as a valuable asset, with CT (ID13) noting how they assess by *liaising with SET who works with child*. Similarly, CT (87), states *I consult with and feed back to the SET and we assess together*. According to Bertrand and Marsh (2015), teachers are valuable in their ability to use their professional judgement to make sense of and react to assessment. The sentiment was also evident from SET (ID96), who provides time for assessment when they *liaise with the SET Lead in the school, discussion with class teacher, [and] discussion with the other teachers who support her*. Furthermore, a few teachers also place an emphasis on including the special needs assistant (SNA) as part of their assessment and reflection, as noted by SCT (ID36), who incorporates *observation, discussions with SNAs and mainstream teachers involved in the integration of my pupils*, as does CT (ID48), who includes *communication with special needs assistant* as part of the assessment process. A partnership with both is noted by CT (ID40), who *assesses in collaboration with SET and SNA*. Value is also placed on parental collaboration and the place of IEP meetings as a form of assessment; 33% (n=127) of teachers specifically indicate that they use

parental questionnaires to measure SCC learning through EBPs. The importance of incorporating parents and external professionals in the assessment process for autistic children is noted by Daly *et al.* (2016) in Section 4.12, which makes the procedure more cohesive. Including parents is apparent across the teacher roles, with SCT (ID36) promoting *parental discussions at IEP meetings* and CT (ID46) conducting *regular IEP review with resource teacher and parents*. Furthermore, SET (ID89) had *meetings with parents and SEN team*; SET (ID96) also values *meetings with parents*. However, the role of outside agencies was not identified as valuable and was even met with criticism from a few respondents, including SET (ID1), who stressed that

proper support is needed from relevant professionals who can feed into targeted school support plans and would be available to give individualised sustained support as issues emerge.

SET (ID1)

This is corroborated by CT (ID81), who feels that *access to help from outside agencies is very limited, almost non-existent*. Findings show that 2% (n=8) of respondents identify external agents in the assessment of EBPs for SCC. Such sentiments verify the report commissioned by the National Council for Special Education (NCSE) which evaluates the roll-out of a pilot In-School and Early Years Therapy Support Demonstration Project designed to deliver timely and equitable resources from services, speech and language therapists and occupational therapists to schools and children with SEN (Lynch *et al.* 2020). The report alludes to the importance of schools leading on inclusion and intervention programmes for children with SEN and advocates for the provision of therapy services in educational settings (Lynch *et al.* 2020). However, such provision has not been delivered across all schools and the challenges to accessing supports still exist for many schools across the country, as

evidenced from the survey findings. The need for intervention across services and supports is critical for autistic children and a lack of appropriate intervention is a cause of concern; this reflects what Vygotsky deemed ‘progressive divergence in social and natural development’, whereby children’s needs are not met, leading to greater challenges (Gindis 1999). This once again emphasises the need to mitigate the barriers to implementing EBPs (Cooper and Jacobs 2011), especially when providing and designing support for autistic children (Conn 2014). We are told that change can happen for children when teachers use appropriate information and studies which are tailored and contextualised at school level (Kennedy 2010). Understanding the unique contexts experienced by children and teachers can foster ‘wiser and more humane’, situation-based decisions (Hargreaves *et al.* 2015, p.4). The following section discusses the final theme, *Trial and error*, which details relevant information on contributing factors which influence the adoption of EBPs for SCC. Teachers’ perspectives on the individuality of the autistic child and challenges they face implementing EBPs are also discussed.

8.5 What Are the Contributing Factors That Influence the Adoption of Evidence-Based Practices for Teachers?

Theme Four: *Trial and Error*

The theme of *Trial and error* is used to capture the findings related to the question of what the contributing factors are that influence the adoption of EBPs for teachers. The respondents’ perspectives are captured by the subtheme of *the individuality of the autistic child and the challenges implementing evidence-based practices*.

Understanding the uniqueness of the autistic child is fundamental to their learning (Conn 2014) but identifying their needs in SCC and measuring the effectiveness of the strategies used to support them are identified as challenges for teachers in this study. According to Brock *et al.* (2020), the variety of practices promoted to support autistic children poses a challenge for teachers as they must seek out and embed findings from research to improve educational outcomes for autistic children (Brock *et al.* 2020). Furthermore, there is a difference between clinic settings, where research is often conducted, to real-world classrooms (Odom *et al.* 2010; Kasari *et al.* 2012; Ke *et al.* 2017), which can further challenge teachers implementing the EBPs. The teachers in the study reported on several complexities that are noted as potential influential factors in the use of EBPs to support SCC for autistic children. The first factor is reflected as the sub-theme of *the individuality of the autistic child*.

8.5.1 The Individuality of the Autistic Child

The respondents' perspectives are captured by the theme, one of the most influential factors evidenced in the study, for teachers implementing EBPs to support SCC. As a result of their unique profiles, implementing EBPs for autistic children has created divergent experiences for teachers, which impacts on practice. Findings from the study show that after lack of knowledge, teachers do not use an EBP because they feel it would not meet the needs of the autistic child. This was the second highest assimilated response for not using EBPs, by a cumulative 26% of respondents in this study. Evidence of such is seen across the teacher roles with respondents sharing their experiences supporting individual needs:

all my pupils have a significant intellectual disability therefore any strategies I use are personalised and tailored to suit the needs of individuals rather than groups and this poses difficulties as I need to juggle the varying needs of my pupils.

SCT (ID106)

The need for teachers to be flexible in their approach is further confirmed by SCT (ID140), who notes:

each of my children are at different stages and I use a variety of social communication, so the challenge is that not one skill fits all. Teachers need to be able to adapt to all children's needs.

SCT (ID140)

Shiel *et al.* (2012 p.14) discuss that 'ASD is conceptualised in terms of deviations from the expected course of language development within and across modes'. Understanding how this impacts development is vital, as such deviations for autistic children mean that they have individual challenges relating to peers, transitioning in daily life and manipulating social and contextual cues (Stichter *et al.* 2012; Yager and Iarocci 2013). The complexity of need places a greater demand on teacher expertise and time and, as evidenced by one of the teachers, *in many cases, ASD children have complex needs and social skills deficits that are very personal to them* ID109 (SET). The challenge is evident for teachers, as described by SCT (ID188), who feels *high attention needs within the classroom makes it difficult to regularly assess children's communication skills making it harder to tailor the programme to the child.* The struggle is apparent for teachers across data, but we are also aware that the development of effective SCC is critical to cognitive, social and emotional development (Curry *et al.* 2017), and that deviations in development of SCC can impact on learning and development overall (Rafferty 2014). It is imperative that the issues for teachers are addressed. Findings from the study highlight the critical need for support for teachers, as captured in the following quotation:

it can be overwhelming, I found that no one way worked best all the time, I felt it depended on each individual situation trying to be taught and the particular child it was being taught to – the same skill could be required to be taught differently and repetitively to each child who may need that skill.

CT (ID250)

The core characteristics of sociocultural theory explain that learning in the ZPD is driven by the processes and sociocultural experiences of each individual (Conn 2014). Understanding where the autistic child is within their ZPD in terms of SCC is fundamental to creating individualised interventions that promote success. However, research tells us teachers must be aware of the impact that cognitive theories including ToM, WCC and EF (Section 3.9) can have on the variability of autistic children's unique profiles (Aspy and Grossman 2012; Conn 2014; Egan 2018). Strengthening the teacher's understanding of how autistic children can display variations in their social communicative experiences will help to create individualised interventions. Understanding factors that may contribute to some children actively attempting to engage others socially, with variable levels of success, and others seeking to avoid social interaction where possible (Barrett 2018), will help teachers plan to support fruitful engagement. When teachers understand the cognitive theories and can relate them to the unique profiles of their autistic children, they will be better placed to use EBPs to foster better learning outcomes (Egan 2018), alleviating the sense of trial and error. In turn teachers will have the opportunity to create motivating experiences which are often impacted by the differences experienced by autistic children in social communication and interaction (Ryan *et al.* 2012; Martinez *et al.* 2021; Devine and Apperly 2022). Creating motivating experiences has been highlighted as a difficulty for a few of the respondents, including CT (ID170): *finding the most motivating way to do so in order for them to generalise the skill – a lot of trial and error.* Again CT (ID178)

notes: *some children can be reluctant to engage with many interventions/skills based social learning like modelling and some social stories.* These sentiments are also evident from SET (ID379), who observes: *I have the resources, time, strategies and skills but motivating the child to engage in any intervention can be challenging,* which reflects the uniqueness of each individual autistic child. Such differences are explained by O’Sioráin *et al.* (2021), who describe that in their interactions with autistic children, adults may struggle to motivate them to engage, and should therefore think about the social reality in which they live. To do so the teacher must go above and beyond the procedure of encounters and create situations that will increase the significance and meaning of interactions (O’Sioráin *et al.* 2021). The need for additional support to keep children motivated is evidenced by SCT (ID283): *[I]t’s hard to keep the children on track when being taught the skills as they nearly need 1-to-1 support.* Findings from the analysis suggest that understanding the complexities associated with social competence for autistic children will support teachers in using the knowledge of what the child can do, rather than their deficits (Westwood 2015), as in the ZPD (Vygotsky 1978). Furthermore, it is important to understand that as a result of differences posed by social communication and interaction, studies point to reduced social competence and social motivation in autistic children (Ryan *et al.* 2012; Martinez *et al.* 2021; Devine and Apperly 2022). The systematic review (Chapter Five) emphasised the need for autistic children to experience using SCC in naturalistic ways to foster better motivation (Andras 2012). Peer involvement is noted in the systematic literature review as a very successful intervention to support inclusion and SCC learning for autistic children and featured in 25% of the studies reviewed. However, findings from the study shows that peer-mediated instruction is deemed the most difficult EBP to implement by 30% (n=115) of the respondents and it is noted as one of the least effective methods by 16%

(n=64), second only to video modelling 31% (n=118). Kasari *et al.* (2012) suggest that teachers and staff need to be trained as mediators for peer-mediated instruction to be successful. The sentiment was corroborated by Kamps *et al.* (2015), who note that significant positive outcomes are more evident when school staff were trained in peer-mediated instruction. Findings in this study verify the idea, where 55% of teachers (n=80) who do not use peer-mediated instruction relay that it is because they have a lack of knowledge about it. O'Sullivan (2018) recognises that due to rigidity and unpredictability in the face of change, which are common characteristics of ASD, teachers are often reluctant to facilitate peer play experiences. Shared practice and collegiality among teachers of autistic children is promoted as a mechanism championed for overcoming such barriers (Parsons *et al.* 2013). The benefits of adopting peer-mediated instruction as a means of motivating autistic children to develop SCC are stressed across the studies (Kasari *et al.* 2012; Kamps *et al.* 2015; Peter 2015; Wolfberg *et al.* 2015; Kasari *et al.* 2016). According to Vygotsky (1978), developing a child's capacity within ZPD, with others' help, is believed to be the purpose of teaching (Wang 2009). In effect, teachers should strive to maximise the time autistic children are facilitated to learn with their peers and teachers (Putnam 2009). Vygotsky (1978) believed children could harness their learning and thinking and move on to the next zone of development when supported by MKOs, including peers. Findings from the study again provide evidence that teachers need specific professional learning in terms of the particulars associated with the EBPs in order to implement them with precision.

Further analysis suggests that implementing EBPs to support SCC is impacted by the demands of academic goals and targets for some, including SCT (ID18), who

feels that teaching SCC is *highly individualised which makes timing difficult when you have multiple children all with different social needs, in addition to meeting curricular expectations*. This is not confined to the special class, as CT (ID81) notes:

in a mainstream setting, pupils are to have access to the curriculum and each pupil works on an individual programme so the pressure of time to achieve the many goals we have set is an issue.

CT (ID81)

The challenges of meeting curriculum goals are also experienced by SETs who explain:

timetabling issues, feeling under pressure to get x done before you need to be in your slot on the timetable doesn't allow you adequate time to focus on social needs i.e. academic/curricular targets prevail.

SET (ID117)

The sentiments expressed by teachers reflect the commitment they have to creating positive motivating experiences for autistic children but reflect the frustration they can experience in the process. The demands of the curriculum are problematic for some, despite the newly revised integrated PLC, which positions itself as a pathway ‘supporting growth at different levels’ (Ó Duibhir and Cummins 2012, p.15), and is underpinned by Vygotsky’s sociocultural theory (Shiel *et al.* 2012). The curriculum support materials are championed as supportive for plotting children’s learning trajectory, but practices to promote teaching of SCC for autistic children have not been exclusively identified or made available for teachers in this support material. According to Parsons *et al.* (2013), the research–practice gap, identified in Chapter One, is widened when teachers are not afforded enough opportunity to share perspectives and practice in relation to applying the curriculum and interventions for autistic children. The idea is also mentioned by Callahan *et al.* (2017), who argue for bridging the gap through validating teacher experience in discussions

based on what they determine appropriate in terms of intervention objectives, pedagogies and practices. The shortfall was predicated as a potential issue prior to the roll-out of the PLC by Ó Duibhir and Cummins (2012) in their report:

[A]lthough a revised language curriculum might specify learning outcomes for children there is no guarantee that suitable activities to achieve these outcomes would be enacted by teachers or experienced by children.

(Ó Duibhir and Cummins 2012, p.78)

The difficulties experienced by teachers implementing EBPs alongside curriculum demands could be alleviated for future teachers if more specific teaching approaches for autistic children were included with curriculum material. Conn (2019, p.45) alludes to the importance of seeing teaching as a social milieu where teachers translate ‘specified curriculum into practice...build positive relationships...encourage pupils...engage their understanding...and encourage participation’. Imperative to these processes would be harnessing the practical knowledge of teachers in special education, at school level (Syriopoulou-Delli *et al.* 2012). Moreover, the importance of a collaborative approach to supporting children with SEN is advocated across policies in Ireland; schools are governed by the SETAM, which encourages school leaders to deploy resources effectively to offer support (DES 2017b).

According to sociocultural theory, an individual’s current level of performance, or the ZPD, can be exceeded through mediation from others, which then incites further development (Vygotsky 1978; Poehner 2008). However, teachers reported concerns regarding the unique profiles of autistic children, which has an impact on the levels of support required. Evidence of the same is found from both special class and mainstream teachers in particular. According to CT (ID170), *most of these children require one-to-*

one support in order to have their communication needs met. This is confirmed by CT (ID282), who notes *the importance of having the support to keep the children on task when being taught the skills as they need one to one support.* A degree of frustration is evident from CT (ID348), who relays that *I usually have 29–31 children in my class, I rely on the SEN teachers to support me by teaching the skills intensively.* The reliance on collaborative support for the inclusion of autistic children reflects the calls of literature from Ní Bhroin and King (2020), who recognise and promote that collaboration among teachers is essential for facilitating inclusive education. However, difficulties are evident in the level of collaborative support required due to the individuality of the autistic child. Perspectives relayed by SCTs show that even though they are not faced with the challenges of pupil–teacher ratio as class teachers are, other difficulties can arise as a result. According to SCT (ID166):

[W]orking with a class of 6 who all have different social skills deficits can be challenging when trying to establish my version of normal – I am the odd one out in the room. I have had to enlist the help of their peers from mainstream class to help broaden and hone basic social skills in a real context.

SCT (ID166)

The individuality of each autistic child’s needs in SCC and the need for support is reiterated by CT (ID250), who discusses *the lack of personnel to help support other children while individual skills are trying to be taught makes it difficult to achieve goals as quickly as one would like.* Overall, the individuality of the autistic child, time and the need for support are summed up in the response by CT (ID170):

I am still learning about some strategies but am comfortable enough with using them when I have the time to do so. However, this is often difficult to achieve due to the level of demand within the class, behavioural in particular. Most of these children require one-to-one support in order to have their communication needs met.

CT (ID170)

The need for additional support to use EBPs due to the individuality of the autistic child's needs in SCC is also evident from the distribution of instruction methods; this shows that 56% (n=214) of respondents use small group withdrawal instruction and 47% (n=178) of respondents use one-to-one teaching to support SCC. These were the highest categories identified in the analysis and it is important to mention that teachers could choose from across the instructional methods so there is overlap between respondent choice. Rose and Shevlin (2020) in their findings from a national longitudinal research project in Ireland, over four years, highlighted that an important aspect of the growth of inclusive education is the provision of support for children with SEN in schools. Their study encouraged a decrease in the amount of student withdrawal that was taking place in schools to foster better inclusive opportunities. However, we can deduce that the methods of small group and one-to-one withdrawal relied on in this study are in opposition to these recommendations. Collaboration and drawing on support from others, due to the individuality of SCC needs for autistic children, are perceived as imperative to successful intervention by the respondents in this study. However, teachers' understanding of how to use and adopt EBPs in more inclusive settings is also identified as an area needing support. Accessing context-based professional learning is identified here as a key area that could assist teachers in their work with autistic children. Other factors that present as a challenge for teachers were also apparent.

8.5.2 Challenges Implementing Evidence-Based Practices

Evidence from data shows that lack of time (15%) and lack of knowledge (55%) are challenging factors, affecting a cumulative 70% of respondents who provided reasons for not using EBPs (see Table 23). Time was discussed in relation to the amount needed

to support SCC by SET (ID12): *Time, it takes time to develop these skills for children with autism.* Similarly, SET (ID109) also acknowledged:

the time it takes to identify needs, plan and action the support as well as the child learning the skills. Social skills need time to be acquired and implemented. It takes many occasions and with many varying circumstances for children to truly acquire one social skill. In many cases, ASD children have complex needs and social skills deficits that are very personal to them. It can be time-consuming to first identify these deficits, plan and teach children the skills and allow them the time and occasions to practise the skill.

SET (ID109)

Additionally, teachers identify that time to plan and implement EBPs is a factor.

Those findings are corroborated by reports from Ní Bhroin and King (2020), who identify that in Irish schools, ineffective teaching methods, professional learning, and individualised planning and learning continue to have an impact on inclusion. These sentiments are evident in the perspective of SET (ID354):

[T]ime and resources can be an issue, but I find that you may need different methods for different children and this can impact on scheduling and the amount of time available to support kids when caseload is heavy and needs are great.

SET (ID354)

According to SCT (ID126), *it takes a lot of trial and error over the course of the year/2 years teaching the child to find a strategy/ a few strategies that really work well which requires time to properly enact.* Confirmation of these sentiments is seen in SET (ID299):

[A]s all children with ASD are unique, it is difficult to find appropriate resources to suit each individual child's specific needs. It is time-consuming as many interventions need to be tailor-made to suit the child, continuously monitored and changed! Extremely challenging yet rewarding!

SET (ID299)

The variations within the class make time a considerable factor in the implementation of EBPs to support SCC, which is confirmed by SCT (ID334), who states *that time is a*

challenging factor when the children in your class all respond best to a different strategy. Overall, the sentiments expressed create an awareness of the need for efficient effective EBPs, ones that are suitable for school use and are proven in terms of their efficacy, as has been identified in this study. Confirmation of such findings is affirmed by the thoughts of CT (ID42), who shares that *honestly, school moves at a furious pace and researching or making resources takes up a lot of time.* Findings from the systematic review in Chapter Five promote the use of Social Stories™ as a cost-effective, time efficient and functional EBP and their application to school settings has proven worthy for consideration (Delano and Snell 2006; Ratcliffe *et al.* 2014). This is also reflected in the study where 80% of teachers (see Figure 42) identified using Social Stories™. However, despite the large response it was only the third most effective EBP as evident from Figure 43. The importance of adhering to the fidelity of the Social Story design is important and the author Carol Gray, originally intended each story to be written with the unique and personalised details of each child (Gray 2015). In the review Goldstein (2010) and Marshall *et al.* (2016) both based the stories on the individual needs of the child. Ratcliffe *et al.* (2014) however, incorporated it into a group intervention and reported that difficulties were faced by some participants in generalising their learning through the social stories outside of the classroom setting. The importance of adhering to the right protocol may need to be considered and promoted for teachers to help them overcome some of the challenges experienced in relation to efficiency and effectiveness of EBPs.

Furthermore, Silberman (2015) reminds us that there is diversity within the ASD community in relation to their differences in SCC; this study advocates for adopting a sociocultural perspective as it is through this theoretical framework that one

can ‘seek to understand the social contexts in all their complexity’ (Conn 2014, p.24), thus recognising the impact of what is implied by Vygotsky’s idea of the culture around the child and the impact on the specific tools for the development of the individual. The culture-specific tools can be related to the supports available for the teachers to use to encourage learning for autistic children and what they themselves draw from in their environment. Resources were noted by 33% (n=127) of teachers as a challenge and, within this, funding and technology are seen as problematic for a few. Challenges are noted by SET (ID349), who states that *tailoring resources/activities to motivate children whose interest could vary week to week is both time consuming and costly, often funded out of teachers own pocket*. Some schools were noted to be lacking in terms of their resources, as expressed by CT (ID143), *we do not have the technology to allow for this*, and CT (ID242), who notes that *we don’t have the resources in the school*. Context-specific resources are an issue for CT (ID100), who recounts that it is *difficult to find resources online suitable for Gaelscoil*. Findings show that 31% (n=118) of teachers deem that video modelling is the least effective EBP overall to implement and a reliance on ICT resources as well as regulations impinge on implementation. This point is expressed by SET (ID 122): *I have read about the benefits in research articles and suggested it but no funding*. Furthermore, teacher respondents relay challenges external to their class affecting the implementation of video modelling. These include policy and parents as mitigating factors, with SET (ID109) citing how *the parent doesn’t like ICT used with her child*, and SCT (ID146) noting that *video modelling is contentious given GDPR regulations*. Such sentiments are also expressed in relation to SCC teaching overall, with CT (ID31) noting that *it can be difficult with teaching social skills due to new GDPR regulations*, and SET (ID37) stating that *it can be difficult with teaching social skills due to new GDPR regulations and parents not*

wanting the child's social difficulties becoming a focus with their peers. Additionally, SCT (ID327) relays that *it can depend on the priority for parents*. All these contextual factors provide evidence that teachers experience a myriad of challenges that influence their adoption of EBPs. School leaders are called upon by the SETAM (2017b) to deploy resources effectively to support children with SEN; through legislation, the state is made responsible for the provision of overall support (Curtin and Egan 2021). The study raises concerns over the differences experienced by some in relation to this. The evidence shows that teachers experience a range of complexities that interplay in relation to their implementation of EBPs to support SCC learning for autistic children. The challenges can range from systemic difficulties posed by the individuality of the autistic child to contextual challenges imposed in different schools at a local level. Consideration for the knowledge that schools are best placed to lead inclusion programmes by providing school-based therapy services and interventions for children, which must be included in curriculum objectives (Lynch *et al.* 2020), is critical. The findings show that teachers are faced with challenges that need to be addressed. The United Nations General Comment Article (24, 2016) (see Section 1.2) has tasked stakeholders in education to deepen educational capacity to support inclusion. According to Petersson-Bloom and Holmqvist (2022), changing practice by integrating the entire school structure, strategies and attitudes with classroom-level practices and content in a holistic approach are key to developing inclusive practice. Complementarity with such inferences is seen throughout sociocultural theory (see Section 2.5.4.5), which proposes that all stakeholders should be made aware 'that human thought processes ... are shaped by the demands of the practical activities in which people are regularly engaged' (Hudson *et al.* 2016 p.28), and that in order to

develop our understanding of learning and development, we must intervene in the process (Vygotsky 1978).

8.6 Theoretical Implications for the Field

The study has explored teachers' perspectives of effective EBPs that support SCC for autistic children in early years Irish primary classrooms. The study was designed using evidence garnered from a systematic literature review to support the dissemination of valid and purposeful information that was rooted in rigorous research from the outset. Findings from the systematic literature review were compiled and the information was then presented to teachers in a mixed-methods survey, one designed to gather both quantitative and qualitative evidence in a convergent triangulation design. The pragmatic epistemology of the researcher meant the study was concerned with sourcing evidence with an 'emphasis on actionable knowledge' (Kelly and Cordeiro 2020, p.1), based on the pragmatic belief 'that truth is what works at the time' (Creswell and Creswell 2018, p.48) (see Section 6.3).

Analysis of the mixed-methods survey followed the convergent triangulation design (Creswell and Guetterman 2021) by removing and analysing the quantitative data and the qualitative data separately and then converging both sets of findings to produce a more complete representation of the findings, drawing on both types of inquiry. Each of the themes captured significant teacher perspectives in relation to their use of EBPs to support SCC which have implications for future practice. Figure 57 accounts for the study outcomes in relation to the themes theorised using the conceptual framework outlined by sociocultural theory.

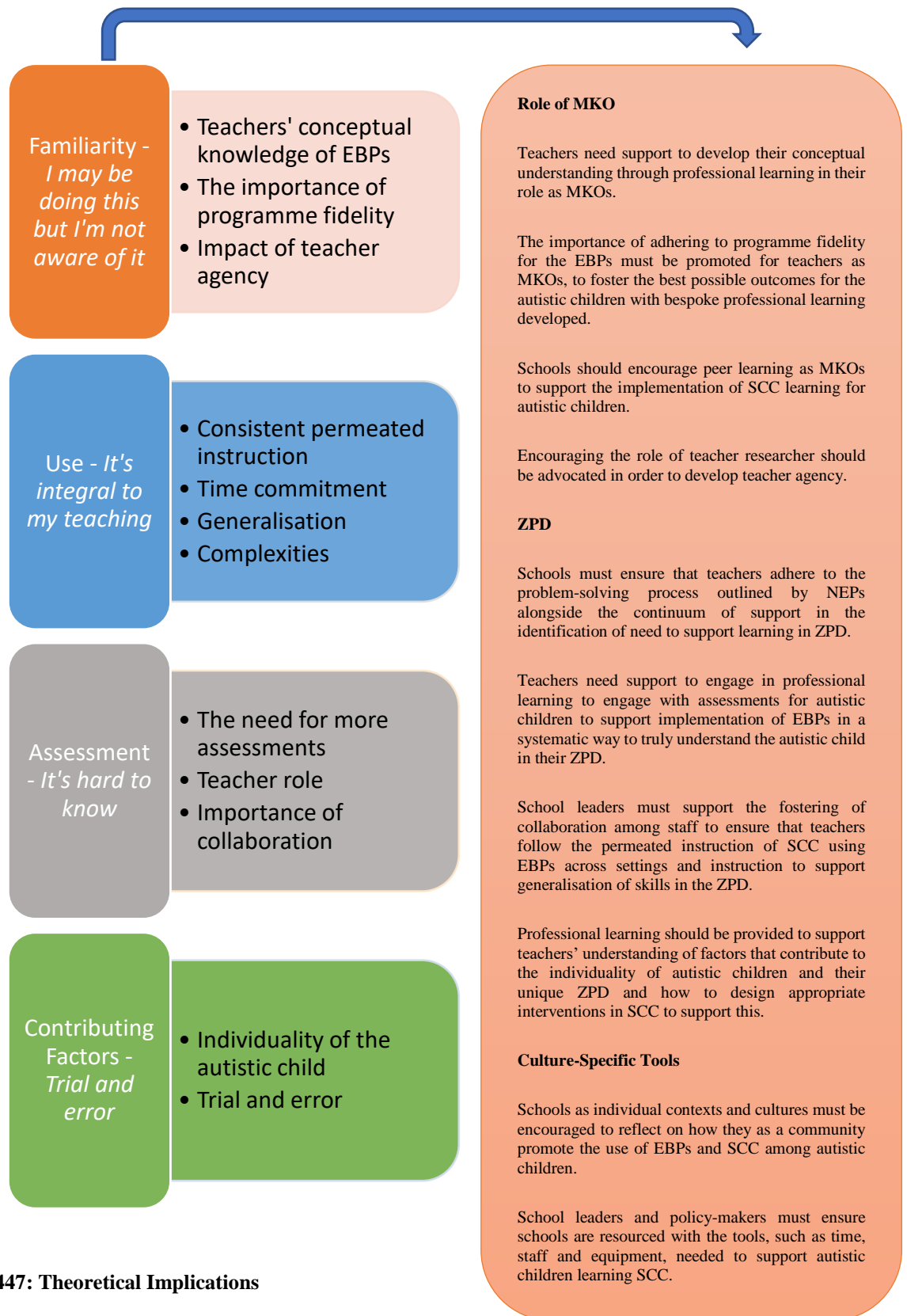


Figure 447: Theoretical Implications

Sociocultural theory indicates that children's cognitive development hinges on the social influences around them and the instruction they receive (Vygotsky 1978). Furthermore, he proposed the belief that there is no single principle to which to attribute a child's learning; instead, it is derived from concepts such as the MKO, the ZPD and culture-specific tools (Pressick-Kilborn *et al.* 2005; Daniels 2009; Ó Siochrú 2018). Teachers in the study gave their perspectives on the implementation of EBPs that support SCC for autistic children. The findings have generated key information, which has been theorised through the sociocultural framework to inform future practice.

8.6.1 The More Knowledgeable Other

The role of the MKO, as outlined in detail in Section 2.5.4.2, is fundamental to sociocultural theory and is imperative in the development of children's cognitive and social learning (Vygotsky 1978). Teachers in the study are identified in their role as MKOs to support autistic children learning SCC and the use of EBPs should be foundational to their approach (Conn 2014). Findings from the study have highlighted perceived difficulties that teachers have in relation to their understanding and subsequent use of EBPs to support SCC. In order to deliver instruction to support the best possible outcomes for autistic children, teachers must be equipped with the correct conceptual understanding of the EBPs. Vygotsky's sociocultural theory highlighted the importance of pedagogical activity, or teaching interventions, not as applications of sociocultural theory, but as a means to understand human cognition and the way the mind develops (Van Compernelle and Williams 2013). Based on the premise, it is recommended, on the basis of this study's findings, that teachers are equipped with the right knowledge, which is context-driven for them through bespoke professional learning and is based on using EBPs that are suitable to support SCC learning for

autistic children. Cordingley (2005) advocates the need for teachers to share their real-world, classroom-based experiences, ones that would inform their need for context-based, situation-specific professional learning, most suitably delivered through coaching and mentoring. Such an approach would, in turn, affect the implementation of EBPs and promote more programme fidelity. Difficulties with programme fidelity are evident from the findings: a lack of conceptual understanding about individual EBPs has led to their implementation in settings not conducive to maximising their full benefit for children. Research has already highlighted that the lack of knowledge and certainty for teachers regarding adopting new approaches and changes to practice can act as a systemic barrier to implementation (Joram *et al.* 2019). These barriers can be overcome if teachers have the opportunity to voice their difficulties and are supported to be more active in their implementation of EBPs (Cordingley 2008), which are significantly important for SCC learning (Conn 2014). The process of professional learning is again reflective of Vygotsky's sociocultural theory: teachers themselves should identify their ZPD and are supported by professional collaborators in their roles as MKOs. Sociocultural theory dictates that learning is a socially mediated procedure (Vygotsky 1978) within which people can develop their 'cultural values, beliefs, and problem-solving strategies through interactions with more knowledgeable members of society' (McLeod 2020, p.1). Developing this capacity would promote the process outlined in teacher agency, where professional learning needs are self-identified by teachers and subsequent learning is sought by acting, in order to facilitate the best possible outcomes for the children (Biesta *et al.* 2015; Simpson *et al.* 2018). Education stakeholders that have an interest in developing professional learning and capacity-building must also consider developing teacher researcher skills so that the disseminated findings from research are understood by teachers and delivered as effectively as possible. The

benefits of supporting peer learning in the role of MKO were also identified in literature and noted in the study. However, teachers discussed the difficulty of implementing this at times, stating that they felt it was not as effective as the research suggested it might be. Vygotsky (1978) stresses the need to include peers in the learning process, which should concentrate ‘not only on individuals, but also on the interactions between them, and on the broader settings in which these interactions occur’ (Pressick-Kilborn *et al.* 2005, p.27). However, in order to do so, peers must also be afforded the appropriate training and capacity-building to understand how to support autistic children learning SCC, which should be in turn driven by the MKO teachers. The process is reflected in what Vygotsky (1997) termed ‘praxis’, a descriptive term for the merging of theory and practical activities; he proposed that ‘theory provides a basis to guide practical activity, but at the same time practice informs and shapes theory’ (Lantolf and Poehner 2011, p.12).

8.6.2 The Zone of Proximal Development

The fundamentality of understanding learning from the concept of the ZPD is described in Section 2.5.4.1 and runs throughout the study. The importance of understanding the cumulative effect of learning from ZPD is rudimentary as the socioculturalist believes ‘the social becomes manifest at the level of the individual ... [and] that learning impacts upon and contributes to development’ (Pressick-Kilborn *et al.* 2005, p.27). The findings from the study have, however, identified some challenges to fully operating Vygotsky’s (1978) ZPD theory component. Although SETAM (DES 2017b, p.7) promotes schools’ adherence to the ‘problem-solving process’ of identifying and monitoring needs, teachers have expressed difficulties in using appropriate assessments to measure EBPs for SCC learning for autistic children. The difficulties ranged from a lack of varied

assessments to a lack of confidence in judgement and observations. According to Vygotsky (1978) and sociocultural theory, we should be concerned with the relationship between learning and development, and the teaching interactions within these two pillars in the ZPD (Shabani 2016). This is achieved when teachers can appropriately assess and measure learning to move the child between their ZPDs. Findings from the study suggest that teachers need support, which could be given through professional learning, to implement the full range of assessments for autistic children, thus supporting implementation of EBPs in a systematic way based on understanding the autistic child in their ZPD.

Furthermore, the study identified a clear lack of engagement with the autistic child in monitoring their progress through the EBPs for SCC. Adopting the sociocultural theoretical framework highlights the importance that studying a child's development involves, as well as an understanding that 'individual, interpersonal and cultural processes are not independent entities' (Rogoff 1998, p.687). Therefore, professional learning should be provided to support teachers' understanding of the individuality of autistic children and their unique ZPDs and how to design appropriate interventions in SCC to support this, incorporating the autistic child's voice. The core characteristics of sociocultural theory and the ZPD are relevant for autistic children and how SCC is taught using EBPs, as learning in the ZPD is driven by the processes and sociocultural experiences of each individual (Conn 2014). The importance of approaching SCC learning using EBPs is evident in sociocultural theory as it emphasises social interaction and the concept of ZPD, which advocates a focus on how 'individual cognitive and affective processes originate in actual human interactions' (Eun 2019, p.18), which teachers must be equipped to measure and assess. Through

assessment and identification of need, teachers can then implement practices that best support the generalisation of learning for each individual autistic child. The findings also note the importance of school leaders in fostering collaboration among staff to ensure that teachers follow the permeated instruction of SCC using EBPs across settings and instruction to support generalisation of learning in the ZPD (Vygotsky 1978). There is concern that the correct use of EBPs is not happening in schools for children with SEN (Odom *et al.* 2005; Parsons *et al.* 2009; Bond *et al.* 2016), and we know that when interventions, designed to improve SCC, are not specific to the individual needs of children, they show little generalisability and long-term success (Bellini *et al.* 2007; Stichter *et al.* 2007). The study argues that by adopting the core concepts underpinned by sociocultural theory, as outlined here, schools can mitigate problems with the incorrect implementation of EBPs to support SCC and can foster better long-term outcomes for autistic children, teachers and the wider community. Schools represent complex educational environments and as the perspective of the socioculturalist is described as ‘holistic and ecological’ (Conn 2014, p.7), there is attention focused on the influences upon a child’s learning and social development from the environment. Vygotsky (1978) proposed culture-specific tools of intellectual adaptation that are relevant.

8.6.3 Culture-Specific Tools

Sociocultural theorists note that participation in social practices and pedagogies, used to design learning, are mitigated by the resources and constraints of the abstract tools available (Vygotsky 1978; Scribner 1997; Shabani 2016). Vygotsky believed that, based on a child’s strengths and differences, specialised interventions, such as EBPs, may be required in appropriate settings where the child would not develop further

challenges (Vygotsky 1993). Schools, as individual contexts and cultures must be encouraged to reflect on how they, as communities, promote the use of EBPs and SCC among autistic children relevant to their own context. Findings from the study note how teachers express difficulties that they have in managing the complexity of SCC teaching and learning, alongside the individuality of each autistic child. However, it is imperative to address the challenges in schools as these are a significant part of the society and environment which affect the tools that each child uses, including the skills they learn and the education they receive, which are therefore socioculturally driven (Daniels 2009). Findings note different practices in relation to the teacher's role in SCC for autistic children and the way in which EBPs are implemented. School leaders must be encouraged to promote the correct use of the CoS guidelines (DES 2017b), which delineate how school structures manage the deployment of resources, specific to each school profile, based on SETAM (DES 2017a). By following the CoS (DES 2017b) guidelines, schools operate using efficient ways to support learning for all children, ensuring a more equitable approach. Vygotsky warned that the expectations and mindsets of the social milieu and circumstances created by a culture may inhibit access by a child with SEN to 'sociocultural learning experiences, and prospects to acquire ... psychological tools' (Gindis 1999, p.335). Therefore, sociocultural theory emphasises that society and, in the case of this study, the school community, has a responsibility to understand that human cognitive development cannot be disconnected from the social, cultural and historical settings in which it develops (Johnson and Golombek 2011). We must be mindful of that development with regards to learning for children with SEN and the enculturation practices that we adopt to support access to tools of intellectual adaptation (Vygotsky 1978). The study argues that, as a result, school leaders and policy makers must ensure that schools are resourced with the tools, including time,

experienced and trained staff and equipment, needed to support autistic children learn SCC through EBPs. Sociocultural theory notes that within the process of cognitive scaffolding in their community, ‘enculturation occurs as learners participate in practices in collaboration with more capable others, or with experts’ (Pressick-Kilborn *et al.* 2005, p.27); however, teachers in this study relayed their difficulties with contextual factors that impede the implementation of EBPs. The collaborative support, time and equipment need to be managed efficiently and effectively through the CoS (DES 2017b) framework and contextualised at a school and individual level in order to foster success and the best possible outcomes for young autistic children in schools. The challenge for policy makers exists in terms of the effective deployment of resources and the requirement for funding to meet these demands. The roll-out of the in-school therapy model is championed to foster better deployment of school-based support (Lynch *et al.* 2020), but this needs to be embedded nationally. Sociocultural theory emphasises that society has a responsibility to understand that human cognitive development cannot be disconnected from the social, cultural, and historical settings in which it develops (Johnson and Golombek 2011). Consideration for the various settings should underpin all the decisions made in terms of resource deployment at national and local levels. Vygotsky’s sociocultural theory is arguably an important perspective from which to view the implementation and effectiveness of EBPs to support learning and teaching SCC to young autistic children, and how schools and education stakeholders can foster the best practices in relation to this. The study considers it critical for schools to understand their own practices in relation to supporting autistic children. Such a sentiment is also reflected in the research report based on the evaluation of an initiative that promotes the development of autism-friendly schools across Ireland managed by the AsIAM advocacy group (see Section 1.2). The report highlights that supporting

school-wide inclusive cultures, such as the Autism Friendly Schools Initiative, ‘has the potential to build universal collaborative expertise across the system and develop flexibly responsive and reflective autism friendly schools’ (Fitzgerald *et al.* 2021, p.99). A key learning point from this study is advocating for schools to reflect on their own culture-specific tools and inclusive practices for autistic children learning SCC.

8.7 Conclusion

Chapter Eight provided a detailed discussion of the findings relayed from the study, exploring the perspectives of teachers on effective EBPs that support learning and teaching SCC for young autistic children. The current practices of teachers were measured through the lens of Vygotsky’s sociocultural theory in order to understand their experiences and develop plausible solutions to the difficulties expressed and uncovered. Three component characteristics of Vygotsky’s theory – the role of the MKO, the importance of the ZPD and the relevance of culture-specific tools – then served as the scaffold to explore the implications of the findings for future practice. Chapter Nine captures the journey through the research study; the implications for future research are also outlined.

CHAPTER NINE

CONCLUSION

9.1 Introduction

Chapter Nine embodies the final section of the study and provides an overall conclusion from the research undertaken to explore teachers' perspectives on evidence-based practices (EBPs) that support social communication competency (SCC) for autistic children in early years Irish classrooms. The study mapped out a journey that was grounded in evidence garnered from a systematic literature review, in the belief that it is 'a vital tool for policy makers and practitioners to find what works, how it works and what might do harm' (Gough *et al.* 2013, p.5). Bolstered with the outcomes from the review, the study investigated the relevance of this evidence for mainstream class teachers (CTs), special class teachers (SCTs) and special education teachers (SETs) in Ireland who had experience working with autistic children.

In Chapter One, the pragmatic researcher noted that the endeavour was based on the premise that research should find out what works in terms of teaching autistic children (Conn 2014): effective inclusion means considering the child's needs on all levels and adopting appropriate practices to meet these needs in schools (Lerner and Johns 2015). Chapter One also proposed the research–practice gap that exists between the upsurge in the availability of literature on EBPs to support autistic children (Parsons *et al.* 2013) and the lack of translation of these EBPs into teaching and learning (Klingner and Boardman 2011; Joyce and Cartwright 2020) in Irish schools (Bond *et al.* 2016; Barry *et al.* 2021). Many reasons were noted for the research–practice gap, including the difference between clinic and classroom settings for implementation

(Odom *et al.* 2010; Kasari *et al.* 2012; Ke *et al.* 2017), the over-reliance on particular methodologies in special education (Klingner and Boardman 2011), and the need for professional learning for teachers and their involvement in the research process (Brock *et al.* 2020; O’Sullivan and Ring 2021). Remaining cognisant of these reasons, through a systematic literature review, the researcher identified a range of EBPs that were proven effective for use in the classroom. To respect and value the teacher’s expertise, the study sourced how the EBPs are used or perceived in an effort to understand their implementation in the complex setting of schools and classrooms (Parsons *et al.* 2013). Joyce and Cartwright (2020) propose that the research gap could be narrowed through identification of actual problems faced by teachers and then planning for context-driven solutions for those who will implement the EBPs.

The study adopted the sociocultural theoretical framework as the particular lens through which to interpret and discuss the relevance of the research for teachers and autistic children learning SCC (Troudi 2010; Kivunja 2018). The journey towards Vygotsky’s (1978) sociocultural theoretical framework was presented through Chapter Two and gave a structure to the research from the start. Utilising the key components of the More Knowledgeable Other (MKO), the Zone of Proximal Development (ZPD) and culture-specific tools of intellectual adaptation (Vygotsky 1978) as the scaffolds was fundamental to exploring and interpreting the teachers’ perspectives. The detailed thematic literature review in Chapter Three accounted for the literature pertaining specifically to Autism Spectrum Difference (ASD). The chapter presented the evolution of our understanding of ASD, with detail specific to the history, characteristics and prevalence of ASD. An overview of the legislative framework in relation to ASD, both in Ireland and the United States, was also provided, followed by a description of the

key cognitive theories related to ASD which impact on how autistic children think and learn. The exploration of the literature on ASD led to an appreciation of the spectrum of neurodiversity and the complexity of differences.

Chapter Four then explored the literature relating specifically to SCC, including its defining features and relevance for ASD. Theories related to the development of social competency and embedded communication competency were also explored, which provided an insight into the role of EBPs, promoted for SCC learning and teaching, used by teachers. The final part of the literature review process culminated in Chapter Five, the systematic review, which was designed to analyse current and previous research on school-based interventions aimed at increasing SCC for autistic children. The study used a formulaic approach to identify EBPs to produce rigorous and well-controlled research (Hansen *et al.* 2017); it then appraised these studies through the WoE Framework (Gough 2007), which included scoring and criteria. The evidence that was extracted provided the impetus for the study trajectory. Chapter Six accounted for the questions that the research was designed to answer and the philosophical assumptions of the pragmatic researcher. The convergent triangulation research design used a cross-sectional survey as the data collection method and a mixed-methods data analysis approach. The national survey sought a purposeful sample of teachers who could answer the research questions and received 393 responses in total. The findings from the survey were presented in Chapter Seven, following inferential and descriptive quantitative statistical data analysis (Field 2006), which took place separate to reflexive thematic analysis (RTA) (Braun and Clarke 2022). Detailed thematic maps and a comprehensive audit trail (see Appendices 12 - 20) charted the research journey towards interpretative analysis, in which both sides of the analysis were merged together.

Chapter Eight provided the discussion on the themes which emerged and were theorised using Vygotsky's (1978) sociocultural theory. The chapter draws conclusions from the main findings; these aim to provide answers to the research–practice gap identified in Chapter One. A synopsis of the first theorised theme that emerged from the study is provided, with recommendations and implications for policy and practice.

9.2 Teachers as More Knowledgeable Others

In accordance with the study's theoretical framework of sociocultural theory (Vygotsky 1978), we know that teachers, in their role as MKOs, are in a privileged position to affect the learning and engagement of the children they work with. Findings from the study detailed that teachers believed in the importance of teaching SCC to autistic children, as reflected by the theme *It's integral to my teaching*. The importance was evidenced in the significant portion of time teachers reported allocating to teaching SCC reflecting what is believed to be good practice (Conn 2014). Furthermore, evidence was found that the teachers believed in using EBPs to support SCC for autistic children, with all respondents using at least one of the EBPs across the sample of 382 teachers. Such information is important as it reflects the findings from Daly *et al.* (2016), who note that teachers are using EBPs and that excellent practices in Ireland should be documented to support others. Right across the study, it was evident that teachers were trying to facilitate SCC learning for autistic children in their settings, which is important as EBPs are seen as the cornerstone of education for autistic children (Conn 2014; Egan 2018). However, the Department of Education and Skills (DES) (2020) reports that although improvements in education provision for autistic children are evident in Ireland, there is still a need for the implementation of more ASD-specific methodologies for SCC. More recent findings from Barry *et al.* (2021) detail that the

lack of implementation of EBPs by class teachers in Ireland supporting autistic children is an area of concern. Evidence from the study corroborates with Barry *et al.* (2021) but delves deeper to uncover that although teachers are implementing EBPs, there are considerable gaps in their conceptual knowledge across teacher roles and spanning the range of EBPs presented. Lack of knowledge was the reason most cited for not using an EBP, and it featured for CTs, SCTs and SETs. An anomaly was identified in that fewer SCTs were impacted by the definition of EBPs in the study, which signified they had more knowledge of EBPs than CTs and SETs overall. The recent report from DES (2020) notes that SCTs were employing EBPs to a high standard; however, there are still concerns expressed that the practice was not universal across all sites examined, which was also evident in this study. The DES (2017b), through the Special Education Teacher Allocation Model (SETAM), details that educational provision for children with special educational needs (SEN) should be provided by teachers with relevant expertise to support their learning, which represents Vygotsky's (1978) role of MKOs. The study documented was based on a purposeful sample of teachers who had experience in supporting autistic children learning SCC in early years classes but found that lack of conceptual knowledge using EBPs was evident, placing a question mark over the implementation of SETAM recommendations. According to sociocultural theory, teachers must strive to engage children with pedagogical approaches and activities that facilitate their learning with their peers and adults as their MKOs (Vygotsky 1978). Knowing that EBPs provide the most reputable and best researched means to support autistic children, it is noteworthy that teachers in the study are found to be limited in their conceptual knowledge of this. Such a finding also raises concerns over programme fidelity, which is imperative to the successful implementation of EBPs to promote the best outcomes for children (Stahmer *et al.* 2015; Knight *et al.* 2019). If

teachers do not have the right conceptual understanding of the EBPs, as shown in the study, then the effectiveness of the programme cannot be guaranteed (Knight *et al.* 2019). Vygotsky (1978) warned that teachers must intervene appropriately for children who have differences in SCC, otherwise they can replicate ‘progressive divergence in social and natural development’, whereby children’s needs are not met, leading to social deprivation and the emergence of further delays (Gindis 1999, p.335). Adopting appropriate interventions for autistic children is imperative and, by doing so, teachers can be confident that they are using interventions that are the most reliable and have the best research backing to support the children’s acquisition of SCC.

Confidence in their role as MKOs is also impacted by the place of teacher agency. Teacher agency reflects the ideal that teachers assume responsibility for their own professional development in answer to the dynamics of their own teaching, leading them to take action (Biesta *et al.* 2015) and experience change in their identity and expertise (Sheridan *et al.* 2022). Teachers should be viewed as professionals who advance their practice from their experience and greater knowledge (Conn 2019). The new Primary Curriculum Framework demonstrates the role of teacher agency to support teachers to make informed decisions based on children’s experiences, interests and learning, to design appropriate pedagogical approaches (National Council for Curriculum and Assessment [NCCA] 2023). The study however, highlighted the perceived difficulty expressed by teachers in sourcing suitable EBPs to teach SCC to autistic children, as well as their desire for specific professional learning in relation to appropriate implementation. Li and Ruppap (2021) explain that through teacher agency, professionals are encouraged to take on the role of agents of change for their own professional capacity. Findings from the study show that teacher confidence and

knowledge in using a range of EBPs is an ongoing area of need for teachers; it is therefore one that is critically important to address, considering that school leaders are asked to maintain core SEN teams with relevant expertise (DES 2017b). The policy manifesto and the overarching guidelines provided by SETAM in Ireland delineate that teachers should have the opportunity to engage with professional learning in order to support the diversity of learners in their contexts and to foster better outcomes for students (DES 2017b). The Teaching Council in Ireland supports teachers to take action in regard to their own professional learning. Part of the Teaching Council's remit is to inform the Minister for Education about teachers' professional learning, actively promoting teacher engagement in such learning, and facilitating and conducting research into this (Teaching Council 2015). In order to achieve these goals, the Council provides funding opportunities to support professional development and advocates for the role of the teacher-researcher where a teacher can engage in a more reflective role that facilitates developing their agency and capacity building (Teaching Council 2021). Professional community of practice networks like the TREX platform and initiatives such as Croí and Céim (documented in section 4.13.2) offer space encouragement and the facility for teachers to engage in, seek out and disseminate high quality research to other education stakeholders from initial teacher education through their careers (Teaching Council 2021). The importance of such research is evident as the teacher who is practice-based in their profession must be able to 'connect intellectually, practically and emotionally with the knowledge they are offered in the research accounts if they are to take it on board and use this to inform their practice' (Cordingley 2008, p.37). Through the teacher-researcher role a more reflective practitioner is encouraged, which builds teacher agency (Biesta *et al.* 2015). In the field of autism education, the teacher who can reflect and take action on their knowledge, practice and

experiences is more effective when we consider the individuality and complexity of learning and teaching for autistic children (Conn 2014).

However, in spite of the influence that teacher agency can have on inclusion for children with SEN (Li and Ruppap 2021), the study highlights that there are still gaps in teachers' knowledge and that a critical need for bespoke professional learning is evident. Providing context-specific school professional learning for teachers in the form of mentoring and coaching has been proven to be a powerful means to affect change in teacher agency and professional learning (Cordingley 2005). The study argues that such an approach to developing teacher agency should be considered in the light of the findings and to support teachers working with the ever-changing range of diversity of learners in schools today. Vygotsky's sociocultural theory teaches the need for individuals to have mentoring and modelled support to change their knowledge relevant to the culture around them (Vygotsky 1978). It is therefore important for teachers to have the support and scaffolds they need to extend their knowledge base of EBPs that support SCC from MKOs who can provide such professional learning, as relevant for their teaching contexts and schools. Approaching professional learning with scaffolded and mentoring support would alleviate what has been described as a challenge for teachers, whereby they must attempt to use disseminated findings from research to improve learner outcomes and education practice (Brock *et al.* 2020). Vygotsky (1978) promoted the power of learning that occurs in social interactions between people; which is relevant to the type of professional learning teachers should receive. Accordingly, the study suggests that to promote better implementation of EBPs and to foster the best learning outcomes for autistic children, it would be advantageous

to have professional learning experiences for teachers with MKOs alongside the published guidelines and manualised supports that are available.

9.3 The Zone of Proximal Development

Sociocultural theory strongly advocates for the importance of ZPD, and Vygotsky (1978) is widely recognised for his explanation of how children's learning can be maximised when their MKOs understand what the child can achieve within their ZPD, which the study argues is critical for autistic children. Sociocultural theory is concerned with outlining the relationship between learning and development, and the teaching interactions within these two pillars in the ZPD are significant (Shabani 2016). Conclusions from the study highlight the need for teachers to use assessment to better understand the autistic child's current level of performance in SCC or ZPD, which can then be exceeded through mediation from others (Vygotsky 1978; Poehner 2008). Comparatively, we can see a cyclical process between assessment and instruction as through the mode of mediation, assessment and instruction are interlinked in the same activity; which reveals challenges to a learner's performance and provides opportunities to overcome the challenges with the teacher (Poehner 2008). Findings from the study indicate that, in relation to assessment, support needs to be developed and put in place to help teachers use and foster the appropriate means of assessment for SCC. The theme *It's hard to know* highlights teachers' perspectives in relation to assessment and the sentiments they expressed on the topic. Teachers in Ireland are called to use the CoS framework to guide and structure the systems of support for children with SEN within their schools. These guidelines advocate the use of a 'problem-solving approach', underpinned with 'careful monitoring of progress' (DES 2017b, p.6). However, the findings evidenced in Chapter Eight highlight considerable difference in how teachers

approached assessment and the need for better assessments to foster better outcomes for autistic children in SCC. The significance of assessment in SCC for autistic children must be highlighted since we know that deviations in SCC for autistic children mean that they have individual challenges relating to peers, transitioning in daily life and manipulating social and contextual cues (Stichter *et al.* 2012; Yager and Iarocci 2013). The importance of understanding their individuality is imperative and was evident throughout the study and was noted as a challenge in the findings. The perceived difficulty relates directly to assessment and how teachers identify autistic children's needs in SCC and monitor their learning. The DES (2017b) guidelines advocate for the important role that the teacher has in the identification of the child's needs and emphasises the criticality of using assessment to guide any intervention. However, findings from the study have provided evidence that there are gaps in teachers' use of assessment to measure SCC and variations in the type of assessment across teacher roles. Findings collated reflect that teachers wanted more formal SCC assessment measures and professional learning to support the use of different measures. By increasing the availability and embedding the use of more appropriate assessment measures for SCC, we will support better engagement with the implementation of EBPs and foster the use of data-driven interventions (Hargreaves *et al.* 2009; Datnow *et al.* 2017) for autistic children.

Furthermore, an argument that is widely accepted in the ASD discourse is that 'no two people with ASD are alike' (Griffin and Shevlin 2011, p.218), which is reflective of the neurodiverse population of society (Leveto 2018). The study used Vygotsky's sociocultural framework lens to interpret the analysis of the findings and also frame the study. The framework advocates that we look at ASD through 'tensions,

including the individuals' disability versus their ability, their social versus their non-social selves and the degree to which they are the same as and different from people without [ASD]' (Conn 2014, p.6). This is critically important when we consider how we identify an autistic child's ZPD. The findings from the study advocate for the importance of the assessment process involving the autistic child and of supporting their voice in the process going forward. The research uncovered the lack of attention given to the autistic child's voice in the assessment of SCC and proposes an immediate need for change in relation to the finding. Learning SCC within the ZPD is particularly relevant for understanding what the child's strengths and needs are (Vygotsky 1978) and provides an insight into what a person is 'able to perform independently and the ability to perform a more difficult task with assistance, yet without frustration' (Semmar and Al Thani 2015, p.2). Conclusions from the study stress the need for teachers to access the autistic child's voice in assessment and urge stakeholders interested in professional learning in the area to develop a momentum in their respective approaches, one which emphasises such practice.

The importance of using appropriate assessment to measure and monitor SCC learning through EBPs, for autistic children within their ZPD, is a recommendation from the findings of the study and reflects Vygotsky's (1978) position on the same. Furthermore, the study advocates for support for teachers to develop their understanding of the unique needs presented by autistic children. It is critically important that teachers can interpret and understand where the autistic child is within their ZPD in terms of SCC in order to create individualised interventions that promote success (Vygotsky 1978). Furthermore, the study suggests that teachers must be aware of the impact that cognitive theories, including Theory of Mind, the Theory of

Executive Function and the Theory of Weak Central Coherence (Delli *et al.* 2017), can have on the variability of autistic children's unique profiles (Aspy and Grossman 2012; Conn 2014; Egan 2018). Strengthening teachers' understanding of how autistic children can display variations in their social communicative experiences, with some children actively attempting to engage others socially, with variable levels of success, and others seeking to avoid social interaction where possible (Barrett 2018), will help support their learning. When teachers understand these theories and can relate them to the unique profiles of their autistic children, they will be better placed to use EBPs to foster better learning outcomes (Egan 2018), alleviating what was noted in the study as a sense of *Trial and error*. Vygotsky (1978) promoted the importance of creating motivating experiences for social learning and we know this is a hugely important contributor to social competency and psychological understanding in autistic children (Melis-Yavuz *et al.* 2019). Lack of support and learning opportunities within their ZPD can add to shortfalls in SCC for autistic children, identified as precursors to challenging behaviour, disengagement, social exclusion, feelings of anxiety, isolation and compounded communication challenges (Adams *et al.* 2004; Petticrew and Roberts 2006; Barnett 2018; Brock *et al.* 2020), which may continue into adulthood (Brain 2019). Therefore, the critical importance of using assessment to design and monitor motivating interventions using EBPs for SCC in autistic children is highlighted through the study findings. The importance of teachers engaging in professional learning in assessment and furthering their understanding of autistic children's traits and ZPD is recommended from the evidence presented here.

Vygotsky (1978) believed that within each individual's community, the practices that each individual engages with in collaboration with others impact upon

their learning through cognitive scaffolding. The importance of collaboration, has further relevance in relation to assessment. Findings from the study highlight the importance of teachers having collegial support in the assessment and teaching processes supporting SCC learning for autistic children. Teachers valued the contribution of knowledge from fellow teachers, special needs assistants (SNAs) and parents for assessment and supporting the generalisation of learning for autistic children. However, the study noted that a lack of time and the critical need for school leadership to support collaboration to meet the level of diversity in SCC learning for autistic children were particularly evident from the findings. We know recommendations put forward indicate that the focus of interventions is placed on ‘social interaction and flexibility of thought with access to supplementary learning, communication and life skills interventions’ (Bond *et al.* 2016, p.8). Hence, the study reiterates that it is imperative that teachers adopt EBPs in inclusive education across school settings to facilitate the best possible outcomes for autistic children regarding their SCC development and should have collaborative support to do so (Brock *et al.* 2020). Collaboration with outside agencies is noted as desired by teachers in the study but met with criticism from these participants, for lack of availability. Indeed, it is deduced from the study that because only a few teachers indicated collaboration with outside agencies as a form of assessment, this is a definite area needing further development. Inter-professional collaboration is imperative to providing effective initiatives to best support autistic children from an early age (Strunk *et al.* 2017) and is recognised as an important part of school’s ability to become inclusive and meet learner needs. It is perceived that the roll-out of the in-school therapy pilot project could support this (Lynch *et al.* 2021) but calls on the key stakeholders responsible for the expansion of the project are reiterated by the findings from the study.

9.4 Culture-Specific Tools of Intellectual Adaptation

Sociocultural theory emphasises that society and, in the case of the study, the school community, has a responsibility to understand that human cognitive development cannot be disconnected from the social, cultural and historical settings in which it develops (Johnson and Golombek 2011); which is arguably important for autistic children in light of what we know about the ZPD. The outcomes from the study suggest that school communities must be mindful of culture with regards to learning for children with SEN and the enculturation practices we adopt to support access to tools of intellectual adaptation (Vygotsky 1978). Arguably school leaders and policy makers must ensure schools are resourced with what Vygotsky (1978) identified as sociocultural specific tools; including time, trained experienced staff and equipment, to support autistic children learn SCC through EBPs. Schools, as individual contexts and cultures must be encouraged to reflect on how they, as a community, promote the use of EBPs and SCC among autistic children relevant to their own context. Vygotsky (1978) describes how the culture surrounding the child directly impacts on their learning and development. In their discussion, in the aptly named *Establishing Pathways to Inclusion*, Rose and Shevlin (2021, p.6) state how teachers in Ireland express the need for changes to ‘the resourcing of schools and the learning environment and focused training opportunities’ in relation to the development of inclusive schools. Meeting teachers’ needs across these fundamental principles is imperative to support the development of a knowledgeable and well-resourced workforce of teaching professionals who are confident in meeting the learning goals of children with SEN (Rose and Shevlin 2021), a point reiterated by the study participants.

Furthermore, the importance of understanding the uniqueness of each autistic child in relation to their context is imperative. Silberman (2015) reminds us that there is diversity within the ASD community in relation to their differences in SCC. Adopting a sociocultural perspective is therefore important as through this theoretical framework, one can ‘seek to understand the social contexts in all their complexity’ (Conn 2014, p.24), thus recognising the impact of what is implied by Vygotsky (1993) as the culture around the child and the impact on the specific tools for the development of the individual. The findings from the research report (Fitzgerald *et al.* 2021) based on the evaluation of an initiative that promotes development of autism-friendly schools across Ireland, managed by AsIAM advocacy group, also reflect this ideal. The report discusses how school-based collaborative professional development supports the creation of a flexible school culture, one that is supportive of autistic children’s individual learning needs and ‘has the potential to build universal collaborative expertise across the system and develop flexibly responsive and reflective autism friendly schools’ (Fitzgerald *et al.* 2021, p.99). The findings from the research study documented here, conclude that similar measures should be employed across schools to support the embedding of the CoS (DES 2017b) framework, which guides how schools operate using efficient ways to support learning for all children, ensuring a more equitable approach. Vygotsky (1995) cited in Gindis (1999, p.335) warned that the expectations and mindsets of social milieu and circumstances created by a culture may inhibit the access of a child with SEN to ‘sociocultural learning experiences, and prospects to acquire ... psychological tools’. We must be mindful of the cultural specific tools with regards to learning for children with SEN and the enculturation practices that we adopt locally in schools to support autistic children (Vygotsky 1978).

9.5 Overall Contributions to Theory, Policy, and Practice

The study set out to explore teachers' perspectives on effective EBPs that support SCC learning for young autistic children. Chapter One provided the impetus for the research by identifying the gap in the literature, which showed the merit of ascertaining the specifics around the use of EBPs in school context. One method proposed to address the research–practice gap was the identification of actual problems faced by teachers and planning for context-driven solutions for those who will implement these (Joyce and Cartwright 2020). It was important in the study to incorporate value and respect for teachers' expertise, leading to an understanding of how EBPs are implemented in the complex setting of schools and classrooms (Parsons *et al.* 2013). The study has provided an overview of the problems identified by teachers as well as theorised solutions, utilising Vygotsky's sociocultural theory as the specific lens. Capturing the overall study findings suggests that using the principles of Vygotsky's (1978) sociocultural theory to develop bespoke professional learning opportunities can facilitate school capacity-building, teacher agency and teacher researcher skills, to foster the development of inclusive school practices. These principles should be considered by key education stakeholders that have an interest in supporting autistic children and their teachers. We know that addressing the research–practice gap 'requires more than topically relevant research or more detailed plans for implementation and adaptation – it requires research that is relevant to local effectiveness predictions' (Joyce and Cartwright 2020, p.1073). These local predictions must be based in schools, where education professionals can reflect on their own journey towards inclusive education for autistic children and therefore provide bespoke

professional learning opportunities, grounded in practical evidence of what works (Cordingley 2005).

9.6 Implications for Further Research

The study has provided an exploration of teachers' perspectives on effective EBPs that support SCC learning for young autistic children in Irish primary schools and has reflected the outcomes through the sociocultural theoretical framework. It has provided a platform for teachers to voice their experiences and concerns in relation to using EBPs to support SCC and has harnessed this information as a point of reference for stakeholders interested in developing teacher capacity and fostering learning outcomes for autistic children going forward. The study had placed value on the contributions that the findings can make but also acknowledges the limitations and suggests future research opportunities.

The study was based on eight specific EBPs that were particularly relevant for supporting SCC learning for young autistic children between the ages of 4–8 years in schools, as it is considered of critical importance in early years development. While adopting that approach served to root the study in an evidentiary base using a systematic literature review, it also limited the number of EBPs available to investigate. It might be advantageous for future research to widen the scope of children's ages to capture more of the research available. Furthermore, basing the study on early years children meant that the research respondents needed to have experience working with autistic children at this age to participate. Such specific criteria may also be considered a limiting factor in the sample size (n=382), although the size was considered in the study as large enough as a basis for reflection.

The researcher adopted a mixed-methods analysis of a single mode of data collection as the study took place during the Covid-19 pandemic and was concerned with the teachers' perspectives on using EBPs. Although a high response rate was achieved to the comprehensive survey, there may be merit in further exploring some of the research findings with different participants and including the voices of parents and the autistic children themselves in the research. Rose and Shevlin (2021) have advocated for the importance of gaining a broad spectrum of responses across the key persons involved in the context of the special education research, which should be considered in future research.

9.7 Conclusion

This study explored teachers' perspectives on effective EBPs that support SCC for autistic children in early years primary classrooms in Irish schools. Research conducted by Bond *et al.* (2016) highlights that in Ireland there are significant gaps in the understanding of best practice to support autistic children. Furthermore, reports from Daly *et al.* (2016) and DES (2020) call for research to highlight how teachers can use practices effectively to support autistic children in schools in Ireland. The reports identified social communication as one of the key areas needing support because possessing good SCC is hugely important as 'social functioning is a global measure of whether adults with autism are employed, have friends, and live independently' (Gillespie-Lynch *et al.* 2012, p.162). The study responded to the call to seek out the teachers' perspectives on effective EBPs to support SCC and has documented the contributing factors affecting implementation and decision making around this complex issue (Cooper and Jacobs 2011). By doing so, it has provided a voice to teachers considered valuable in their role to contribute to the discourse on the implementation

of EBPs to support SCC for autistic children (Cordingley 2008; Hopkins 2008; Daly *et al.* 2016). Through the study, barriers to the implementation of EBPs were identified and problem-solving was theorised using Vygotsky's sociocultural theory. Addressing ASD through Vygotsky's sociocultural framework lens involves distinguishing between the many 'tensions, including the individuals' disability versus their ability, their social versus their non-social selves and the degree to which they are the same as and different from people without [ASD]' (Conn 2014, p.6). The findings make a valuable contribution to educational discourse on learning and teaching for young autistic children, their teachers and school communities, against the changing landscape of inclusive special education in Ireland.

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Zosh, J.M., Hirsh-Pasek, K., Hopkins, E.J., Jensen, H., Liu, C., Neale, D., Solis, S.L. and Whitebread, D. (2018) 'Accessing the inaccessible: Redefining play as a spectrum', *Frontiers in Psychology*, 9, 1124, available: <https://doi.org/10.3389/fpsyg.2018.01124>.

Appendix 1 – Excluded Documents and Associated Criteria

1.	Aarne, P. and Tallberg, I.M. (2010) 'Visual check back in children with Specific Language Impairment', <i>Journal of Pragmatics</i> , 42(11), 3106-3113, available: http://dx.doi.org/10.1016/j.pragma.2010.04.017 .	Exclusion criterion 1
2.	Aasen, G. and Nærland, T. (2014) 'Enhancing activity by means of tactile symbols: A study of a heterogeneous group of pupils with congenital blindness, intellectual disability and autism spectrum disorder', <i>Journal of Intellectual Disabilities</i> , 18(1), 61-75, available: http://dx.doi.org/10.1177/1744629514522142 .	Exclusion criterion 1
3.	Abrams, D.A., Chen, T., Odriozola, P., Cheng, K.M., Baker, A.E., Padmanabhan, A., Ryali, S., Kochalka, J., Feinstein, C. and Menon, V. (2016) 'Neural circuits underlying mother's voice perception predict social communication abilities in children', <i>PNAS Proceedings of the National Academy of Sciences of the United States of America</i> , 113(22), 6295-6300, available: http://dx.doi.org/10.1073/pnas.1602948113 .	Exclusion criterion 3
4.	Abu-Akel, A., Testa, R.R., Jones, H.P., Ross, N., Skafidas, E., Tonge, B. and Pantelis, C. (2018) 'Attentional set-shifting and social abilities in children with schizotypal and comorbid autism spectrum disorders', <i>Australian and New Zealand Journal of Psychiatry</i> , 52(1), 68-77, available: http://dx.doi.org/10.1177/0004867417708610 .	Exclusion criterion 3
5.	Abu-Hamour, B. and Muhaidat, M. (2014) 'Parents' attitudes towards inclusion of students with autism in Jordan', <i>International Journal of Inclusive Education</i> , 18(6), 567-579, available: http://dx.doi.org/10.1080/13603116.2013.802026 .	Exclusion criterion 3
6.	Ackerman, S., Schoenbrun, S., Hudac, C. and Bernier, R. (2017) 'Interactive effects of prenatal antidepressant exposure and likely gene disrupting mutations on the severity of autism spectrum disorder', <i>Journal of Autism and Developmental Disorders</i> , 47(11), 3489-3496, available: http://dx.doi.org/10.1007/s10803-017-3246-6 .	Exclusion criterion 3
7.	Adachi, T., Koeda, T., Hirabayashi, S., Maeoka, Y., Shiota, M., Wright, E.C. and Wada, A. (2004) 'The metaphor and sarcasm scenario test: a new instrument to help differentiate high functioning pervasive developmental disorder from attention deficit/hyperactivity disorder', <i>Brain and Development</i> , 26(5), 301-306, available: http://dx.doi.org/10.1016/s0387-7604(03)00170-0 .	Exclusion criterion 6
8.	Adams, D., Horsler, K., Mount, R. and Oliver, C. (2015) 'Brief report: A longitudinal study of excessive smiling and laughing in children with Angelman syndrome', <i>Journal of</i>	Exclusion criterion 6

	<i>Autism and Developmental Disorders</i> , 45(8), 2624-2627, available: http://dx.doi.org/10.1007/s10803-015-2404-y .	
9.	Agazzi, H., Tan, R. and Tan, S.Y. (2013) 'A Case Study of Parent-Child Interaction Therapy for the Treatment of Autism Spectrum Disorder', <i>Clinical Case Studies</i> , 12(6), 428-442, available: http://dx.doi.org/10.1177/1534650113500067 .	Exclusion criterion 6
10.	Aguilar, J.M., Chan, J.M., White, P.J. and Fragale, C. (2017) 'Assessment of the Language Preferences of Five Children with Autism from Spanish-Speaking Homes', <i>Journal of Behavioral Education</i> , 26(4), 334-347, available: http://dx.doi.org/10.1007/s10864-017-9280-9 .	Exclusion criterion 7
11.	Ahmad, M.I., Shahid, S. and Tahir, A. (2017) 'Towards the Applicability of NAO Robot for Children with Autism in Pakistan' in Bernhaupt, R., Dalvi, G., Joshi, A., Balkrishan, D. K., Oneill, J. and Winckler, M., eds., <i>Human-Computer Interaction - Interact 2017, Pt Iii</i> , 463-472, available: https://link-springer-com.libraryproxy.mic.ul.ie/content/pdf/10.1007/978-3-319-67687-6_32.pdf?pdf=inline%20link .	Exclusion criterion 7
12.	Ahmed, M.M., Heckman, W.W. and Dailey, S.H. (2013) 'Type IIB Thyroplasty for Phonic Tics in a Pediatric Patient with Autism Spectrum Disorder: A Case Report', <i>Journal of Voice</i> , 27(2), 242-244, available: http://dx.doi.org/10.1016/j.jvoice.2012.10.015 .	Exclusion criterion 7
13.	Ahmed-Husain, S. and Dunsmuir, S. (2014) 'An evaluation of the effectiveness of Comic Strip Conversations in promoting the inclusion of young people with autism spectrum disorder in secondary schools', <i>International Journal of Developmental Disabilities</i> , 60(2), 89-108, available: http://dx.doi.org/10.1179/2047387713Y.0000000025 .	Exclusion criterion 7
14.	Ainsworth, M.K., Evmenova, A.S., Behrmann, M. and Jerome, M. (2016) 'Teaching phonics to groups of middle school students with autism, intellectual disabilities and complex communication needs', <i>Research in Developmental Disabilities</i> , 56, 165-176, available: http://dx.doi.org/10.1016/j.ridd.2016.06.001 .	Exclusion criterion 7
15.	Bauminger, N. (2002) 'The facilitation of social-emotional understanding and social interaction in high-functioning children with autism: Intervention outcomes', <i>Journal of Autism and Developmental Disorders</i> , 32(4), 283-298, available: http://dx.doi.org/10.1023/A:1016378718278 .	Exclusion criterion 7
16.	Bauminger, N., Solomon, M., Aviezer, A., Heung, K., Gazit, L., Brown, J. and Rogers, S.J. (2008) 'Children with autism and their friends: A multidimensional study of friendship in high-functioning autism spectrum disorder', <i>Journal of</i>	Exclusion criterion 7

	<i>Abnormal Child Psychology</i> , 36(2), 135-150, available: http://dx.doi.org/10.1007/s10802-007-9156-x .	
17.	Bauminger-Zviely, N., Eden, S., Zancanaro, M., Weiss, P.L. and Gal, E. (2013) 'Increasing social engagement in children with high-functioning autism spectrum disorder using collaborative technologies in the school environment', <i>Autism</i> , 17(3), 317-339, available: http://dx.doi.org/10.1177/1362361312472989 .	Exclusion criterion 8
18.	Beadle-Brown, J., Wilkinson, D., Richardson, L., Shaughnessy, N., Trimmingham, M., Leigh, J., Whelton, B. and Himmerich, J. (2018) 'Imagining Autism: Feasibility of a drama-based intervention on the social, communicative and imaginative behaviour of children with autism', <i>Autism</i> , 22(8), 915-927, available: http://dx.doi.org/10.1177/1362361317710797 .	Exclusion criterion 8
19.	Beaumont, R. and Sofronoff, K. (2008) 'A multi-component social skills intervention for children with Asperger syndrome: The Junior Detective Training Program', <i>Journal of Child Psychology and Psychiatry</i> , 49(7), 743-753, available: http://dx.doi.org/10.1111/j.1469-7610.2008.01920.x .	Exclusion criterion 6
20.	Bedwani, M.A.N., Bruck, S. and Costley, D. (2015) 'Augmentative and alternative communication for children with autism spectrum disorder: An evidence-based evaluation of the Language Acquisition through Motor Planning (LAMP) programme', <i>Cogent Education</i> , 2(1), available: http://dx.doi.org/10.1080/2331186x.2015.1045807 .	Exclusion criterion 3
21.	Bellini, S., Peters, J.K., Benner, L. and Hopf, A. (2007) 'A Meta-Analysis of School-Based Social Skills Interventions for Children With Autism Spectrum Disorders', <i>Remedial and Special Education</i> , 28(3), 153-162, available: http://dx.doi.org/10.1177/07419325070280030401 .	Exclusion criterion 6
22.	Bellon-Harn, M.L. and Harn, W.E. (2006) 'Profiles of social communicative competence in middle school children with Asperger syndrome: Two case studies', <i>Child Language Teaching and Therapy</i> , 22(1), 1-26, available: http://dx.doi.org/10.1191/0265659006ct295oa .	Exclusion criterion 6
23.	Berman, S., Ventola, P. and Gordon, I. (2018) 'Improvements in micro level indices of social communication following Pivotal Response Treatment (PRT)', <i>Research in Autism Spectrum Disorders</i> , 51, 56-65, available: http://dx.doi.org/10.1016/j.rasd.2018.04.003 .	Exclusion criterion 6
24.	Block, H.M. (2012) " <i>Superheroes Social Skills</i> ": An Initial Study Examining an Evidence-Based Program for Elementary-Aged Students with Autism Spectrum Disorders in a School Setting, unpublished thesis, available:	Exclusion criterion 7

	https://www.proquest.com/docview/1012103905?pq-origsite=gscholar&fromopenview=true .	
25.	Bock, M.A. (2007) 'A social-behavioral learning strategy intervention for a child with Asperger syndrome - Brief report', <i>Remedial and Special Education</i> , 28(5), 258-265, available: http://dx.doi.org/10.1177/07419325070280050101 .	Exclusion criterion 6
26.	Boesch, M.C., Wendt, O., Subramanian, A. and Hsu, N. (2013) 'Comparative Efficacy of the Picture Exchange Communication System (PECS) versus a Speech-Generating Device: Effects on Social-communicative Skills and Speech Development', <i>Augmentative and Alternative Communication</i> , 29(3), 197-209, available: http://dx.doi.org/10.3109/07434618.2013.818059 .	Exclusion criterion 6
27.	Brookman-Fraze, L. and Stahmer, A.C. (2018) 'Effectiveness of a multi-level implementation strategy for ASD interventions: study protocol for two linked cluster randomized trials', <i>Implementation Science</i> , 13, available: http://dx.doi.org/10.1186/s13012-018-0757-2 .	Exclusion criterion 3
28.	Buckley, S.D. and Newchok, D.K. (2005) 'Differential impact of response effort within a response chain on use of mands in a student with autism', <i>Research in Developmental Disabilities</i> , 26(1), 77-85, available: http://dx.doi.org/10.1016/j.ridd.2004.07.004 .	Exclusion criterion 4
29.	Businaro, N., Molteni, S., Gitti, F., Polo, F., Lupi, C., Farina, E., Biondi, S., Mancuso, M.F. and Albanese, O. (2017) 'Children with High Functioning Autism: A pilot study of a training intervention to enhance pragmatic skills', <i>Life Span and Disability</i> , 20(2), 183-208, available: http://www.lifespanjournal.it/Client/rivista/ENG94_Full%20Issue_20_2_2017.pdf#page=81 [accessed 10 April 2019].	Exclusion criterion 6
30.	Cabiell-Hernandez, D., Perez-Perez, J.R., Paule-Ruiz, M. and Fernandez-Fernandez, S. (2017) 'Specialized Intervention Using Tablet Devices for Communication Deficits in Children with Autism Spectrum Disorders', <i>Ieee Transactions on Learning Technologies</i> , 10(2), 182-193, available: http://dx.doi.org/10.1109/tlt.2016.2559482 .	Exclusion criterion 1
31.	Carpente, J.A. (2017) 'Investigating the Effectiveness of a Developmental, Individual Difference, Relationship-Based (DIR) Improvisational Music Therapy Program on Social Communication for Children with Autism Spectrum Disorder', <i>Music Therapy Perspectives</i> , 35(2), 160-174, available: http://dx.doi.org/10.1093/mtp/miw013 [accessed 10 April 2019].	Exclusion criterion 6
32.	Chung, Y.C. and Douglas, K.H. (2015) 'A Peer Interaction Package for Students with Autism Spectrum Disorders Who Use Speech-Generating Devices', <i>Journal of Developmental</i>	Exclusion criterion 6

	<i>and Physical Disabilities</i> , 27(6), 831-849, available: http://dx.doi.org/10.1007/s10882-015-9461-1 .	
33.	Cotugno, A.J. (2009) 'Social competence and social skills training and intervention for children with autism spectrum disorders', <i>Journal of Autism and Developmental Disorders</i> , 39(9), 1268-1277, available: http://dx.doi.org/10.1007/s10803-009-0741-4 .	Exclusion criterion 6
34.	Dixon, M.R., Belisle, J., Stanley, C.R. and Rowsey, K. (2018) 'Student outcomes after 1 year of front line staff implementation of the PEAK curriculum', <i>Behavioral Interventions</i> , 33(2), 185-195, available: http://dx.doi.org/10.1002/bin.1516 .	Exclusion criterion 6
35.	Doehring, P. and Winterling, V. (2011) <i>The Implementation of Evidence-Based Practices in Public Schools</i> , available: http://dx.doi.org/10.1007/978-1-4419-6975-0_13 .	Exclusion criterion 6
36.	Edwards, C.K., Landa, R.K., Frampton, S.E. and Shillingsburg, M.A. (2018) 'Increasing functional leisure engagement for children with autism using backward chaining', <i>Behavior Modification</i> , 42(1), 9-33, available: http://dx.doi.org/10.1177/0145445517699929 .	Exclusion criterion 7
37.	Franco, J.H., Davis, B.L. and Davis, J.L. (2013) 'Increasing Social Interaction Using Prelinguistic Milieu Teaching with Nonverbal School-Age Children with Autism', <i>American Journal of Speech-Language Pathology</i> , 22(3), 489-502, available: http://dx.doi.org/10.1044/1058-0360(2012/10-0103) .	Exclusion criterion 7
38.	Garfinkle, A.N. and Schwartz, I.S. (2002) 'Peer imitation: Increasing social interactions in children with autism and other developmental disabilities in inclusive preschool classrooms', <i>Topics in Early Childhood Special Education</i> , 22(1), 26-38, available: http://dx.doi.org/10.1177/027112140202200103 .	Exclusion criterion 1
39.	Greenberg, J.H., Lau, W. and Lau, S. (2016) 'Teaching Appropriate Play to Replace Stereotypy Using a Treatment Package with Students Having Autism', <i>Global Education Review</i> , 3(3), 94-104, available: https://files.eric.ed.gov/fulltext/EJ1114847.pdf [accessed 10 April 2019].	Exclusion criterion 6
40.	Grosberg, D. and Charlop, M. (2014) 'Teaching persistence in social initiation bids to children with autism through a portable video modeling intervention (PVMI)', <i>Journal of Developmental and Physical Disabilities</i> , 26(5), 527-541, available: http://dx.doi.org/10.1007/s10882-013-9362-0 .	Exclusion criterion 1
41.	Halle, S., Ninness, C., Ninness, S.K. and Lawson, D. (2016) 'Teaching Social Skills to Students with Autism: A video Modeling Social Stories Approach', <i>Behavior and Social Issues</i> , 25, 42-U106, available: http://dx.doi.org/10.5210/bsi.v25i0.6190 .	Exclusion criterion 2

42.	Howlin, P., Gordon, R.K., Pasco, G., Wade, A. and Charman, T. (2007) 'The effectiveness of Picture Exchange Communication System (PECS) training for teachers of children with autism: a pragmatic, group randomised controlled trial', <i>Journal of Child Psychology and Psychiatry</i> , 48(5), 473-481, available: http://dx.doi.org/10.1111/j.1469-7610.2006.01707.x .	Exclusion criterion 3
43.	Justice Laura, M. and Kaderavek Joan, N. (2004) 'Embedded-Explicit Emergent Literacy Intervention I', <i>Language, Speech, and Hearing Services in Schools</i> , 35(3), 201-211, available: http://dx.doi.org/10.1044/0161-1461(2004/020) .	Exclusion criterion 7
44.	Kalyva, E. and Avramidis, E. (2005) 'Improving communication between children with autism and their peers through the 'circle of friends': A small-scale intervention study', <i>Journal of Applied Research in Intellectual Disabilities</i> , 18(3), 253-261, available: http://dx.doi.org/10.1111/j.1468-3148.2005.00232.x .	Exclusion criterion 3
45.	Kasari, C., Paparella, T., Freeman, S. and Jahromi, L.B. (2008) 'Language Outcome in Autism: Randomized Comparison of Joint Attention and Play Interventions', <i>Journal of Consulting and Clinical Psychology</i> , 76(1), 125-137, available: http://dx.doi.org/10.1037/0022-006X.76.1.125 .	Exclusion criterion 6
46.	Lerna, A., Esposito, D., Conson, M. and Massagli, A. (2014) 'Long-term effects of PECS on social–communicative skills of children with autism spectrum disorders: a follow-up study', <i>International Journal of Language and Communication Disorders</i> , 49(4), 478-485, available: http://dx.doi.org/10.1111/1460-6984.12079 .	Exclusion criterion 7
47.	Locke, J., Olsen, A., Wideman, R., Downey, M.M., Kretzmann, M., Kasari, C. and Mandell, D.S. (2015) 'A Tangled Web: The Challenges of Implementing an Evidence-Based Social Engagement Intervention for Children with Autism in Urban Public School Settings', <i>Behavior Therapy</i> , 46(1), 54-67, available: http://dx.doi.org/10.1016/j.beth.2014.05.001 .	Exclusion criterion 6
48.	Mancil, G.R., Conroy, M.A. and Haydon, T.F. (2009) 'Effects of a Modified Milieu Therapy Intervention on the Social Communicative Behaviors of Young Children with Autism Spectrum Disorders', <i>Journal of Autism and Developmental Disorders</i> , 39(1), 149-163, available: http://dx.doi.org/http://dx.doi.org/10.1007/s10803-008-0613-3 .	Exclusion criterion 1
49.	Mandell, D.S., Stahmer, A.C., Shin, S., Xie, M., Reisinger, E. and Marcus, S.C. (2013) 'The Role of Treatment Fidelity on Outcomes during a Randomized Field Trial of an Autism Intervention', <i>Autism: The International Journal of</i>	Exclusion criterion 3

	<i>Research and Practice</i> , 17(3), 281-295, available: http://dx.doi.org/http://dx.doi.org/10.1177/1362361312473666 .	
50.	Mohammadzaheri, F., Koegel, L.K., Rezaee, M. and Rafiee, S.M. (2014) 'A randomized clinical trial comparison between pivotal response treatment (PRT) and structured applied behavior analysis (ABA) intervention for children with autism', <i>Journal of Autism and Developmental Disorders</i> , 44(11), 2769-2777, available: http://dx.doi.org/10.1007/s10803-014-2137-3 .	Exclusion criterion 7
51.	Morin, K.L., Ganz, J.B., Gregori, E.V., Foster, M.J., Gerow, S.L., Genc-Tosun, D. and Hong, E.R. (2018) 'A systematic quality review of high-tech AAC interventions as an evidence-based practice', <i>Augmentative and Alternative Communication</i> , 34(2), 104-117, available: http://dx.doi.org/10.1080/07434618.2018.1458900 .	Exclusion criterion 7
52.	Nordgren, P.M. (2015) 'Phonological Development in a Child with Autism Spectrum Condition: Case Study of an Intervention', <i>Journal of Interactional Research in Communication Disorders</i> , 6(1), 25-51, available: http://dx.doi.org/10.1558/jircd.v6i1.25 .	Exclusion criterion 2
53.	Ostmeyer, K. and Scarpa, A. (2012) 'Examining School-Based Social Skills Program Needs and Barriers for Students with High-Functioning Autism Spectrum Disorders Using Participatory Action Research', <i>Psychology in the Schools</i> , 49(10), 932-941, available: http://dx.doi.org/10.1002/pits.21646 .	Exclusion criterion 6
54.	Owens, G., Granader, Y., Humphrey, A. and Baron-Cohen, S. (2008) 'LEGO ® Therapy and the Social Use of Language Programme: An Evaluation of Two Social Skills Interventions for Children with High Functioning Autism and Asperger Syndrome', <i>Journal of Autism and Developmental Disorders</i> , 38(10), 1944-1957, available: http://dx.doi.org/10.1007/s10803-008-0590-6 .	Exclusion criterion 7
55.	Ozen, A., Batu, S. and Birkan, B. (2012) 'Teaching Play Skills to Children with Autism through Video Modeling: Small Group Arrangement and Observational Learning', <i>Education and Training in Autism and Developmental Disabilities</i> , 47(1), 84-96, available: https://www.researchgate.net/publication/289769498_Teaching_Play_Skills_to_Children_with_Autism_through_Video_Modeling_Small_Group_Arrangement_and_Observational_Learning [accessed 12 April 2019].	Exclusion criterion 7
56.	Parsons, L., Cordier, R., Munro, N., Joosten, A. and Speyer, R. (2017) 'A systematic review of pragmatic language interventions for children with autism spectrum disorder', <i>PloS one</i> , 12(4), e0172242, available: http://dx.doi.org/10.1371/journal.pone.0172242 .	Exclusion criterion 1

57.	Pellecchia, M., Connell, J.E., Beidas, R.S., Xie, M., Marcus, S.C. and Mandell, D.S. (2015) 'Dismantling the Active Ingredients of an Intervention for Children with Autism', <i>Journal of Autism and Developmental Disorders</i> , 45(9), 2917-2927, available: http://dx.doi.org/10.1007/s10803-015-2455-0 .	Exclusion criterion 3
58.	Pellecchia, M., Connell, J.E., Kerns, C.M., Xie, M., Marcus, S.C. and Mandell, D.S. (2016) 'Child characteristics associated with outcome for children with autism in a school-based behavioral intervention', <i>Autism</i> , 20(3), 321-329, available: http://dx.doi.org/10.1177/1362361315577518 .	Exclusion criterion 3
59.	Peters, B., Forlin, C., McInerney, D. and Maclean, R. (2013) 'Social Interaction and Cooperative Activities: Drawing Plans as a Means of Increasing Engagement for Children with ASD', <i>International Journal of Whole Schooling</i> , 9(2), 61-86, available: https://eric.ed.gov/?id=ej1016794 [accessed 12 April 2019].	Exclusion criterion 3
60.	Radley, K.C., Ford, W.B., Battaglia, A.A. and McHugh, M.B. (2014) 'The Effects of a Social Skills Training Package on Social Engagement of Children with Autism Spectrum Disorders in a Generalized Recess Setting', <i>Focus on Autism and Other Developmental Disabilities</i> , 29(4), 216-229, available: http://dx.doi.org/10.1177/1088357614525660 .	Exclusion criterion 3
61.	Radley, K.C., McHugh, M.B., Taber, T., Battaglia, A.A. and Ford, W.B. (2017) 'School-Based Social Skills Training for Children with Autism Spectrum Disorder', <i>Focus on Autism and Other Developmental Disabilities</i> , 32(4), 256-268, available: http://dx.doi.org/10.1177/1088357615583470 .	Exclusion criterion 6
62.	Radley, K.C., O'Handley, R.D. and Labrot, Z.C. (2015) 'A comparison of Monetary Time Sampling and Partial-Interval Recording for Assessment of Effects of Social Skills Training', <i>Psychology in the Schools</i> , 52(4), 363-378, available: http://dx.doi.org/10.1002/pits.21829 .	Exclusion criterion 1
63.	Reichow, B., Doehring, P., Cicchetti, D.V. and Volkmar, F.R. (2010) 'Evidence-Based Practices in Autism: Where We Started' in <i>Evidence-Based Practices and Treatments for Children with Autism</i> , United States: Springer, 3-24, available: https://doi-org.libraryproxy.mic.ul.ie/10.1007/978-1-4419-6975-0_1	Exclusion criterion 3
64.	Ricciardelli, D. (2006) <i>A social skills program evaluation: Will social stories combine with a traditional social skills curriculum increase pro-social behavior in autistic children?</i> , unpublished thesis (67), ProQuest Information and Learning, available: https://www.proquest.com/docview/304951457?pq-origsite=gscholar&fromopenview=true [accessed 10 April 2019].	Exclusion criterion 6

65.	Robinson, S.E. (2011) 'Teaching Paraprofessionals of Students with Autism to Implement Pivotal Response Treatment in Inclusive School Settings Using a Brief Video Feedback Training Package', <i>Focus on Autism and Other Developmental Disabilities</i> , 26(2), 105-118, available: http://dx.doi.org/10.1177/1088357611407063 .	Exclusion criterion 7
66.	Rogers, S.J., Hayden, D., Hepburn, S., Charlifue-Smith, R., Hall, T. and Hayes, A. (2006) 'Teaching Young Nonverbal Children with Autism Useful Speech: A Pilot Study of the Denver Model and PROMPT Interventions', <i>Journal of Autism and Developmental Disorders</i> , 36(8), 1007-1024, available: http://dx.doi.org/http://dx.doi.org/10.1007/s10803-006-0142-x .	Exclusion criterion 3
67.	Sansosti, F.J. and Powell-Smith, K.A. (2006) 'Using Social Stories to Improve the Social Behavior of Children with Asperger Syndrome', <i>Journal of Positive Behavior Interventions</i> , 8(1), 43-57, available: http://dx.doi.org/http://dx.doi.org/10.1177/10983007060080010601 .	Exclusion criterion 6
68.	Scattone, D. (2008) 'Enhancing the conversation skills of a boy with Asperger's Disorder through Social Stories and video modeling', <i>Journal of autism and developmental disorders</i> , 38(2), 395-400, available: https://doi-org.libraryproxy.mic.ul.ie/10.1007/s10803-007-0392-2 .	Exclusion criterion 3
69.	Shire, S.Y., Shih, W., Chang, Y.C. and Kasari, C. (2018) 'Short Play and Communication Evaluation: Teachers' assessment of core social communication and play skills with young children with autism', <i>Autism</i> , 22(3), 299-310, available: http://dx.doi.org/10.1177/1362361316674092 .	Exclusion criterion 7
70.	Spaniol, M.M., Shalev, L., Kossyvaki, L. and Mevorach, C. (2018) 'Attention Training in Autism as a Potential Approach to Improving Academic Performance: A School-Based Pilot Study', <i>Journal of Autism and Developmental Disorders</i> , 48(2), 592-610, available: http://dx.doi.org/10.1007/s10803-017-3371-2 .	Exclusion criterion 3
71.	Steinbrenner, J.R.D. (2018) 'Fostering Communication in Elementary School Children on the Autism Spectrum Who Are Minimally Verbal', <i>Seminars in Speech and Language</i> , 39(2), 103-113, available: http://dx.doi.org/10.1055/s-0038-1627482 .	Exclusion criterion 3
72.	Stokes, M.A., Thomson, M., Macmillan, C.M., Pecora, L., Dymond, S.R. and Donaldson, E. (2017) 'Principals' and Teachers' Reports of Successful Teaching Strategies with Children with High-Functioning Autism Spectrum Disorder', <i>Canadian Journal of School Psychology</i> , 32(3-4), 192-208, available: http://dx.doi.org/10.1177/0829573516672969 .	Exclusion criterion 3

73.	Tentori, M., Hayes, G.R. and Acm (2010) <i>Designing for Interaction Immediacy to Enhance Social Skills of Children with Autism</i> , available: https://doi.org/10.1145/1864349.1864359 .	Exclusion criterion 3
74.	Tincani, M., Crozier, S. and Alazetta, L. (2006) 'The picture exchange communication system: Effects on manding and speech development for school-aged children with autism', <i>Education and Training in Developmental Disabilities</i> , 41(2), 177-184, available: http://www.jstor.org/stable/23880179 [accessed 12 April 2019]	Exclusion criterion 6
75.	Ulke-Kurkcuoglu, B., Bozkurt, F. and Cuhadar, S. (2015) 'Effectiveness of Instruction Performed through Computer Assisted Activity Schedules on On-Schedule and Role-Play Skills of Children with Autism Spectrum Disorder', <i>Educational Sciences-Theory and Practice</i> , 15(3), 671-689, available: http://dx.doi.org/10.12738/estp.2015.3.2432 .	Exclusion criterion 6
76.	Walker, V.L., Lyon, K.J., Loman, S.L. and Sennott, S. (2018) 'A systematic review of Functional Communication Training (FCT) interventions involving augmentative and alternative communication in school settings', <i>Augmentative and Alternative Communication</i> , 34(2), 118-129, available: http://dx.doi.org/10.1080/07434618.2018.1461240 .	Exclusion criterion 1
77.	Wall, M.A. (2014) <i>Efficacy of social stories that teach prosocial behavior and applaud accomplishments using best practices</i> , <i>Theses and Dissertations</i> . 1833. https://scholarsjunction.msstate.edu/td/1833 .	Exclusion criterion 1
78.	Wilson, K.P. (2013) 'Incorporating Video Modeling Into a School-Based Intervention for Students with Autism Spectrum Disorders', <i>Language Speech and Hearing Services in Schools</i> , 44(1), 105-117, available: http://dx.doi.org/10.1044/0161-1461(2012/11-0098) .	Exclusion criterion 7
79.	Wong, V.C.N. and Kwan, Q.K. (2010) 'Randomized controlled trial for early intervention for autism: a pilot study of the Autism 1-2-3 Project', <i>Journal of autism and developmental disorders</i> , 40(6), 677-688, available: http://dx.doi.org/10.1007/s10803-009-0916-z .	Exclusion criterion 6
80.	Wood, J.J., McLeod, B.D., Klebanoff, S. and Brookman-Frazee, L. (2015) 'Toward the Implementation of Evidence-Based Interventions for Youth with Autism Spectrum Disorders in Schools and Community Agencies', <i>Behavior Therapy</i> , 46(1), 83-95, available: http://dx.doi.org/10.1016/j.beth.2014.07.003 .	Exclusion criterion 6
81.	Young, H.E., Falco, R.A. and Hanita, M. (2016) 'Randomized, Controlled Trial of a Comprehensive Program for Young Students with Autism Spectrum Disorder', <i>Journal of Autism and Developmental Disorders</i> ,	Exclusion criterion 3

	46(2),	544-560,	available:	
	http://dx.doi.org/10.1007/s10803-015-2597-0 .			

Appendix 2- Weight of Evidence D- Low Scoring Articles

1.	Locke, J., Rotheram-Fuller, E., Harker, C., Kasari, C. and Mandell, D.S. (2019) 'Comparing a Practice-Based Model with a Research-Based Model of social skills interventions for children with autism in schools', <i>Research in Autism Spectrum Disorders</i> , 62, 10-17, available: http://dx.doi.org/10.1016/j.rasd.2019.02.002 .
2.	Peters, B., Tullis, C.A. and Gallagher, P.A. (2016) 'Effects of a Group Teaching Interaction Procedure on the Social Skills of Students with Autism Spectrum Disorders', <i>Education and Training in Autism and Developmental Disabilities</i> , 51(4), 421-433, available: http://www.jstor.org/stable/26173868 [accessed 12 April 2019].
3.	Porayska-Pomsta, K., Alcorn, A.M., Avramides, K., Beale, S., Bernardini, S., Foster, M.E., Frauenberger, C., Good, J., Guldberg, K., Keay-Bright, W., Kossyvaki, L., Lemon, O., Mademtzi, M., Menzies, R., Pain, H., Rajendran, G., Waller, A., Wass, S. and Smith, T.J. (2018) 'Blending Human and Artificial Intelligence to Support Autistic Children's Social Communication Skills', <i>Acm Transactions on Computer-Human Interaction</i> , 25(6), available: http://dx.doi.org/10.1145/3271484 .
4.	Quirnbach, L.M., Lincoln, A.J., Feinberg-Gizzo, M.J., Ingersoll, B.R. and Andrews, S.M. (2009) 'Social stories: Mechanisms of effectiveness in increasing game play skills in children diagnosed with autism spectrum disorder using a pretest posttest repeated measures randomized control group design', <i>Journal of autism and developmental disorders</i> , 39, 299-321, available: http://dx.doi.org/10.007/s10803-008-0628-9 .
5.	Sansosti, F.J. and Powell-Smith, K.A. (2008) 'Using Computer-Presented Social Stories and Video Models to Increase the Social Communication Skills of Children with High-Functioning Autism Spectrum Disorders', <i>Journal of Positive Behavior Interventions</i> , 10(3), 162-178, available: http://dx.doi.org/10.1177/1098300708316259 .
6.	Simpson, A., Langone, J. and Ayres, K.M. (2004) 'Embedded video and computer-based instruction to improve social skills for students with autism', <i>Education and Training in Developmental Disabilities</i> , 39(3), 240-252, available: https://psycnet.apa.org/record/2004-17998-005 [accessed 04 April 2019].

Appendix 3 – Included Articles

<p>1. Andras, M. (2012) 'The value of LEGO® therapy in promoting social interaction in primary-aged children with autism', <i>Good autism practice</i>, 13(2), 17-24, available: https://www.hacerlobien.net/lego/Ter-010-Social-Interaction-Autism.pdf [accessed 22 September 2023]</p>
<p>2. Beaumont, R., Rotolone, C. and Sofronoff, K. (2015) 'The secret agent society social skills program for children with high-functioning autism spectrum disorders: A comparison of two school variants', <i>Psychology in the Schools</i>, 52(4), 390-402, available: http://dx.doi.org/10.1002/pits.21831.</p>
<p>3. Brock, M.E., Dueker, S.A. and Barczak, M.A. (2018) 'Brief Report: Improving Social Outcomes for Students with Autism at Recess Through Peer-Mediated Pivotal Response Training', <i>Journal of Autism and Developmental Disorders</i>, 48(6), 2224-2230, available: http://dx.doi.org/10.1007/s10803-017-3435-3.</p>
<p>4. Buggey, T. (2005) 'Video Self-Modeling Applications with Students with Autism Spectrum Disorder in a Small Private School Setting', <i>Focus on Autism and Other Developmental Disabilities</i>, 20(1), 52-63, available: http://dx.doi.org/10.1177/10883576050200010501.</p>
<p>5. Campbell, A. and Tincani, M. (2011) 'The Power Card Strategy: Strength-Based Intervention to Increase Direction Following of Children with Autism Spectrum Disorder', <i>Journal of Positive Behavior Interventions</i>, 13(4), 240-249, available: http://dx.doi.org/http://dx.doi.org/10.1177/1098300711400608.</p>
<p>6. Delano, M. and Snell, M.E. (2006) 'The Effects of Social Stories on the Social Engagement of Children with Autism', <i>Journal of Positive Behavior Interventions</i>, 8(1), 29-42, available: http://dx.doi.org/http://dx.doi.org/10.1177/10983007060080010501.</p>
<p>7. Kamps, D., Thiemann-Bourque, K., Heitzman-Powell, L., Schwartz, I., Rosenberg, N., Mason, R. and Cox, S. (2015) 'A Comprehensive Peer Network Intervention to Improve Social Communication of Children with Autism Spectrum Disorders: A Randomized Trial in Kindergarten and First Grade', <i>Journal of Autism and Developmental Disorders</i>, 45(6), 1809-1824, available: http://dx.doi.org/http://dx.doi.org/10.1007/s10803-014-2340-2.</p>

<p>8. Kasari, C., Dean, M., Kretzmann, M., Shih, W., Orlich, F., Whitney, R., Landa, R., Lord, C. and King, B. (2016) 'Children with autism spectrum disorder and social skills groups at school: a randomized trial comparing intervention approach and peer composition', <i>Journal of Child Psychology and Psychiatry</i>, 57(2), 171-179, available: http://dx.doi.org/10.1111/jcpp.12460.</p>
<p>9. Kasari, C., Rotheram-Fuller, E., Locke, J. and Gulsrud, A. (2012) 'Making the connection: randomized controlled trial of social skills at school for children with autism spectrum disorders', <i>Journal of Child Psychology and Psychiatry</i>, 53(4), 431-439, available: http://dx.doi.org/10.1111/j.1469-7610.2011.02493.x.</p>
<p>10. Koegel, L.K., Kuriakose, S., Singh, A.K. and Koegel, R.L. (2012) 'Improving Generalization of Peer Socialization Gains in Inclusive School Settings Using Initiations Training', <i>Behavior Modification</i>, 36(3), 361-377, available: http://dx.doi.org/10.1177/0145445512445609.</p>
<p>11. Lopata, C., Thomeer, M.L., Volker, M.A., Lee, G.K., Smith, T.H., Rodgers, J.D., Smith, R.A., Gullo, G., McDonald, C.A., Mirwis, J. and Toomey, J.A. (2013) 'Open-Trial Pilot Study of a Comprehensive School-Based Intervention for High-Functioning Autism Spectrum Disorders', <i>Remedial and Special Education</i>, 34(5), 269-281, available: http://dx.doi.org/http://dx.doi.org/10.1177/0741932512450518.</p>
<p>12. Marshall, D., Wright, B., Allgar, V., Adamson, J., Williams, C., Ainsworth, H., Cook, L., Varley, D., Hackney, L., Dempster, P., Ali, S., Trepel, D., Collingridge Moore, D., Littlewood, E. and McMillan, D. (2016) 'Social Stories in mainstream schools for children with autism spectrum disorder: a feasibility randomised controlled trial', <i>BMJ Open</i>, 6(8), e011748, available: http://dx.doi.org/10.1136/bmjopen-2016-011748.</p>
<p>13. Peters, B. (2016) 'A Model for Enhancing Social Communication and Interaction in Everyday Activities for Primary School Children with ASD', <i>Journal of Research in Special Educational Needs</i>, 16(2), 89-101, available: http://dx.doi.org/http://dx.doi.org/10.1111/1471-3802.12059.</p>
<p>14. Ratcliffe, B., Wong, M., Dossetor, D. and Hayes, S. (2014) 'Teaching social-emotional skills to school-aged children with Autism Spectrum Disorder: A treatment versus control trial in 41 mainstream schools', <i>Research in Autism Spectrum Disorders</i>, 8(12), 1722-1733, available: http://dx.doi.org/10.1016/j.rasd.2014.09.010.</p>

<p>15. Schneider, N. and Goldstein, H. (2010) 'Using Social Stories and Visual Schedules to Improve Socially Appropriate Behaviors in Children with Autism', <i>Journal of Positive Behavior Interventions</i>, 12(3), 149-160, available: http://dx.doi.org/http://dx.doi.org/10.1177/1098300709334198.</p>
<p>16. Thomeer, M.L. (2012) 'Collaborative Development and Component Trials of a Comprehensive School-Based Intervention for Children with HFASDS', <i>Psychology in the Schools</i>, 49(10), 955-962, available: http://dx.doi.org/10.1002/pits.21648.</p>
<p>17. Vincent, L.B., Openden, D., Gentry, J.A., Long, L.A. and Matthews, N.L. (2018) 'Promoting Social Learning at Recess for Children with ASD and Related Social Challenges', <i>Behavior Analysis in Practice</i>, 11(1), 19-33, available: http://dx.doi.org/10.1007/s40617-017-0178-8.</p>
<p>18. Wolfberg, P., DeWitt, M., Young, G.S. and Nguyen, T. (2015) 'Integrated Play Groups: Promoting Symbolic Play and Social Engagement with Typical Peers in Children with ASD Across Settings', <i>Journal of Autism and Developmental Disorders</i>, 45(3), 830-845, available: http://dx.doi.org/10.1007/s10803-014-2245-0.</p>

Appendix 4 – Literature Input Table for the Systematic Review

Research study and country	Name	Study Design	Intervention sample (age, gender) and Setting	Intervention (duration, intensity, modality, delivery)	Assessment	Findings and Fidelity
Andras (2012) UK	A small-scale study that looked at the wider effect of ten weekly sessions of LEGO® therapy on the social interaction skills of eight, primary-aged with ASD. LEGO® Therapy aims to promote spontaneous social interaction by naturally motivating children with activities that they find enjoyable.	Independent study, waiting list control design.	7 boys and 1 girl featured in the intervention sample and the children were between 8-11 years old with ASD. Other children from the schools participated in the LEGO® groups at different times at the school's request. There were eight pupils aged between eight and eleven, based in three different mainstream primary schools. Each pupil was observed in the playground for ten minutes on six occasions during the academic year: at the start and end of an initial ten-week control period with no intervention, at the start and end of a further ten weeks of LEGO® Therapy and at the start and end of a	During the ten-week intervention period, a 45-minute session was delivered each week by school staff. This included a five-minute introduction, allowing the opportunity to greet group members and reinforce the LEGO® rules or set goals. This was followed by 20 minutes of LEGO® set building, 15 minutes of free building and five minutes of tidy up time. Participants worked in pairs or threes one person is designated the "engineer", one the "supplier" and the other the "builder". Individuals have to communicate and follow social rules to complete the LEGO build. Peer mediated corrective feedback was	The study supports the case for the use of LEGO® Therapy in the development of social skills in pupils with autism in school. Following the intervention, participants engaged in social interactions more frequently. Pupils were able to form meaningful bonds with their peers, which extended into the playground and they also used a wider variety of strategies to interact with those around them. Even after the LEGO® Therapy sessions had finished, pupils continued to consolidate and develop their skills,	To check validity and consistency, school staff completed Fidelity Checklists for each session to check that their practice conformed to the LEGO® Therapy guidelines. Random interobserver checklists were also completed throughout.

			further ten weeks with no intervention to assess maintenance over time.	encouraged by directing pupils to remind each other of the rules in a positive manner, with the focus of the intervention on drawing out naturalistic intervention to promote positive social skill development.	making additional progress in each of the areas monitored, indicating that generalisation had taken place over time.	
Beaumont, Rotolone, and Sofronoff (2015) Australia	Evaluation of the effectiveness of 2 variants of the Secret Agent Society social skills program for children with high functioning autism spectrum disorders in a mainstream school context.	Group experimental research.	69 students (64 boys and 5 girls) aged 7-12 participated in the study (35 in condition 1 (structured) and 34 in condition 2 (unstructured). Inclusion criteria required that all had autism diagnosis. Children were also required to have an IQ score of 79 or higher. 18 school staff from 17 schools also participated. 69 students aged 7-12 took part in 1 of 2 different 10-week versions of the program	Ten weeks structured and unstructured 'Secret Agent Society' social skills program. A multi-level computer game and other games and activities that teaches children how to recognise emotions in themselves and others, express their feelings in appropriate ways, talk and play with others, solve social problems, and prevent and manage bullying, were included. There were 2 school variants; structured using an adapted version of the SAS intervention which	Assessment included: Social skills questionnaires; Emotion Regulation and social skills questionnaires; The Spence Children's Anxiety Scale; James and the Maths Test and Dylan Is Being Teased; Adjustment and Parent Efficacy Scale-Development. Results suggested that both program variants led to improvements in emotion regulation	Sixty-nine students aged 7-12 took part in one of two different 10-week versions of the program (structured versus unstructured) to determine their relative effectiveness. These results suggest that improvements in social-emotional functioning can be

				consisted of ten 90-minute (or twenty 45-minute) group sessions over 10 weeks and unstructured where facilitators used a computer-based game pack of the SAS intervention (Beaumont, 2009) “as they saw fit” with students.	abilities, social skills, and behaviour at school and home, maintained at 6-week follow-up. However, the structured intervention generally led to superior treatment outcomes	achieved for students with autism through time-limited school-based interventions.
Brock, Dueker and Barczak 2018 USA	To test the efficacy of practitioner-implemented, peer mediated Pivotal Response Training with 11 school students with ASD.	Pilot feasibility study Random Control Trial, 5-week intervention	11 students (10 male and 1 female) with an educational diagnosis of ASD who were not frequently interacting with their peers at breaktime; 19 peers (8 male and 11 female) who did not have autism and shared the breaktime. Children ranged in age between 8 and 12. 11 adults who were already supervising recess and were willing to implement the intervention also participated. Eleven	Practitioner facilitated peer implemented pivotal response training. Experimental or control condition using a random number generator -11 students with ASD and 19 peers. Adult facilitators trained peers. Intervention occurred daily for 5 weeks during breaktime.	Live observation of breaktime once a week for 5 weeks; Social Validity Questionnaires. All students were observed 1 time each week for 5 weeks during 20-30-minute break. The Intervention significantly increased interactions between students with ASD and their peers. Stakeholders provided positive	50 item implementation checklists. Interobserver reliability was 99% over 33.3% of the observation session as computed.

			students with ASD and Nineteen Peers without ASD 2-year study All 11 students attended schools in a suburban area. Special education teachers nominated students who met inclusion criteria.		feedback about the feasibility of the intervention and their perception of its effects. Pivotal Response Treatment does improve social outcomes with ASD	
Buggey, T. Video Self-Modelling (2005)	The study was designed to analyse the effects that Video Self Modelling had on children with autism spectrum disorders across a variety of behaviours, including language, social initiations, tantrums, and aggression.	Multiple baseline across participants, single case study no control.	Three single subject, multiple-baseline designs to evaluate results. Two of the designs were based on similar behaviours across two participants, and the other was with one student across two behaviours. 3 students with ASD ranging from 5-11 years. All the students attended a small private school.	Baseline data were collected for a period of 2 weeks prior to intervention with the first student. The videos were filmed 1 week prior to intervention for students so that any effects of the role-playing activity on performance could be monitored. Identical data-collection procedures were used in the intervention and maintenance phases of the study. A 3-minute video was created that showed the participants engaging in relatively typical and positive social interactions.	The findings of the present study suggest positive outcomes across several students and a variety of behaviours. School staff involved agreed that the time they devoted to the process was worth it in relation to the video modelling.	Although the sample size was small this provided a good example of an individualised intervention that used an EBP well to support social learning for different autistic children with a variety of learning needs.

				Students watched the videos daily.		
Campbell, Abbi and Tincani, Matt (2011) USA	To evaluate the Power Card Prompting Strategy in teaching direction following, to three children with ASD.	Multiple Baseline across participants design.	3 children - girl aged 6 diagnosed with mild ASD at 3years 4 months. Boy aged 6 diagnosed with ASD at 3 years 10 months. Boy aged 6 diagnosed with high functioning ASD at 2 years 10 months. Students in a public elementary school and placed in a partially self-contained special education class during a 20-minute morning playtime session.	Following baseline, the intervention was run in 2 phases. The 1st phase was introduction to scenario card and power card featuring child's special interest. Direct instruction of social skills through these cards featured. 2nd phase was maintenance of skills checked 8 weeks after power card was removed. The Power Card Prompting strategy is a strength-based intervention to promote social skills of children with autism spectrum disorders	Functional Analysis screening Tool (FAST) Iwata and DeLeon 1996, and direct observation. Results of the study suggest that this specific sequence—reading of the scenario followed by the Power Card reminder—is effective in promoting acquisition of appropriate social responses	Interobserver agreement 100% Results also support the incorporation of special interests or obsessions into teaching strategies for students with ASD

				(ASD) by capitalising on their special interests. After intervention began, students were required to follow directions for 80% of opportunities across at least 3 consecutive days in order to progress to the next phase of the intervention.		
Delano and Snell (2006) USA	To evaluate the effects of social stories on the duration of appropriate social engagement and the frequency of 4 social skills including seeking attention, initiating comments, initiating requests and making contingent responses in 3 children with autism.	Multiprobe design across all participants	All 3 students were receiving special education services as a student with autism. All 3 received speech and language services. 6 peer students - 3 boys and 3 girls also participated, nominated by their teachers. 3 students were selected as training peers and play partners during intervention sessions. 3 students were assigned as novel peers and were play partners during play sessions that assessed generalisation.	The intervention consisted of four 10-minute sessions and data were collected on; duration of appropriate social engagement; duration of inappropriate social engagement and; duration of the absence of social engagement. The intervention sessions three parts were; (a) social story reading (b) comprehension check and (c) play session. When the target child could correctly answer	Pre-baseline informal assessments; observation during play; observation in the classroom; comprehension assessment. The social comparison method was used so 6 typically developing peers were also observed. Baseline data were gathered through informal assessments of the target students. The study evaluated the	The first author and special education teacher were observers and reached a level of 80% agreement for frequency measures and a kappa score of at least 0.6 for duration measures. These findings suggest that the use of

			3 boys aged between 6-9 years and 6 peers participated. All students attended the same school. The 10-minute intervention sessions occurred in the play area of the resource classroom.	75% of the comprehension check questions, both target child and peer had 10 minutes play in the play area. 5-minute probes were randomly collected 1 out of 5 sessions.	effect of social stories on the social engagement of 3 children with ASD. Following the intervention, the duration of social engagement increased during play sessions and students demonstrated a higher rate of the target social skills. 2 students generalised gains to the classroom.	social stories without additional interventions is effective in increasing the duration of social engagement with peers and the frequency of initiating comments and responding to peer initiations
Kamps <i>et al.</i> (2015) USA	To examine the effects of a peer network intervention that included peer mediation and direct instruction for children with ASD.	Randomised control group study.	95 students with ASD - 80 male and 15 female ages ranging from 62 months to 82 months participated (56 experimental groups and 39 comparison group). All children had ASD and were receiving special education teaching. Trained school staff members provided direct instruction for 56	Social skills groups were set up to teach games and age appropriate activities. There was an average of approximately 50 sessions yearly. Skills taught included requests and shares, comments about self and toys, comments about others toys and play actions, niceties such as manners, compliments	Childhood autism rating scale (CARS) (Schopler <i>et al.</i> (2010), Vineland adaptive behaviour Scale Teacher Report (VABS) Sparrow <i>et al.</i> (2006) and the Social Responsiveness scale Constantino <i>et al.</i> (2004) featured in the study. The peer	Researchers completed a 20-point fidelity checklist based on all teacher participant sessions. Items on the form reflected the structure or set up of the

			<p>children in the intervention group and 39 children in the comparison group (95 in total). A total of 3 cohorts of children were recruited from 2 sites - Kansas and Washington at the beginning of Kindergarten over 3 years from a public-school setting.</p>	<p>and lastly play organisation such as giving instructions or explanations. Groups were adult led to begin and then participants carried on.</p>	<p>network intervention was designed to provide interactions with typical peers using toys and games that allowed for multiple practice opportunities to improve reciprocal social communication. Findings indicated that children enrolled in the peer networks intervention showed more growth in initiations to peers during non-treatment social probes and during generalisation probes in natural settings than the comparison group participants.</p>	<p>session, teacher instruction, following specific scripts for each target skill, guiding peer models and prompts, and reinforcement of student responses. This treatment fidelity checklist was completed for a total of 679 sessions or 80% of all treatment sessions, with an average fidelity of 86% (range of 15–100%).</p>
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<p>Kasari <i>et al.</i> (2012) (USA)</p>	<p>Comparison of two interventions for improving the social skills of children with ASD in mainstream classrooms. One intervention involved a peer-mediated approach (PEER) and the other involved a child-assisted approach (CHILD).</p>	<p>Randomised factorial design</p> <p>Two interventions were crossed in a 2 X 2 factorial design yielding control, PEER, CHILD, and both PEER and CHILD conditions.</p>	<p>60 target children with ASD and 815 typically developing children from the target children's classroom participated. 90% of the children with ASD were male. Children were aged between 6-11 years. The intervention was delivered in 12 sessions with a 12-week follow-up. The design resulted in 30 children receiving a PEER intervention and 30 children receiving a CHILD intervention. Included within these levels of support, were 15 children receiving both PEER and CHILD intervention, and 15 children receiving neither (inclusion only). 60 children from 56 classrooms in 30 schools participated. Interventions involved 12 sessions over 6</p>	<p>Interventions involved 12 sessions over 6 weeks with a 3 month follow up. In the child-assisted intervention they met with a trained interventionist at recess for 20 minutes twice weekly for 6 weeks. For peer-mediated intervention peers met with the interventionist for the same. Three typically developing children from the target child's classroom were taught strategies for engaging children with social challenges on the playground. The peers met in a group format with a trained interventionist for 20 min twice weekly during break or lunchtime. The goal of PEER was to increase appropriate, meaningful social interaction for children with ASD by</p>	<p>Outcome measures included self, peer and teacher reports of social skills and independent weekly observations of children on their school playground over the course of the interventions. The assessment used was the 'Social Network Survey' for primary and secondary outcomes. Overall, results indicated that peer-mediated supports were superior to nonpeer-mediated support on several outcomes and these gains persisted to follow up. A main outcome was that classroom-wide-rated Social Network Survey improved for children with ASD over a short period</p>	<p>Interventionist fidelity to the elements was rated at 94% accuracy to the manual.</p>
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			weeks with a 3 month follow up.	teaching typical peers to interact with children who had difficulty socialising.	of time when they received both interventions. Using ratio scores that controlled for class size, baseline scores, and composition, children with ASD who received both a PEER and a CHILD support made the greatest gains with a large effect size.	
Kasari <i>et al.</i> (2016) USA	Comparison of child outcomes of two social skills interventions conducted in schools, using peer mediation and direct instruction.	Randomised to 1 of 2 interventions.	137 children with ASD aged between 6 and 11, with an IQ of not less than 65, and attending mainstream classroom for 80% of the school day. Children with ASD were randomised to one of two interventions that varied on group composition (mixed typical and ASD vs. all ASD or social difficulties) and intervention approach (didactic skills based vs. activity-based groups).	Interventions were implemented at school for 8 weeks (16 sessions) with an 8 week follow up. Intervention conditions occurred at school during morning or lunchtime for a total of 16 sessions (2 times per week for 8 weeks) over 30-45 minutes in duration. There was an 8 week follow up. Innovative measures of peer nomination and playground peer engagement and teacher	The friendship Survey (Cairns and Cairns, 1994). Playground observations of Peer Engagement (POPE). Results yielded more consistent support for a skills-based, social skills group consisting of all children with ASD	Interventionists were trained and considered to be at fidelity with a criterion of $x > .80$. Every session was videotaped, 20% of these were coded for fidelity.

			137 children with ASD from 120 classrooms from 4 sites over the course of 2 years participated. Children with ASD were randomized to one of two interventions that varied on group composition.	reports of behaviour problems were analysed for 137 children with ASD across 4 sites	rather than mixed groups.	
Koegel <i>et al.</i> (2012) USA	To assess whether children with ASD in a primary school setting could generalise skills learned to play areas without adult intervention present. The study employed pivotal response treatment in the intervention.	Multiple baseline design across participants.	3 children – 2 boys aged 5 and girl aged 6 all with ASD. 2 of the participants had the support of full-time assistants. 3 children from a public school who were fully included in mainstream classrooms. Both boys attended the same school but were in different classrooms. The girl attended a different school	The intervention took place in the playground of the school at break time, after eating. Staggered baseline data were collected for three, five and seven sessions respectively for the three participants. Video probes were collected for the first 10 minutes of their break. The intervention involved 3 Phases of study -(1) baseline. The participants played as normal without prompts	Analysis of the video probes by undergraduate student unaware of the hypothesis. An affect rating was scored for each video probe adapted from scales used in studies that have investigated child affect during interactions. Affect was a scored based on 0-5 Likert-type scale.	Interobserver agreement for unprompted initiations was 94%. Interobserver for social engagement was 95%. Treatment fidelity was 100% for baseline, 98% for the interventionist-facilitated condition and

				(2) Facilitated social play without initiations-training interventionists used pivotal response treatment strategies to facilitate social interactions without prompts or teaching specifically child choice and task variation were incorporated and (3) facilitated social play with initiations training-interventionists followed the same pivotal response treatment but child had to choose a peer and provide child with a verbal prompt.		100% for interventionist-facilitated social played with initiations training. Targeting initiations during a socialisation intervention at lunch time can lead to gains in peer social engagement. The intervention is low investment high output with generalised gains.
Lopata, <i>et al.</i> (2012) USA	To examine the feasibility and initial efficacy of a comprehensive school-based intervention for 12 children with ASD.	Open trial pilot study case study no control	Average age of participants was 7.33 years, there were 9 male and 3 female participants. 6 were diagnosed with a speech language impairment, 3 with Autism, 1 with a	Children completed a 3-week summer preparation programme followed by a full 10-month school-based intervention, comprised of social skills training groups,	Results reflected significant increases in the children's knowledge of the targeted social skills (and their component steps) and in their ability to	Fidelity was assessed for all active components. Results of the assessments (accuracy of

			learning disability and 2 with other health impairments. 4 were placed in mainstream classroom and 8 in a special education classroom with integration. 12 school children ages 6-9 with ASD, recruited from 2 public school districts.	therapeutic activities, face and voice emotion recognition instruction, an individual daily note, and parent training. Teachers and parents reported a significant increase in the children's use of social skills taught in the intervention and a significant decrease in ASD symptom severity.	identify emotional states in facial and vocal expressions (both on tasks taken directly from the curriculum and a broader measure of emotion recognition. Cambridge mindreading face-voice battery for children.	implementation) for SSTGs were 92%, Therapeutic Activities were 96%, and Individual Daily Notes were 87% overall.
Marshall, <i>et al.</i> (2016), UK	To assess the feasibility and measure the effectiveness of social stories which use individualised stories in a school setting.	Single centre, unblinded, cluster, randomised control treatment. Randomised treatment group 23, control group 27 participants.	50 participants were recruited and a cluster randomisation approach by school was examined. Participants were randomised into the treatment group (n=23) or a waiting list control group (n=27). Children diagnosed with ASD between age 5 - 15 in mainstream school, with social interaction difficulties. 37 schools in York, United	An individualised social story for each child created by teachers. Child heard the story 3 times a week for 2 weeks for 5 - 10 minutes. This is the largest study to examine a social stories intervention while retaining individual design. Successfully developed social stories story package for use in mainstream school	2 outcome measures: The Social Responsiveness Scale-2 and a goal-based measure showed both the highest levels of completion rates (above 80%) at the primary follow-up point (6 weeks postintervention) and captured relevant social and	The adult participants constructed and revised their stories with support from the specialist trainers and other members of the research team, during the training session, to ensure that the

			Kingdom. 50 participants. Gathered in 2015.	which is both effective and cost effective.	behaviour outcomes. Power calculations were based on these 2 outcome measures leading to a total proposed sample size of 180 participant groups. Importance of teachers attending the training day was highlighted. Inclusive of approach regardless of intellectual ability. No negative impacts.	finished product followed all of the social story creation criteria.
Peters, Brenda (2016) Czech Republic	The study evaluates the impact of an interactive model designed to support social communication and interaction for twelve students with ASD.	Case study design using an exploratory mixed-methods approach of quantitative and	12 students with ASD aged between 5 and 7 years of age, focusing on two participants as extreme case samples. Three international primary schools in Hong Kong. There were 12 participants aged between 5 and 7 years of age, each with a	Sessions occurred on a weekly basis for up to an hour for 10 weeks. Several types of construction toys and cooperation games suitable for the ages and interests of the children were used. The children's participation, social communication	Social Communication Questionnaire (Rutter, Bailey and Lord 2003); Playground Observation Checklist Scheme (Ingram <i>et al.</i> 2007); Modified-Classroom	Each session was recorded and reviewed for consistency. The researcher adopted an iterative process to data and themes were verified

		qualitative data.	diagnosis of ASD. Two participants featured in the reporting as they presented as extreme case examples.	and interaction during the implementation of the intervention were recorded over a period of 10 weeks. The structure and procedures of the intervention include direction instruction mediation, tools, visual signs and symbols, and printed rules.	Observation Schedule to Measure Intentional Communication (Clifford <i>et al.</i> 2010) The major finding of the study validates that social interaction and communication for children with ASD increases through the use of the intervention and the range of the children's communication skills expanded over a period of 10 weeks. Some of the identified outcomes include joint attention, response to others, initiating interactions and increase in eye contact.	through discussions with three qualified and experienced researchers.
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<p>Ratcliffe <i>et al.</i> (2014) Australia</p>	<p>This study examined the effectiveness of Emotion-Based Social Skills Training a social-emotional intervention designed to improve emotional competence in school-aged children with Autism Spectrum Disorder (ASD).</p>	<p>A quasi-experimental design was implemented for the purposes of the evaluation. There was one between-participants factor (group: treatment vs. control), and one within-participants factor: (time: pre-test vs. post-test) for each domain (emotional competence, social skills and mental health).</p>	<p>Participants were 217 children (aged 7–13 years) with ASD without Intellectual Disability attending 41 mainstream primary schools in Australia. Data on emotional competence, social skills and mental health difficulties were collected using teacher and parent informant report questionnaires in a pre-test/post-test control group design. Participants were 217 children (aged 7–13 years) with ASD without Intellectual Disability attending 41 mainstream primary schools in Australia.</p>	<p>The 16-session intervention was divided into three modules over three school terms, including one follow-up booster session at 6-months post-treatment. Within each of the three Modules, students received weekly 90 min sessions for five consecutive weeks. Teachers and parents received a session prior to and following each module, and a booster session at 6-month follow-up. During each student session, various concrete visual supports such as video social stories, worksheets, drawing, activities and role plays were utilised, to account for the visual and concrete learning style of children with ASD.</p>	<p>The results suggest emotion based social skills training improved children with ASD's emotional competence skills for school, based on teacher report, and these skills were maintained over time. The large effect size for this result underscored the significance of this finding obtained in a 'real world' setting and supported the practical utility of emotion based social skills treatment in schools. Teacher reported emotional competence was measured by the Emotions Development Questionnaire (EDQ). The effect</p>	<p>This study included multi-method and multi-source measurement, establishment of group equivalence, and posttreatment follow-up assessment, consistent with 'gold standard' educational/psychological treatment research. There were no randomly assigned participants or blind assessments.</p>
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					size was large and improvements were sustained at 6 months follow-up.	
Schneider and Goldstein (2010) USA	The study investigated the effects of Social Stories written according to Gray's specifications on on-task behaviour in inclusive classroom settings in three children with autism.	A multiple-baseline design across participants.	Intervention was initiated in a staggered fashion across participants so that one participant served as a control for another participant. These included 3 boys aged 10, 6 and 5. Three children participated that had ASD (b) demonstrated off-task problem behaviours and had impaired verbal and/or social communication, and (c) did not receive services or intervention (currently or in the past) for the targeted off-task problem behaviour.	During baseline, the participants engaged in the typical classroom routine. Each participant showed considerable variability but no evidence of improvement during the course of 9, 9, and 39 baseline sessions, respectively. One Social Story was written for each child according to Gray's (1998) guidelines and included descriptive, perspective, and directive sentences. The Social Story included information about the targeted behaviour, where the routine occurred, and	The study showed that classroom on-task behaviour could be improved using Social Stories.	Treatment fidelity was calculated by dividing the number of correct steps by the number of correct plus incorrect steps. The mean score for all participants was 98%.

				what the teacher might think or feel.		
Thomeer (2012), USA	This study examined the collaborative development of a school-based intervention and the component feasibility for autistic children.	Mixed-methods single study design.	Participants had ASD and were aged between 7 and 8, attending mainstream and special classes. 7 elementary school children with ASD from two participating school districts were recruited as well as 23 school staff and 11 parents. The average age of the child participants with ASD was 7.76 years, and the majority was male and Caucasian. Mean IQ and language scores fell in the average range; most	This study was conducted in two phases across 1 school year. Phase I consisted of focus group meetings in which the researchers collaborated with school staff and parents of children with ASD to develop an intervention protocol. Phase II involved a feasibility assessment for each of the support components, followed by modification of the protocol as needed. The components for	School Staff and Parent Rating Scale Measures, Behavioural Intervention Rating Scale and Process and Outcome Satisfaction Survey were used to measure the feasibility and effectiveness of the intervention. During the 4-week trial, school staff	Fidelity was assessed for the five treatment components conducted during Phase II. Results of the adherence assessments overall were 92% for SSTGs. Findings suggest the individualised programme adapted by school was accepted,

			<p>had an educational classification of speech-language impaired and were in special education classrooms with mainstreaming.</p>	<p>inclusion in the programme were social skills groups, therapeutic activities, computer-based face and voice emotion recognition instruction an individual daily note and parent training.</p>	<p>administered SSTGs three times per week (60–90 minutes total), Therapeutic Activities two times per week (40–60 minutes total), and Individual Daily Notes across the school day. In the second 4-week trial, school staff administered computer instruction two or three times per week (60 minutes total). A total of four group Parent Training sessions (60–90 minutes per session) were conducted across the two 4-week trials (once every other week). Throughout the</p>	<p>positively regarded, and implemented with high rates of treatment integrity in school settings, with positive outcomes across the study participants.</p>
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					component trials, the school staff member implementing the component completed a log sheet documenting necessary variables.	
Vincent, <i>et al.</i> (2017) USA	The study examined the implementation of the FRIEND Playground Program, an adult-facilitated playground intervention that targets social engagement and social initiations in children with ASD and related social challenges using the	A concurrent multiple baseline across participant design was used.	A multiple baseline across participant design study took place at two different times over the school. Participants were seven children with ASD attending a suburban school in Southwestern USA	Seven participants with ASD or other social challenges received 20 min of direct intervention from trained playground facilitators during school recess each day. Observational data of children with social challenges and typically developing peer comparisons was gathered across an entire school year. The	The social validity of the programme was assessed through the administration of a social validity questionnaire at the completion of the school year. The study provides evidence supporting the use of naturalistic strategies during break-time to increase social	Interobserver Agreement Interobserver agreement (IOA) was assessed across all observers during the baseline and intervention phases to ensure accuracy of data collection.

	<p>principles of Pivotal Response Treatment.</p>			<p>playground facilitator provided several structured activities for all students on the playground. These activities were designed to increase the participants' motivation to engage in play with typically developing peers,</p> <p>and were thus geared toward the participants' interests. No students, including participants, were required to participate in the activities provided by the playground facilitators.</p> <p>Structured activities included any age-appropriate activities that allowed for social interaction and could be implemented on the playground. Examples of activities set up during recess included</p>	<p>engagement of children with ASD and related social challenges. Findings suggest that the majority of participants experienced an increase from baseline in social engagement.</p>	<p>Interobserver agreement was 91.8% (range 0–100%) for time engaged and 88.3% (range 0–100%) for social initiations across observers. Results suggest that the Naturalistic programme using pivotal response treatment, produced meaningful increases in social engagement and social initiations</p>
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				<p>jump rope games, relay races, t-ball games, board games, and scavenger hunts.</p>		<p>from baseline among participants with ASD and other social challenges.</p>
<p>Wolfberg <i>et al.</i> (2015) USA</p>	<p>This study examined the effects of a 12-week playgroup intervention on the symbolic and social play of 48 children with ASD.</p>	<p>Within subjects, repeated measures, research design. Conducted over 2-year period with 4 rounds of observation.</p>	<p>48 children with ASD aged 5 - 10 years attending mainstream schools. Groups of children comprised of 2 children with ASD and 3 typically developing peers. In total 144 typically developing peers between ages of 5 – 10 participated.</p>	<p>Each playgroup was composed of three to five players with a higher ratio of expert to novice players and an adult facilitator. The group met regularly in school which offered a consistent space and selection of motivating play materials and activities that are highly conducive to fostering joint attention, imitation, social reciprocity and imaginary play. The sessions provided a structured framework that offered a high level of predictability (using consistent schedules, routines and visual</p>	<p>For this study, a continuous sequential coding system was used to systematically measure the occurrence of symbolic and social play behaviours observed in the children with ASD at different time points (baseline, pre-treatment, intervention, post-treatment) within the playgroup intervention and a non-intervention condition. The</p>	<p>To establish inter-rater reliability, an intraclass correlation coefficient (ICC) two-way mixed effects model was used to calculate average ratings based on absolute agreement between observers with a 95 % confidence</p>

				supports), and encouraged flexibility through guided participation in co-constructed play activities that considered the unique interests, abilities and needs of each player and the group as a whole.	findings revealed significant gains social and play skills that generalised to unsupported play with unfamiliar peers.	interval.
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Appendix 5 – Letter to Principals



Principal Survey Email Letter

Effective evidence-based practices for teaching Social Communication Competency to children with Autism Spectrum Difference in early years classrooms.

Dear Principal,

My name is Maria Dervan and I am a PhD student in Mary Immaculate College Limerick. I am a primary school teacher with experience in mainstream and special education teacher roles. I have completed a Graduate Diploma in Special Education Needs and a Masters in Special Education Needs in Mary Immaculate College. I am currently undertaking a study to find out about teachers' experiences teaching social communication and language skills to children with Autism Spectrum Difference as part of my PhD. In order to collect relevant data, I wish to survey teacher participants. I have outlined the information in relation to the survey as well as the survey in the attached information sheet for your retention. I would be very grateful if you could distribute the survey to teachers in your school. Your support is very much appreciated,

Go raibh míle maith agat,

Mise le meas,

Maria Dervan

Appendix 6 – Information Sheet for Teachers



Teacher Survey Information Sheet

Effective evidence-based practices for teaching Social Communication Competency to children with Autism Spectrum Difference in early years classrooms.

Participant requirements

Mainstream, special class and Special Education Teachers with experience teaching 4-8 year old children with Autism Spectrum Difference (ASD).

Participant Information Sheet

The proposed research aims to investigate teachers' perspectives and experiences of teaching social communication competency to children with ASD in early years' Irish classrooms today. The primary focus will be on language and communication development as it is of considerable significance to the skills and characteristics of children with ASD. The study will explore the strategies teachers find effective to develop communication for children with ASD. The study will provide a platform for teachers to discuss strategies and teaching methodologies that they adopt to develop social communication competency in children with ASD and will produce guidelines for teachers from teachers.

Who is Undertaking the Research?

My name is Maria Dervan and I am a postgraduate student attending Mary Immaculate College. I am presently completing a PhD by research in the Department of Educational Psychology, Inclusive, and Special Education under the supervision of Dr. Margaret Egan and Professor Emer Ring. This study will form part of my thesis.

Why is it being Undertaken?

The objective of the study is to find out teacher's perspectives on effective strategies for teaching social communication to children with Autism Spectrum Difference that teachers use in early years Irish classrooms.

Exactly what is involved for the participant?

The study will consist of an electronic questionnaire with both closed and open-ended questions to provide a space for teachers to offer their perspectives on a range of evidence-based practices that are identified to support social communication learning for autistic children.

Right to withdraw

Your participation in the research would be greatly appreciated and would considerably enhance this research project. This participation is voluntary and you have the right to refuse to answer any question and you may withdraw from the survey at any time before you click submit. After this your responses will be stored anonymously.

How will confidentiality be maintained?

Electronic and written information will be kept strictly confidential, and will be bound by the laws of GDPR. The participants will be assigned ID numbers rather than names to ensure their anonymity. Only the researcher and her supervisors will have access to the responses. Data will be stored up to 5 years in accordance with the Mary Immaculate College Record retention schedule. After this period data will be destroyed. The research is bound by the Mary Immaculate College Research Ethics Committee policy and procedures.

Contact details:

If at any time you have queries regarding this study you can contact me, Maria Dervan.

Maria.dervan@mic.ul.ie

If you have concerns about this study and wish to contact someone independent, you may contact:

Mary Collins MIREC Administrator
Research and Graduate School Mary Immaculate College South Circular Road
Limerick
Telephone: 061-204980 E-mail: mirec@mic.ul.ie

Appendix 7 – Original Survey



Effective strategies for teaching social communication and language to children with Autism Spectrum Difference in early years classrooms.



COLÁISTE MHUIRE GAN SMÁL
OLLSCOIL LUIMNIGH
MARY IMMACULATE COLLEGE
UNIVERSITY OF LIMERICK

What is your current role in school?

- Mainstream Class Teacher
- Teacher in a special class for ASD attached to mainstream.
- Special Education Teacher supporting children with ASD.
- Other: _____

How many children with ASD do you support in your setting?

Your answer _____

How many years experience working with children with ASD do you have?

- 1-3
- 4-6
- 7-9
- 9-12
- 12+
- Other: _____

Do you subscribe to any particular program recommended for teaching children with ASD?

- Yes
- No

If yes, which program and why do you find it beneficial?

Your answer _____

Do you use specific strategies to teach social communication and language skills (SCL) to children with ASD?

- Yes
- No

Can you name some of the strategies that you use to teach SCL skills to children with ASD?

Your answer _____

Why do you use these strategies, how are they effective?

Your answer _____

Do you assess SCL skills in children with ASD?

Yes

No

Other: _____

If yes, how do you assess SCL skills in children with ASD?

Your answer _____

If no how do you measure effectiveness of the strategies you use?

Your answer _____

Have you experienced challenges to teaching SCL to children with ASD?

yes

no

What do you do to overcome these challenges?

Your answer _____

Have you experienced difficulty sourcing suitable strategies for teaching SCL to children with ASD?

- yes
- no

Is there merit to having ASD specific guidelines available that reflect a bank of best practices that Irish teachers use to teach SCL to children with ASD?

- Yes
- No

As a teacher would you value further support on teaching social communication and language to children with ASD in junior classes in primary school?

- Yes
- No

This research will be extended to interviews exploring how teachers support social communication and language development for children with ASD. Would you be willing to participate in further research on this topic?

- Yes
- No
- If yes, please contact maria.dervan@mic.ul.ie for more information

Appendix 8 – Revised Survey



Effective strategies for teaching social communication skills to children with Autism Spectrum Difference in early years classrooms.

Mainstream, special class and Special Education Teachers catering for Junior Infants to Second Class, teaching children with Autism Spectrum Difference (ASD) in their classes.

***Required**

1. What is your current role in school? *

Mark only one oval.

- Mainstream Class Teacher
- Teacher in a mainstream special class for children with ASD.
- Special Education Teacher supporting children with ASD.
- Other: _____

2. How many children with ASD do you support in your setting? *

3. How many years' experience working with children with ASD do you have? *

Tick all that apply.

- 1-3
- 4-6
- 7-9
- 10-12
- 12+
- Other: _____

4. In your teaching setting, how often do you teach social communication to children with ASD, on a weekly basis? *

5. Which of the following social communication skills outlined by Westwood (2015) have you taught to children with ASD? Tick all that apply. *

Tick all that apply.

- Making eye contact
- Greeting others by name
- Gaining attention in an appropriate way
- Talking in a tone of voice that is acceptable
- Knowing when to talk, what to talk about and when to hold back
- Initiating a conversation
- Maintaining conversations
- Answering questions
- Listening to others and showing interest
- Sharing with others
- Saying please and thank you
- Helping someone
- Making apologies when necessary
- Being able to collaborate in a group activity
- Taking one's turn
- Smiling
- Accepting praise
- Giving praise
- Accepting correction without anger
- Coping with frustration
- Managing conflict

Social communication teaching strategies

6. In your teaching have you used any of the following evidence-based strategies to teach social communication skills to children with ASD? Tick all that apply. *

Tick all that apply.

- modelling
- naturalistic strategies
- peer- mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skills training
- prompting

7. Modelling means instruction paired with demonstration of a behaviour to promote imitation and acquisition of the behaviour [Quill and Stransberry- Brusnahan 2017]. Have you used modelling as a strategy to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No (If no skip to question 10)

8. Where have you used modelling as a social skill teaching strategy? *

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 Other: _____

9. When do you use modelling as a social skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other:

10. If you have not used modelling as a social skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about modelling
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.

11. Naturalistic intervention strategies occur within natural settings and activities that include individual's interests, arranged setting and activity, necessary support and natural consequences [Quill and ~~β~~transberry- Brusnahan 2017]. Have you used naturalistic intervention to teach social communication to children with ASD? *

Tick all that apply.

- Yes
- No (If no skip to question 14)

12. Where have you used naturalistic intervention as a social skill teaching strategy?

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- play areas outside the classroom
- Other: _____

13. When do you use naturalistic intervention as a social skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During breaktimes
- During one to one instruction
- Other:

14. If you have not used naturalistic intervention as a social skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about naturalistic intervention
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.

15. Peer-mediated instruction involves systematically teaching typically developing peers to interact with and help individuals with autism to acquire behaviours, communication and social skills during teacher-directed and child-initiated activities [Quill and Stransberry- Brusnahan 2017]. Have you used peer-mediated instruction as a strategy to teach social communication to children with ASD? *

Mark only one oval.

- Yes
- No (If no skip to question 18)

16. Where have you used peer-mediated instructions as a social skill teaching strategy?

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- play areas outside the classroom
- Other: _____

17. When do you use peer-mediated instructions as a social skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During lunchtime
- During one to one instruction
- Other: _____

18. If you have not used peer-mediated instruction as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about peer-mediated instruction
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.

19. Pivotal response training focuses on pivotal learning variables such as motivation, responding to multiple cues and self-initiations, that is implemented in settings that build on learners interests and initiative [Quill and Stransberry- Brusnahan 2017]. Have you used pivotal response training to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No (If no skip to question 22)

20. Where have you used pivotal response training as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other: _____

21. When do you use pivotal response training as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other: _____

22. If you have not used pivotal response training as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about pivotal response training
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.

23. Social narratives are individualised narratives or stories that teach social understanding by ^{*} describing social situations and highlighting relevant cues and examples of responses and perspectives [Quill and Strassberry- Brusnahan 2017]. Have you used social narratives as a strategy to teach social communication to children with ASD?

Mark only one oval.

- Yes
- No (if no skip to question 26)

24. Where have you used social narratives as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- play areas outside the classroom
- Other: _____

25. When do you use social narratives as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During lunchtime
- During one to one instruction
- Other: _____

26. If you have not used social narratives as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about social narratives
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.

27. Video modelling involves using a video model of a social skill to assist learning or engaging in that * skill [Quill and Stransberry- Brusnahan 2017]. Have you used video modelling as a strategy to teach social communication skills to children with ASD?

Mark only one oval.

- Yes
 No (If no skip to question 30)

28. Where have you used social video modelling as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other: _____

29. When do you use video modelling as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other:

30. If you have not used video modelling as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.

Tick all that apply.

- I do not know about video modelling
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.

31. Social skills training is group or individual instruction designed to teach ways to interact pro- *
socially with others. instruction includes basic concepts, role playing or practice and feedback to acquire and
practice core play social or communication skills [Quill and Stransberry- Brusnahan 2017]. Have you used
social skills training as a strategy to teach social communication skills to children with ASD?

Mark only one oval.

- Yes
 No (If no skip to question 34)

32. Where have you used social skills training as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other:

33. When do you use social skill training as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other: _____

34. If you have not used social skill training as a social communication skill teaching strategy, please tick
the appropriate reasons. Tick all that apply.

Tick all that apply.

- I do not know about social skill training
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.

35. Prompting is verbal, gestural or physical assistance to support acquisition of or engagement in a targeted skill, given immediately prior to skill use [Quill and Strassberry- Brusnahan 2017]. Have you used prompting as a strategy to teach social communication skills for children with ASD? *

Mark only one oval.

- Yes
- No (If no skip to question 38)

36. Where have you used prompting as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- play areas outside the classroom
- Other: _____

37. When do you use prompting as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During lunchtime
- During one to one instruction
- Other:

38. If you have not used prompting as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.

Tick all that apply.

- I do not know about prompting
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.

Evaluating social communication strategies

39. In your experience, which one of the following strategies is MOST effective to teach social communication skills to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

40. In your experience, which one of the following strategies is LEAST effective to teach social communication skills to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

41. In your experience, which one of the following strategies did you find EASIEST to implement when teaching social communication to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

42. In your experience, which one of the following strategies did you find most DIFFICULT to implement when teaching social communication to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

43. What are the challenges you face when teaching social communication to children with ASD? *

Tick all that apply.

Tick all that apply.

- I am unsure of the right strategy to use
- I do not have adequate time to design individual social communication skill interventions
- The classroom environment does not support social communication skill intervention.
- There is a lack of adequate resources available to implement social skill interventions It
- is difficult to assess the social communication skill needs of the children with ASD.
- It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.

44. Do you assess social communication skills in children with ASD? *

Mark only one oval.

- Yes
 No
 Other:

45. If yes, how do you assess social communication skills in children with ASD? Tick all that apply.

Tick all that apply.

- Teacher designed assessment
 Standardised social communication assessments
 Social communication programme specific assessments
 Parental questionnaire
 Other: _____

46. If no how do you measure effectiveness of the strategies you use?

47. Have you experienced difficulty sourcing suitable strategies for teaching social communication to children with ASD? *

Mark only one oval.

- Yes
 No

48. Is there merit to having specific guidelines available that reflect a bank of best practices that Irish teachers use to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No

49. As a teacher would you value further support on strategies for teaching social communication to children with ASD in junior classes in primary school? *

Mark only one oval.

Yes

No

50. This research will be extended to interviews exploring how teachers support social communication development for children with ASD. Would you be willing to participate in further research on this topic? *

Mark only one oval.

Yes

No

If yes, please contact maria.dervan@mic.ul.ie for more information

Thank you so much for taking the time to complete this survey Kind regards Maria Dervan.

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Appendix 9 – Final Survey



Effective evidence-based strategies for teaching social communication skills to children with Autism Spectrum Difference in early years classrooms.

Mainstream, special class and Special Education Teachers catering for Junior Infants to Second Class, teaching children with Autism Spectrum Difference (ASD) in their classes.

***Required**

1. What is your current role in school? *

Mark only one oval.

- Mainstream Class Teacher
- Teacher in a mainstream special class for children with ASD.
- Special Education Teacher supporting children with ASD.
- Other: _____

2. How many children with ASD do you support in your setting? *

3. How many years' experience working with children with ASD do you have? *

Tick all that apply.

- 1-3
- 4-6
- 7-9
- 10-12
- 12+
- Other: _____

4. In your teaching setting, how often do you teach social communication to children with ASD, on a weekly basis? *

5. Which of the following social communication skills outlined by Westwood (2015) have you taught to children with ASD? Tick all that apply. *

Tick all that apply.

- Making eye contact
- Greeting others by name
- Gaining attention in an appropriate way
- Talking in a tone of voice that is acceptable
- Knowing when to talk, what to talk about and when to hold back
- Initiating a conversation
- Maintaining conversations
- Answering questions
- Listening to others and showing interest
- Sharing with others
- Saying please and thank you
- Helping someone
- Making apologies when necessary
- Being able to collaborate in a group activity
- Taking one's turn
- Smiling
- Accepting praise
- Giving praise
- Accepting correction without anger
- Coping with frustration
- Managing conflict

Section Two

Evidence based strategies for supporting social communication

6. In your teaching have you used any of the following evidence-based strategies to teach social communication skills to children with ASD? Tick all that apply. *

Tick all that apply.

- modelling
- naturalistic strategies
- peer- mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skills training
- prompting

7. Modelling means instruction paired with demonstration of a behaviour to promote imitation and acquisition of the behaviour (Quill and Stransberry- Brusnahan 2017). Have you used modelling as a strategy to teach social communication to children with ASD? *

Mark only one oval.

- Yes
- No (If no skip to question 10)

8. Where have you used modelling as a social communication skill teaching strategy? *

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- Other: _____

9. When do you use modelling as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During lunchtime
- During one to one instruction
- Other: _____

10. If you have not used modelling as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about modelling
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.
- Other: _____

11. Naturalistic intervention strategies occur within natural settings and activities that include individual's interests, arranged setting and activity, necessary support and natural consequences (Quill and Stransberry Brusnahan 2017). Have you used naturalistic intervention to teach social communication to children with ASD? *

Tick all that apply.

- Yes
- No (If no skip to question 14)

12. Where have you used naturalistic intervention as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- play areas outside the classroom
- Other: _____

13. When do you use naturalistic intervention as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During breaktimes
- During one to one instruction
- Other: _____

14. If you have not used naturalistic intervention as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about naturalistic intervention
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.
- Other: _____

15. Peer-mediated instruction involves systematically teaching typically developing peers to interact with and help individuals with autism to acquire behaviours, communication and social skills during teacher-directed and child-initiated activities [Quill and Stransberry- Brusnahan 2017]. Have you used peer-mediated instruction as a strategy to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No (If no skip to question 18)

16. Where have you used peer-mediated instructions as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other:

17. When do you use peer-mediated instructions as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other: _____

18. If you have not used peer-mediated instruction as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about peer-mediated instruction
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.
 Other: _____

19. Pivotal response training focuses on pivotal learning variables such as motivation, responding to multiple cues and self-initiations, that is implemented in settings that build on learners interests and initiative [Quill and Stransberry- Brusnahan 2017]. Have you used pivotal response training to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No (If no skip to question 22)

20. Where have you used pivotal response training as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other:

21. When do you use pivotal response training as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other: _____

22. If you have not used pivotal response training as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about pivotal response training
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.
 Other: _____

23. Social narratives are individualised narratives or stories that teach social understanding by describing social situations and highlighting relevant cues and examples of responses and perspectives [Quill and Stransberry- Brusnahan 2017]. Have you used social narratives as a strategy to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No (If no skip to question 26)

24. Where have you used social narratives as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other:

25. When do you use social narratives as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other: _____

26. If you have not used social narratives as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply

Tick all that apply.

- I do not know about social narratives
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.
 Other: _____

27. Video modelling involves using a video model of a social skill to assist learning or engaging in that * skill [Quill and Stransberry- Brusnahan 2017]. Have you used video modelling as a strategy to teach social communication skills to children with ASD?

Mark only one oval.

- Yes
 No (If no skip to question 30)

28. Where have you used social video modelling as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other: _____

29. When do you use video modelling as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other: _____

30. If you have not used video modelling as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.

Tick all that apply.

- I do not know about video modelling
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.
 Other: _____

31. Social skills training is group or individual instruction designed to teach ways to interact pro-
socially with others. instruction includes basic concepts, role playing or practice and feedback to acquire and
practice core play social or communication skills [Quill and Stransberry- Brusnahan
2017). Have you used social skills training as a strategy to teach social communication skills to
children with ASD? *

Mark only one oval.

- Yes
 No (If no skip to question 34)

32. Where have you used social skills training as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
 special classroom
 special education teacher room
 play areas outside the classroom
 Other:

33. When do you use social skill training as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
 During small group instruction
 During lunchtime
 During one to one instruction
 Other:

34. If you have not used social skill training as a social communication skill teaching strategy, please tick
the appropriate reasons. Tick all that apply.

Tick all that apply.

- I do not know about social skill training
 I do not have enough time to implement this strategy
 the strategy does not match the learning needs of the children with ASD I work with.
 the strategy is too difficult to implement.
 Other: _____

35. Prompting is verbal, gestural or physical assistance to support acquisition of or engagement in a targeted skill, given immediately prior to skill use [Quill and Stransberry- Brusnahan 2017]. Have you used prompting as a strategy to teach social communication skills for children with ASD? *

Mark only one oval.

- Yes
- No (If no skip to question 38)

36. Where have you used prompting as a social communication skill teaching strategy?

Tick all that apply.

- mainstream classroom
- special classroom
- special education teacher room
- play areas outside the classroom
- Other: _____

37. When do you use prompting as a social communication skill teaching strategy?

Tick all that apply.

- During whole class instruction
- During small group instruction
- During lunchtime
- During one to one instruction
- Other: _____

38. If you have not used prompting as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.

Tick all that apply.

- I do not know about prompting
- I do not have enough time to implement this strategy
- the strategy does not match the learning needs of the children with ASD I work with.
- the strategy is too difficult to implement.
- Other: _____

Section Three

Evaluating social communication strategies

39. In your experience, which one of the following strategies is MOST effective to teach social communication skills to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

40. In your experience, which one of the following strategies is LEAST effective to teach social communication skills to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

41. In your experience, which one of the following strategies did you find EASIEST to implement when teaching social communication to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

42. In your experience, which one of the following strategies did you find most DIFFICULT to implement when teaching social communication to children with ASD? *

Mark only one oval.

- modelling
- naturalistic strategies
- peer mediated instruction
- pivotal response training
- social narratives
- video modelling
- social skill training
- prompting

43. What are the challenges you face when teaching social communication to children with ASD? *

Tick all that apply.

Tick all that apply.

- I am unsure of the right strategy to use
- I do not have adequate time to design individual social communication skill interventions
- The classroom environment does not support social communication skill intervention.
- There is a lack of adequate resources available to implement social skill interventions
- It is difficult to assess the social communication skill needs of the children with ASD.
- It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.

Other: _____

44. Do you assess social communication skill teaching strategies? *

Mark only one oval.

- Yes
 No
 Other:

45. If yes, how do you assess the effectiveness of the strategies for teaching social communication skills in children with ASD? Tick all that apply.

Tick all that apply.

- Teacher designed assessment
 Standardised social communication assessments
 Social communication programme specific assessments
 Parental questionnaire
 Other: _____

46. If no how do you measure effectiveness of the strategies you use?

47. Have you experienced difficulty sourcing suitable strategies for teaching social communication to children with ASD? *

Mark only one oval.

- Yes
 No

48. Is there merit to having specific guidelines available that reflect a bank of best practices that Irish teachers use to teach social communication to children with ASD? *

Mark only one oval.

- Yes
 No

49. As a teacher would you value further support on strategies for teaching social communication to children with ASD in junior classes in primary school? *

Mark only one oval.

Yes

No

50. This research will be extended to interviews exploring how teachers support social communication development for children with ASD. Would you be willing to participate in further research on this topic? *

Mark only one oval.

Yes

No

If yes, please contact maria.dervan@mic.ul.ie for more information

Thank you so much for taking the time to complete this survey Kind regards Maria Dervan.

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Appendix 10 – Letter from Critical Friend



Department of Psychology
Roinn na Síceolaíochta

14th Apr 2023

Maria Dervan's thesis research involved a quantitative component as part of an overall mixed methods design, which required her to develop her skills in quantitative statistics beyond the level already obtained at the outset of the research. As I am a quantitative researcher in Psychology with no direct relationship to the research, Maria approached me to provide advice and guidance and to undertake the role of Critical Friend as she progressed in developing her knowledge of statistical analysis. I'm fortunate to have been asked, because it was a pleasure working with Maria and seeing her develop her expertise and direct her research.

During the process, I provided some explanations of key statistical tests which were potentially useful, as well as noting some constraints on how to proceed based on the data that had been collected. I would consider my main input as Critical Friend, however, to be in facilitating the translation of the research questions into statistical analyses by encouraging Maria to consider her data in terms of variables with scales of measurement and potentially testable hypotheses, and to getting her to think of what kinds of questions her empirical data could answer. Maria then made decisions for how to proceed based on her own knowledge of the research questions and her research aims, and I feel confident that she has made defensible, logical, and productive decisions in relation to her statistical analyses.

Yours Sincerely,
Dr Paul Mulcahy

Lecturer
Department of Psychology
Mary Immaculate College

E: paul.mulcahy@mic.ul.ie
T: +353 (0)61 774723

Appendix 11 – Quantitative Codebook

Question	SPSS Name	Variable	Coding Instructions	Measurement Scale
1	Role	What is your current role in the school?	1. Mainstream Teacher 2. special class attached to mainstream. 3. Special Education Teacher 4. other	Nominal
2	Caseload	How many children with ASD do you support in your setting?	1- 1 child 2- 2 3- 3 4- 4 5- 5 6- 6 7- More than 6	Nominal
3	Years' experience	How many years' experience working with children with ASD do you have?	1 – 1-3 years 2 – 4-6 years 3- 7-9 years 4-10-12 years 5 – 12+ years	Nominal
4	Time	In your teaching setting, how often do you teach social communication to children with ASD, on a weekly basis?	0 – unanswered 1 – 1-2 times per week 2- 3-4 times per week 3- daily (5times or more per week) 4 -incidentally	Nominal
5	Which of the following social communication competencies outlined by Westwood 2015 have you taught to children with ASD?			
5_1	skills	Making eye contact	0- No 1- yes	Nominal
5_2	skills	Greeting others by name	0- No 1- yes	Nominal
5_3	skills	Gaining attention in an appropriate way	0- No 1- yes	Nominal
5_4	skills	Talking in a tone of voice	0- No 1- yes	Nominal

		that is acceptable		
5_5	skills	Knowing when to talk, what to talk about and when to hold back	0- No 1- yes	Nominal
5_6	skills	Initiating a conversation	0- No 1- yes	Nominal
5_7	skills	Maintaining conversations	0- No 1- yes	Nominal
5_8	skills	Answering questions	0- No 1- yes	Nominal
5_9	skills	Listening to others and showing interest	0- No 1- yes	Nominal
5_10	skills	Sharing with others	0- No 1- yes	Nominal
5_11	skills	Saying please and thank you	0- No 1- yes	Nominal
5_12	skills	Helping someone	0- No 1- yes	Nominal
5_13	skills	Making apologies when necessary	0- No 1- yes	Nominal
5_14	skills	Being able to collaborate in a group activity	0- No 1- yes	Nominal
5_15	skills	Taking one's turn	0- No 1- yes	Nominal
5_16	skills	Smiling	0- No 1- yes	Nominal
5_17	skills	Accepting praise	0- No 1- yes	Nominal
5_18	skills	Giving praise	0- No 1- yes	Nominal
5_19	skills	Accepting correction without anger	0- No 1- yes	Nominal
5_20	skills	Coping with frustration	0- No 1- yes	Nominal
5_21	skills	Managing conflict	0- No 1- yes	Nominal
6	In your teaching have you used any of the following evidence-based strategies to teach social communication skills to children with ASD?			
6_1	EBPs	modelling	0- No 1- yes	Nominal

6_2	EBPs	naturalistic strategies	0- No 1- yes	Nominal
6_3	EBPs	peer- mediated instruction	0- No 1- yes	Nominal
6_4	EBPs	pivotal response training	0- No 1- yes	Nominal
6_5	EBPs	social narratives	0- No 1- yes	Nominal
6_6	EBPs	video modelling	0- No 1- yes	Nominal
6_7	EBPs	social skills training	0- No 1- yes	Nominal
6_8	EBPs	prompting	0- No 1- yes	Nominal
7	modelling	Have you used modelling as a strategy to teach social communication to children with ASD?	0- No 1- yes	Nominal
8	Modelling - where	Where have you used modelling as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
9	Modelling - when	When do you use modelling as a social communication skill teaching strategy?	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/ multiple times 6- Question not applicable	Nominal
10	Why not – Modelling -	If you have not used modelling as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply	1- I don't know about modelling 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal

11	Naturalistic intervention	Have you used naturalistic intervention to teach social communication to children with ASD?	0- No 1- yes	Nominal
12	Where-naturalistic intervention	Where have you used naturalistic intervention as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
13	When-naturalistic intervention	When do you use naturalistic intervention as a social communication skill teaching strategy?	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/ multiple times 6- Question not applicable	Nominal
14	Why not – naturalistic intervention	If you have not used naturalistic intervention as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply	1- I don't know about naturalistic intervention 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal
15	Peer-mediated instruction	Have you used peer-mediated instruction as a strategy to teach social communication to children with ASD?	0- No 1- yes	Nominal
16	Where? - Peer-mediated instruction	Where have you used peer-mediated instructions as	1- Mainstream 2- Special class 3- SET room 4- Yard	Nominal

		a social skill teaching strategy?	5- Outside school 6- combination	
17	When? - Peer-mediated instruction	When do you use peer-mediated instructions as a social communication skill teaching strategy?	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/ multiple times 6- Question not applicable	Nominal
18	Why not? – Peer-mediated instruction	If you have not used peer-mediated instruction as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply	1- I don't know about peer-mediated instruction 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal
19	pivotal response training	Have you used pivotal response training to teach social communication to children with ASD?	0- No 1- yes	Nominal
20	Where? - pivotal response training	Where have you used pivotal response training as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
21	When? - pivotal response training	When do you use pivotal response training as a social communication	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/ multiple times	Nominal

		skill teaching strategy?	6- Question not applicable	
22	Why not? - pivotal response training	If you have not used pivotal response training as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply	1- I don't know about pivotal response training 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal
23	social narratives	Have you used social narratives as a strategy to teach social communication to children with ASD?	0- No 1- yes	Nominal
24	Where? - social narratives	Where have you used social narratives as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
25	When? - social narratives	When do you use social narratives as a social communication skill teaching strategy?	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/ multiple times 6- Question not applicable	Nominal
26	Why not? - social narratives	If you have not used social narratives as a social communication skill teaching strategy, please tick the appropriate	1- I don't know about social narratives 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal

		reasons. Tick all that apply		
27	Video modelling	Have you used video modelling as a strategy to teach social communication skills to children with ASD?	0- No 1- yes	Nominal
28	Where? - Video modelling	Where have you used social video modelling as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
29	When? - Video modelling	When do you use video modelling as a social communication skill teaching strategy?	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/multiple times 6- Question not applicable	Nominal
30	Why not? - Video modelling	If you have not used video modelling as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.	1- I don't know about video modelling 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal
31	social skills training	Have you used social skills training as a strategy to teach social communication skills to children with ASD?	0- No 1- yes	Nominal

32	Where? - social skills training	Where have you used social skills training as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
33	When? - social skills training	When do you use social skill training as a social communication skill teaching strategy?	1- Whole class 2- Small group 3- Lunch time 4- One to one 5- Combination/multiple times 6- Question not applicable	Nominal
34	Why not? - social skills training	If you have not used social skill training as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.	1- I don't know about social skill training 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal
35	prompting	Have you used prompting as a strategy to teach social communication skills for children with ASD?	0- No 1- yes	Nominal
36	Where? - prompting	Where have you used prompting as a social communication skill teaching strategy?	1- Mainstream 2- Special class 3- SET room 4- Yard 5- Outside school 6- combination	Nominal
37	When? - prompting	When do you use prompting as a social communication	1- Whole class 2- Small group 3- Lunch time 4- One to one	Nominal

		skill teaching strategy?	5- Combination/ multiple times 6- Question not applicable	
38	Why not? - prompting	If you have not used prompting as a social communication skill teaching strategy, please tick the appropriate reasons. Tick all that apply.	1- I don't know about prompting 2- No time 3- Does not match pupil needs 4- Too difficult 5- Other 6- Question not applicable	Nominal
39	Most effective EBP	In your experience, which one of the following strategies is MOST effective to teach social communication skills to children with ASD?	1- modelling 2- naturalistic strategies 3- peer- mediated instruction 4- pivotal response training 5- social narratives 6- video modelling 7- social skills training 8- prompting	Nominal
40	Least effective EBP	In your experience, which one of the following strategies is LEAST effective to teach social communication skills to children with ASD?	1- modelling 2- naturalistic strategies 3- peer- mediated instruction 4- pivotal response training 5- social narratives 6- video modelling 7- social skills training 8- prompting	Nominal

41	Easiest EBP	In your experience, which one of the following strategies did you find EASIEST to implement when teaching social communication to children with ASD?	1- modelling 2- naturalistic strategies 3- peer- mediated instruction 4- pivotal response training 5- social narratives 6- video modelling 7- social skills training 8- prompting	Nominal
42	Difficult EBP	In your experience, which one of the following strategies did you find most DIFFICULT to implement when teaching social communication to children with ASD?	1- modelling 2- naturalistic strategies 3- peer- mediated instruction 4- pivotal response training 5- social narratives 6- video modelling 7- social skills training 8- prompting	Nominal
43	What are the challenges you face when teaching social communication to children with ASD?			
43_1	Lack of knowledge	I am unsure of the right strategy to use	0- No 1- yes	Nominal
43_2	No time	I do not have adequate time to design individual social communication skill interventions	0- No 1- yes	Nominal

43_3	Classroom restricted	The classroom environment does not support social communication skill intervention.	0- No 1- yes	Nominal
43_4	No resources	There is a lack of adequate resources available to implement social skill interventions	0- No 1- yes	Nominal
43_5	Assessment challenges	It is difficult to assess the social communication skill needs of the children with ASD.	0- No 1- yes	Nominal
43_6	Lack of information available	It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.	0- No 1- yes	Nominal
43_7		Other (Q43)	0- No 1- yes	Nominal
44	Assessment	Do you assess social communication skill teaching in children with ASD?	0- No 1- yes	Nominal
45	If yes, how do you assess the effectiveness of the strategies for teaching social communication skills in children with ASD?			
45_1	Summative	Teacher designed assessment	0- No 1- yes	Nominal
45_2	Formative/diagnostic	Standardised social communication assessments	0- No 1- yes	Nominal

45_3	Formative	Social communication programme specific assessments	0- No 1- yes	Nominal
45_4	Formative / summative	Parental questionnaire	0- No 1- yes	Nominal
45_5		Other (Q45)	0- No 1- yes	Nominal
46	measure EBPs	If no, how do you measure effectiveness of the strategies you use?	1- Observation 2- Collaboration with others 3- I don't know 4- Observation and collaboration with teachers and parents 5- Consulting the child 6- Target setting and monitoring 7- Multiple methods- observations, checklists, consulting parents and child	Nominal
47	Challenges sourcing EBPs	Have you experienced difficulty sourcing suitable strategies for teaching social communication to children with ASD?	0- No 1- yes	Nominal
48	Guidelines	Is there merit in having specific guidelines available that reflect a bank of best practices	0- No 1- yes	Nominal

		that Irish teachers use to teach social communication to children with ASD?		
49	Support-professional learning	As a teacher would you value further support on strategies for teaching social communication to children with ASD in junior classes in primary school?	0- No 1- yes	Nominal

Appendix 12 – Qualitative Phase One Codebook







Sample of Familiarisation and Writing Familiarisation Notes

The screenshot displays a software interface for managing qualitative data. At the top, a header reads "43. What are the challenges you face when teaching social communication to children with ASD Tick all that apply". Below this is a list of responses, each with an ID and a text description. A red callout box with white text is overlaid on the right side of the list, stating: "Familiarisation and Writing Familiarisation Notes involved reading and re-reading responses and annotating to integrate contextual factors such as coding assumptions, field notes and observations and researcher's thoughts and ideas during the encoding process". A red arrow points from the callout box to the "Annotations" table at the bottom of the interface. The "Annotations" table has two columns: "Item" and "Content". The first row shows "1" in the "Item" column and a detailed annotation in the "Content" column: "It is apparent that the individual nature of autistic children and the needs they can present with are challenging for teachers. It is a draw on the time needed to teach individual skills, making suitable resources for the child and the monitoring that relates to assessment of learning and progress made. As a result of their unique profiles, implementing EBPs for autistic children has created divergent experiences for teachers and impacts on using EBPs to teach SCC. The teacher discussed the demands of teaching SCC on an individual basis and perceives it as a challenging experience overall."

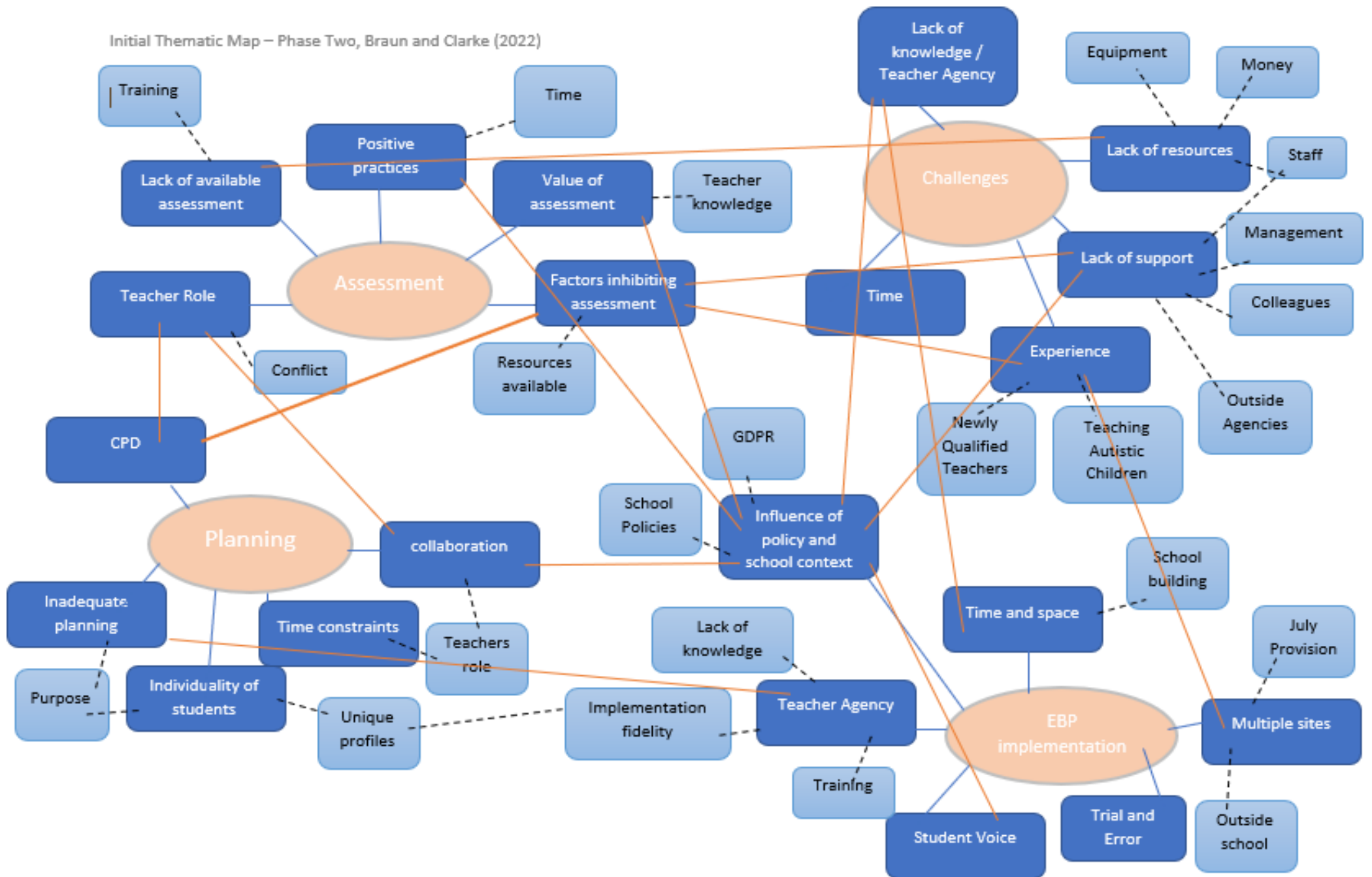
ID	Response
292	do not have adequate time to design individual social communication skill interventions;There is a lack of adequate resources available to to implement social skill interventions
293	do not have adequate time to design individual social communication skill interventions;There is a lack of adequate resources available to to implement social skill interventions
294	It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.
295	I am unsure of the right strategy to use;I do not have adequate time to design individual social communication skill interventions;It is difficult to find social skill curriculum resources that are appropriate to use for children with ASD.
296	I am unsure of the right strategy to use
297	I am unsure of the right strategy to use;The classroom environment does not support social communication skill interventions;It is difficult to assess the social communication skill needs of the children with ASD;It is difficult to find
298	It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.
299	It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.;As all children with ASD are unique, it is difficult to find appropriate resources to suit each individual child's specific needs. It is time-consuming as many interventions need to be tailor-made to suit the child, continuously monitored and changed! Extremely challenging yet rewarding!
300	I am unsure of the right strategy to use;The classroom environment does not support social communication skill interventions;It is difficult to find a social skill curriculum resource that is appropriate to use for children with ASD.

Item	Content
1	It is apparent that the individual nature of autistic children and the needs they can present with are challenging for teachers. It is a draw on the time needed to teach individual skills, making suitable resources for the child and the monitoring that relates to assessment of learning and progress made. As a result of their unique profiles, implementing EBPs for autistic children has created divergent experiences for teachers and impacts on using EBPs to teach SCC. The teacher discussed the demands of teaching SCC on an individual basis and perceives it as a challenging experience overall.

Appendix 13 - Initial Thematic Map

Categories 	Link to categories 
Candidate Codes 	Relationship between candidate codes 
Codes 	Relationship between candidate codes and codes 

Initial Thematic Map – Phase Two, Braun and Clarke (2022)



Appendix 14 – Qualitative Codebook Phase Two

Initial Coding

Phase 2 - Systematic Data Coding (57 initial codes identified and created in phase 2)	Surveys Coded	Units of Meaning Coded
Approaches	1	70
Assessment Availability	1	30
Challenges	1	44
Collaboration between Teachers	1	21
Colleagues	1	16
Consultation with Child	1	16
Professional Development	1	13
Conflict	1	17
EBP Contrived	1	7
Equipment	1	9
Factors Inhibiting Assessment	1	6
Financial Burden	1	9
Formal	1	10
Implementation Fidelity	1	10
Inadequate Planning	1	8
Individuality	1	17
Influence of Policy and School Context	1	14
Interests/ Uniqueness	1	18

Informal	1	25
Knowledge	1	24
Lack of Resources	1	11
Lack of Support	1	16
Manualised Programmes	1	1
Management	1	8
Money	1	9
Multiple Sites	1	12
Newly Qualified Teachers	1	14
No Inclusion or Cross Integration	1	4
No Peer Involvement	1	4
Not Suitable for Class	1	6
Note Taking	1	2
Outside Agencies	1	3
Outside School	1	6
Parental Input	1	5
Planning	1	16
Policy	1	4
Positive Practice	1	4
Reasons	1	1
SET Room	1	2
Space	1	12
Staff	1	4
Student Voice	1	18

Target Setting and Lesson Objectives	1	6
Teacher Agency	1	15
Teaching Autistic Children	1	36
Teacher Observations	1	46
Teacher Experience	1	14
Teacher Role	1	7
Technology	1	2
Training	1	18
Trial	1	12
Time Open Ended	1	79
Time Constraints	1	14
Unsure - Maybe!	1	3
Value of Assessment	1	9
Video Recordings	1	6
Where	1	76

Appendix 15 - Qualitative Codebook Phase Three

Generating Initial Themes

Phase 3 - Generating Initial Themes from Coded and Collated Data (57 initial systematic codes mapped and consolidated to 28 initial themes or categories of codes)	Surveys Coded	Units of Meaning Coded
Assessment	1	162
Collaboration	1	44
Complexities of SCC Teaching	1	178
Confidence	1	15
Consistency	1	16
Generalisation	1	76
How	1	35
Importance of SCC Teaching	1	26
Implementation Challenges	1	46
Implementation of EBPs	1	26
Incidental Teaching	1	14
Individuality of Students	1	18
Information Gathering	1	46
Influence of Policy	1	4
Lack of Resources	1	11
Outside Agencies	1	1

Parent Participation	1	21
Planning	1	30
Peer Involvement	1	8
Reasons for not Using EBPs	1	55
Significant Time Commitment – When	1	446
SNA	1	4
Student Voice	1	6
Teacher Agency and Fidelity	1	13
Teacher's Knowledge	1	22
Teacher Role	1	13
Teacher Training	1	3
Understanding EBP Attributes	1	7

Appendix 16 - Qualitative Codebook Phase Four

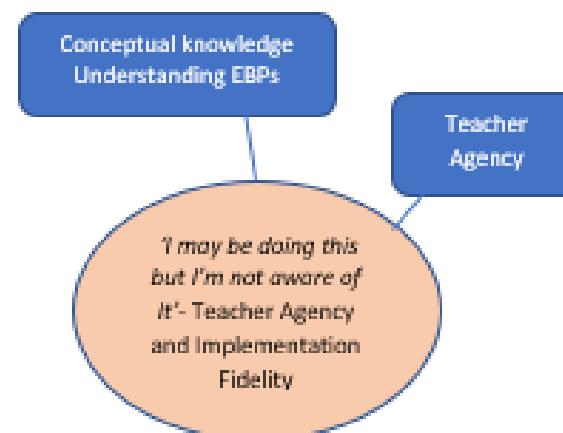
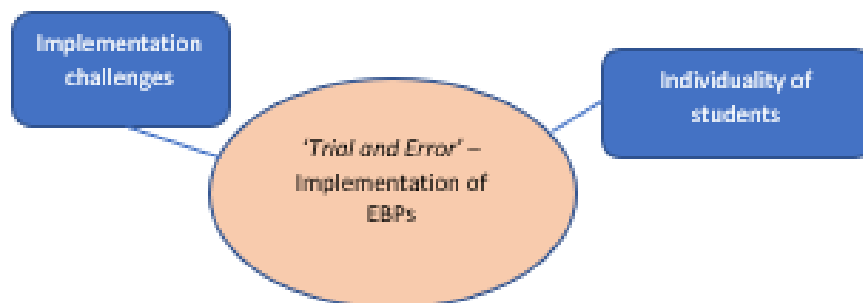
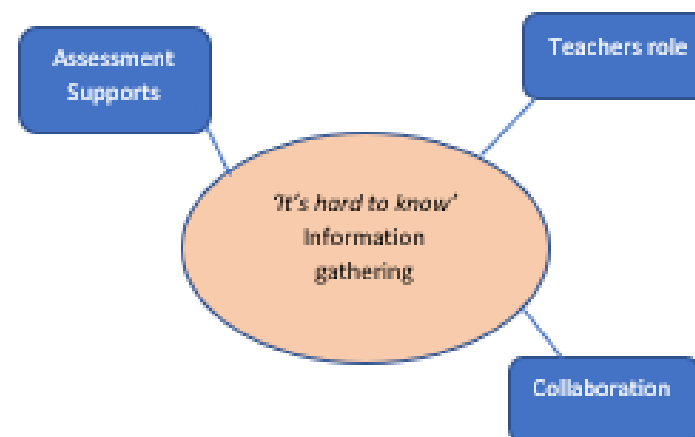
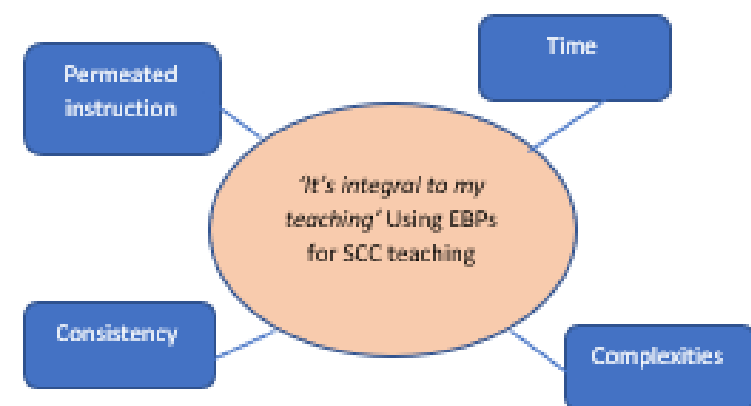
Developing and Reviewing Themes (coding on)

Phase 4 - Developing and Reviewing Themes (28 initial themes consolidated to 8 and 20 refined codes added at phase 4)	Surveys Coded	Units of Meaning Coded
Assessment	1	162
Need for More Assessment Supports and Knowledge	1	27
<i>Formal Assessments</i>	<i>1</i>	<i>6</i>
<i>Informal Assessments</i>	<i>1</i>	<i>22</i>
Note Taking	1	3
Target Setting and Lesson Objectives	1	15
Teacher Observations	1	46
<i>Documenting Observations</i>	<i>1</i>	<i>10</i>
<i>Observation of Interactions</i>	<i>1</i>	<i>18</i>
<i>Observations and Collaboration</i>	<i>1</i>	<i>2</i>
<i>Setting Time to Observe</i>	<i>1</i>	<i>2</i>
Video Recordings	1	1
Complexities of SCC Teaching	1	178
Consistency and Inclusion	1	16
Time Open Ended	1	79
<i>Less Than 3 Times Per week</i>	<i>1</i>	<i>25</i>
<i>As the Need Arises</i>	<i>1</i>	<i>14</i>
<i>Permeated Throughout Lessons</i>	<i>1</i>	<i>26</i>

Phase 4 - Developing and Reviewing Themes (28 initial themes consolidated to 8 and 20 refined codes added at phase 4)	Surveys Coded	Units of Meaning Coded
<i>Once a Day</i>	1	26
Where	1	76
<i>Class Outings</i>	1	14
<i>Home</i>	1	6
<i>July Provision</i>	1	12
<i>Outside the Classroom</i>	1	19
<i>School trips</i>	1	3
Individuality of the Autistic Child	1	18
Individuality of the Autistic student	1	18
Reasons for not using EBPs	1	77
Challenges Implementing EBPs	1	46
EBP Attributes	1	7
<i>SET Room not Supportive of Natural</i>	1	2
Lack of Resources	1	11
<i>Financial Burden</i>	1	1
<i>Manualised Programmes</i>	1	1
<i>Technology</i>	1	2
No Peer Involvement	1	4
<i>No Inclusion or Cross Integration</i>	1	4
Parental Input	1	5
Policy	1	4

Phase 4 - Developing and Reviewing Themes (28 initial themes consolidated to 8 and 20 refined codes added at phase 4)	Surveys Coded	Units of Meaning Coded
Role of Collaboration	1	44
Collaboration between Teachers	1	21
SNA Support	1	4
Collaboration with Parents	1	16
Outside Agencies	1	4
Talk to the Child	1	6
Significant Time Commitment	1	446
Formal and Informal Combined	1	30
Formal	1	10
Informal	1	25
Teacher's Knowledge and Fidelity	1	22
Implementation Fidelity	1	10
Conceptual Knowledge	1	2
Teacher Training and Agency	1	15
The Impact of Teacher Role	1	13
Not suitable - SET role	1	6
Teacher Role	1	7

Appendix 17 – Refined Thematic Map



Theme	
Subtheme	
Link to subtheme	

Appendix 18 – Qualitative Codebook Phase 5

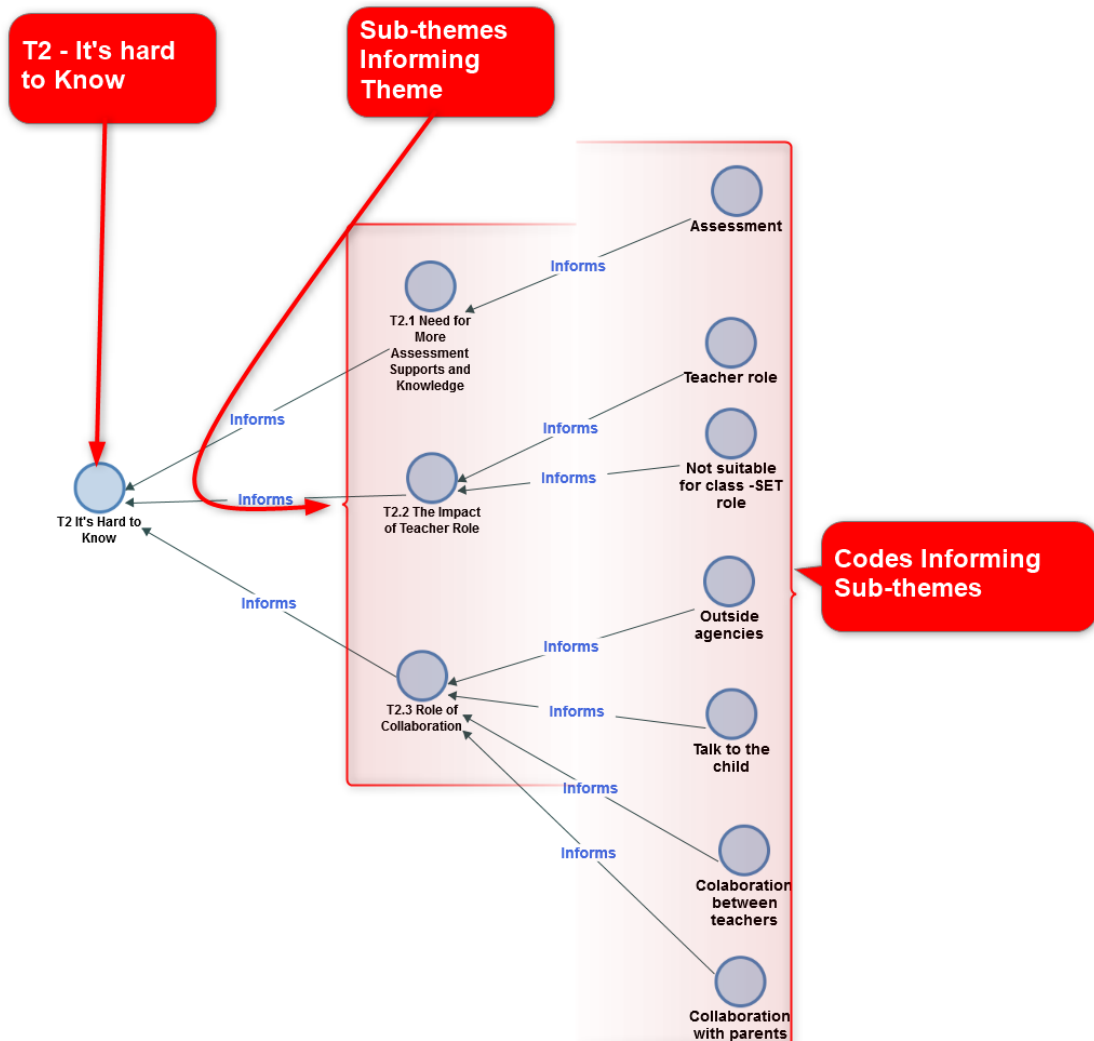
Refining, Defining and Naming Themes (Developing a Thematic Framework)

Phase 5 - Defining, Refining and Naming Themes (4 themes refined, defined and named at phase 5)	Units of Meaning Coded
T1 Its Integral to my Teaching	645
T1.1 Merit of Consistent Permeated Instruction	21
T1.2 Significant Time Commitment	446
Both Formal and Informal	30
Formal	10
Informal	25
T1.3 Complexities of SCC Teaching	178
Consistency and Inclusion	16
Generalisation	77
T2 It's Hard to Know	175
T2.1 Need for More Assessment Supports and Knowledge	103
Assessment	70
Note Taking	8
Lack of Certainty	25

Phase 5 - Defining, Refining and Naming Themes (4 themes refined, defined and named at phase 5)	Units of Meaning Coded
Teacher observations	46
T2.2 The Impact of Teacher Role	23
Not suitable for class -SET role	12
Teacher role	11
T2.3 Role of Collaboration	50
Collaboration between Teachers	21
Collaboration with SNA's	15
Collaboration with Parents	16
Outside Agencies	7
Talk to the Autistic Child	6
T3 I May be Doing This but I'm not Aware of It	65
T3.1 Teacher's Conceptual Knowledge and Implementation Fidelity	49
Implementation Fidelity	16
Lack of Knowledge / Teacher Agency	15
Sourcing EBP's	18
T3.2 Teacher agency	16
T4 Trial and Error	85
T4.1 Individuality of the Autistic Child	18
Individuality of the Autistic Child	18

Phase 5 - Defining, Refining and Naming Themes (4 themes refined, defined and named at phase 5)	Units of Meaning Coded
Motivating the Autistic Child	14
Lack of Personnel Supports	12
Demands of SCC and Academic goals	12
T4.2 Challenges Implementing EBPs	67
Time	26
Lack of Resources	11
Financial Burden	8
Manualised Programme	1
Technology	9
External Challenges	4
Parental Input	14
Policy	7

Appendix 19 – Example of Flow from Codes to Categories to Themes



Appendix 20 – Sample Analytical Memo

The screenshot shows a software interface with a menu bar (View, Coding, Annotations, Visualize Memo, Query, Edit) and a search bar. The main area is titled "Phase 5 - Refining, Defining and Naming Themes". It contains a table with columns for Name, Files, and References. The table lists various themes, with "T1: Its Integral to my Teaching" selected. To the right of the table is a text area containing an analytical memo for T1. A red callout box on the right side of the image contains the following text:

Phase 6 – Creating the report involved the creation of analytical memos were used to conduct a systematic review of the thematic framework developed in phase 5 to analyse, report and ask questions of data. Memos were used to reduce the data from series of themes to a series of documents explaining outcomes of analysis of theme content. Later, memos themselves were reduced through editing out overlapping and less important content to cohere findings into a cohesive findings chapter.

Name	Files	References
T1: Its Integral to my Teaching	4	408
T1.1 Merit to Consistent Permeated Instruction	2	21
T1.2 Significant Time Commitment	1	381
T1.3 Complexities of SCC Teaching	3	6
T2 It's Hard to Know	1	27
T2.1 Need for More Assessment Supports and Kin	1	27
T2.2 The Impact of Teacher Role	0	0
T2.3 Role of Collaboration	0	0
T3 I May be Doing This but I'm not Aware of It	3	15
T3.1 Teacher's Conceptual Knowledge and Imple	1	7
T3.2 Teacher agency	2	8
T4 Trial and Error	2	46
T4.1 Individuality of the Autistic Child	0	0
T4.2 Challenges Implementing EPPs	2	46

This theme captured the key concept of the interconnectedness of language and teaching. Teachers highlighted across the data set. Different aspects emerged that relate to this concept including the time teachers dedicated to teaching SCC and the variations across the data as well as how teachers taught SCC and the consistent use of EPPs to do so. Central to this was the piece on generalisation and how some teachers felt the need to plan and build in structures to support this from the beginning and the ways that this was undertaken. In contrast there was a thread across the data of respondents that questioned their responsibility for generalisation and the impact of time. Teachers regularly emphasised the importance of SCC teaching for autistic children and espoused the idea that practice and consistency should feature heavily in the child's experience. Teaching SCC was deemed imperative throughout the day for the most part with teachers. Some differences in how teachers approached their teaching of SCC became evident. Formal discrete teaching that was scheduled and often involved withdrawal was noted across the respondents and relied heavily on SET support for the child. Variations on the timing were also evident for a few of the teachers. Informal incidental teaching was a more common thread across the data but teachers noted that this was often unplanned for and responsive to situations as they arise. This highlighted an interwoven approach to teaching SCC for some respondents. A dichotomy existed within the responses, with some teachers noting SCC is taught in specific lessons only and does not feature outside of these experiences. Furthermore, there is a thread of tension regarding the role of SCC teaching and who is responsible. A disconnect between SET and class teaching is apparent for a few which contrasts with the ideal of teaching SCC across contexts to promote generalisation.

Appendix 21 – MIREC Ethical Approval



Mary Immaculate College

Research Ethics Committee

MIREC-4: MIREC Chair Decision Form

A19-063 - FINAL

APPLICATION NO.

1. PROJECT TITLE

Effective strategies for teaching social communication and language to children with Autism Spectrum Difference in early year's classrooms

2. APPLICANT

Name:	Maria Dervan
Department / Centre / Other:	EPISE
Position:	Postgraduate Researcher

3. DECISION OF MIREC CHAIR

<input type="checkbox"/>	Ethical clearance through MIREC is required.
<input type="checkbox"/>	Ethical clearance through MIREC is not required and therefore the researcher need take no further action in this regard.
<input type="checkbox"/>	Ethical clearance is required and granted. Referral to MIREC is not necessary.
<input type="checkbox"/>	Ethical clearance is required but the full MIREC process is not. Ethical clearance is therefore granted if required for external funding applications and the researcher need take no further action in this regard.
<input type="checkbox"/>	Insufficient information provided by applicant / Amendments required.


4. REASON(S) FOR DECISION

MIREC Application A19-063 – Maria Dervan - *Effective strategies for teaching social communication and language to children with Autism Spectrum Difference in early year's classrooms*

I have reviewed this revised application and I believe it satisfies MIREC requirements.

It is, therefore, approved.

5. DECLARATION (MIREC CHAIR)

Name (Print):	Dr Áine Lawlor
Signature:	
Date:	6 th January 2020

Appendix 22 –Tests of Within Subjects Contrasts

SPSS Output Effects of Range of Defined and Undefined EBPs Across Teacher’s Role

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	Definition	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
definition	Linear	99.556	1	99.556	57.561	.000	.134
definition	*Linear	23.702	2	11.851	6.852	.001	.035
Error(definition)	Linear	645.128	373	1.730			

Appendix 23 –Pairwise Comparison

SPSS Output Pairwise Comparison of Effect Change of Range of Evidence- Based Practices with Definition on Teacher Roles

Pairwise Comparisons

Measure: MEASURE_1

1What is your current role in school?	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
						Lower Bound	Upper Bound
Mainstream	1	2	-1.257*	.153	.000	-1.557	-.956
	2	1	1.257*	.153	.000	.956	1.557
Teacher in mainstream	1	2	-.333	.215	.121	-.756	.089
	2	1	.333	.215	.121	-.089	.756
special class for children with ASD	1	2	-.712*	.150	.000	-1.008	-.417

Special Education Teacher supporting children with ASD	2	1	.712*	.150	.000	.417	1.008
--	---	---	-------	------	------	------	-------

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Appendix 24- Spearman's Rho Non- Parametric Correlation 1

SPSS Output Spearman's Rho correlation to assess the relationship between teachers' years' experience and the range of EBPs without definition.

Correlations

		Years' experience working with autistic children	Range of EBPs without definition
Spearman's rho	How many years' experience working with autistic children do you have?	Correlation Coefficient	.031
		Sig. (2-tailed)	.551
		N	376
Range of EBPs without definition		Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	376

Appendix 25- Spearman's Rho Non- Parametric Correlation 2

SPSS Output Spearman's Rho correlation to assess the relationship between teachers' years' experience and the range of EBPs with definition.

Correlations

		Years' experience working with autistic children	Range of EBPs with definition
Spearman's rho	How many years' experience working with autistic children do you have?	Correlation Coefficient	.125*
		Sig. (2-tailed)	.015
		N	376
Range of EBPs with definition		Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	376

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 26- One-Way Repeated Measures ANOVA 1

SPSS Output from One-Way repeated measures ANOVA shows the adoption of EBPs was affected by school setting.

Mauchly's Test of Sphericity^a

Measure: MEASURE_1

Within Subjects Effect	Mauchly's W	Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
School_setting	.037	1233.084	14	.000	.723	.731	.200

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: school_setting

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
school_setting	Sphericity	2243.940	5	448.78	169.98	.000	.312
	Assumed			8	2		
	Greenhouse-	2243.940	3.613	621.06	169.98	.000	.312
	Geisser			8	2		
	Huynh-Feldt	2243.940	3.653	614.35	169.98	.000	.312
	Lower-bound	2243.940	1.000	2243.9	169.98	.000	.312
				2	2		
Error(school_se tting)	Sphericity	4950.394	1875	2.640			
	Assumed						
	Greenhouse-	4950.394	1354	3.654			
	Geisser		889				
	Huynh-Feldt	4950.394	1369	3.614			
	Lower-bound	4950.394	375	13.201			
				00			

Appendix 27 - One-Way Repeated Measures ANOVA 2

SPSS Output from a One-Way Repeated Measures ANOVA showed that the adoption of EBPs by the teachers was impacted by the instructional strategy.

Mauchly's Test of Sphericity^a

Measure: MEASURE_1

Within Subjects Effects	Mauchly's Chi-Square	Approx. df	Sig.	Epsilon ^b			
				Greenhouse-Geisser	Huynh-Feldt	Lower bound	Upper bound
methodology_when	.048	1131.718	9	.000	.446	.448	.250

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept

Within Subjects Design: methodology_when

b. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
methodology_ when	Sphericity	4553.412	4	1138.35	776.3	.000	.674
	Assumed			3	66		
	Greenhouse- Geisser	4553.412	1.784	2552.03	776.3	.000	.674
	Huynh-Feldt	4553.412	1.792	2540.71	776.3	.000	.674
				6	66		
	Lower- bound	4553.412	1.000	4553.41	776.3	.000	.674
			2	66			
Error(methodol ogy_when)	Sphericity	2199.388	1500	1.466			
	Assumed						
	Greenhouse- Geisser	2199.388	669.0	3.287			
	Huynh-Feldt	2199.388	672.0	3.273			
				66			
	Lower- bound	2199.388	375.0	5.865			
			00				

Appendix 28 – Chi-Square with Bonferroni Adjustment 1

SPSS Output of Chi-Square test of independence showing the relationship between teacher's role and assessment of EBPs is significant.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.052 ^a	2	.000
Likelihood Ratio	20.143	2	.000
Linear-by-Linear Association	8.231	1	.004
N of Valid Cases	376		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.75.

Appendix 29 - Chi-Square with Bonferroni Adjustment 2

SPSS Output of Chi-Square Test of Independence showing the relationship between teacher's role and summative assessment is significant.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.507 ^a	2	.000
Likelihood Ratio	19.296	2	.000
Linear-by-Linear Association	3.978	1	.046
N of Valid Cases	376		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 31.52.

1What is your current role in school? * Teacher designed assessment

(Summative) Crosstabulation

Count

		Teacher designed assessment		Total
		No	Yes	
What is your current role in school?	Mainstream Class Teacher	78	70	148
	Teacher in a mainstream special class for children with ASD	17	58	75
	Special Education Teacher supporting children with ASD	63	90	153
Total		158	218	376

Appendix 30 - Chi-Square with Bonferroni Adjustment 3

SPSS Output of Chi-Square Test of Independence showing the relationship between teacher's role and formative assessment is significant.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.374 ^a	2	.006
Likelihood Ratio	10.264	2	.006
Linear-by-Linear Association	9.521	1	.002
N of Valid Cases	376		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.96.

What is your current role in school? * Social communication programme specific assessments (Formative) Crosstabulation

Count

		Social communication programme specific assessments		
		No	Yes	Total
What is your current role in school?	Mainstream Class Teacher	126	22	148
	Teacher in a mainstream special class for children with ASD	62	13	75
	Special Education Teacher supporting children with ASD	108	45	153
Total		296	80	376

Appendix 31 - Chi-Square with Bonferroni Adjustment 4

SPSS Output of Chi-Square Test of Independence showing the relationship between teacher's role and parental questionnaires is significant

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Square	Chi-22.683 ^a	2	.000
Likelihood Ratio	21.487	2	.000
Linear-by-Linear Association	1.138	1	.286
N of Valid Cases	376		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.54.

What is your current role in school? * Parental questionnaire

Crosstabulation

Count

		Parental questionnaire		Total
		No	Yes	
What is your current role in school?	Mainstream Class Teacher	116	32	148
	Teacher in mainstream special class for children with ASD	36	39	75
	Special Education Teacher supporting children with ASD	111	42	153
Total		263	113	376

Appendix 32 - Chi-Square with Bonferroni Adjustment 5

SPSS Output of Chi-Square Test of Independence showing the relationship between teacher's role and diagnostic assessment is not significant.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.509 ^a	2	.285
Likelihood Ratio	2.502	2	.286
Linear-by-Linear Association	.986	1	.321
N of Valid Cases	376		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.57.

What is your current role in school? * Standardised social communication assessments (Diagnostic) Crosstabulation

Count

What is your current role in school?		Standardised social communication assessments		Total
		No	Yes	
Teacher in a mainstream special class for children with ASD	Mainstream Class	130	18	148
	Teacher in a mainstream special class for children with ASD	60	15	75
	Special Education	128	25	153
Teacher supporting children with ASD				
Total		318	58	376

Appendix 33 - Chi-Square with Bonferroni Adjustment 6

SPSS Output of Chi-Square Test of Independence showing no statistically significant relationship identified between teacher's experience and assessment of EBPs.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.563 ^a	4	.234
Likelihood Ratio	5.676	4	.225
Linear-by-Linear Association	.368	1	.544
N of Valid Cases	376		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.20.

Do you assess social communication competency in autistic children? * How many years' experience working with autistic children do you have? Crosstabulation

Count

		How many years' experience working with autistic children do you have?					Total
		1-3 years	4-6 years	7-9 years	10-12 years	12+ years	
Do you assess social communication competency in autistic children?	No	33	15	11	8	24	91
	Yes	87	74	40	30	54	285
Total		120	89	51	38	78	376

Appendix 34 - Reflexive Journal Entry Samples

06/2022
<p>Thematic Analysis—the beginning of the adventure-I am drawn in and captured by Braun and Clarkes’ proposal of the potential offered by reflexive thematic analysis. I have furiously highlighted relevant parts of their book, listened to their podcast, engaged with the webinars and feel an immediate sense of excitement for what I can hope to do with the dataset. It is definitely the type of analysis that I see myself more comfortable engaging with, but this may also be that it is just a welcome change from being saturated with quantitative data analysis for so long. Using NVivo software will be another challenge and a move away from SPSS software platform. Although I have completed the two courses on NVivo it will take some time to familiarise myself with the different intricacies involved, but it will hopefully make the process of coding and all the phases of the qualitative analysis flexible and functional.</p>
07/2022
<p>Completed Chapter One of Reflexive TA, lots highlighted and noted throughout. The book asks specifically that I ‘locate myself’ in relation to the research. Having engaged extensively with quantitative analysis which prides itself on the removal or ability to curtail bias, I am now apprehensive about the idea of exposing my own thoughts on the topic under investigation. Having a vested interest has certainly motivated me to undertake the study and the more I read of reflexive thematic analysis I understand being aware of this helps me</p>

to see how it influences data from the outset. I know that quantitative analysis helps to address bias, but I now need to be vigilant, in the qualitative analysis of my own feelings. I am one of the teachers that would ‘qualify’ under the sampling matrix of the study to complete the survey and I have considered completing the survey honestly myself, to reflect on my own practice but I know that I am somewhat coloured from the design process.

07/2022

Chapter Two of RTA has been an important read. It has broken down the processes involved in TA. Looking at the TA acronym my mind wants to say ‘Task Analysis’ instead of ‘Thematic Analysis’ which is interesting and there are similarities in the activity as they both break down a particular process into a series of manageable steps or phases. Task analysis is systematic in its approach to achieve a goal however, whereas RTA looks at going back and forward through the process in a recursive action. The approach offers a guide to help me engage more deeply with the dataset. I am hoping that the phases do exactly that which will appease my trepidation that I give due diligence to data and all the participants that took the time to engage in the survey. The research question is noted as very important in data and I am comfortable with the direction and number of iterations of the same that I have already done. I have mixed feelings about familiarisation – on the one hand I know I have to immerse in the reading

of the data, maintain a critical thought process and question/take notes but I am apprehensive about my ability to do the analysis justice and forcing myself to interrogate my 'making sense of the data' as I read and reread.

09/22

I feel happy about the familiarisation piece of data and I think spending so long quantitatively preparing and working with data in the first phase of the analysis has helped me to develop a strong sense of the content overall. I feel it has been conducive to immersion as I worked on the dataset. I am consciously reading over the insight and rigour piece numerous times to try and embed these principles in my mind. I pulled up at the inductive, deductive piece. I think being so immersed in the quantitative coding has me grappling with the idea that reflexive analysis can be both. The importance of the theory element to both processes is noteworthy and I am glad. Initially the study seemed to align to inductive analysis as I am seeking out the 'experience and perspectives' of the research participants but I am also deductively applying the theoretical framework. The elements of Vygotsky's sociocultural theory were popping to mind as I engaged in familiarisation and the initial coding process, so I have to recognise elements of both forms of analysis.

09/22

Coding – after initial grouping and coding I have moved to semantic and latent codes. To help refine the meaning I used code labels as working tools to help visualise what I am trying to do. This process was slower than anticipated and I needed multiple rounds of codes. The process of generating categories means finding patterns across the codes I have generated and clustering these into categories that reflect some part of the content, which may even have conflict within. The emphasis in this phase is firmly placed on initial thematic labels and Braun and Clarke stress that these will evolve and change as the process continues. Immersion in the codes and the production of an initial thematic map of categories helped the process, although at times it was hard to try and distinguish between the different categories and the codes, there was a lot of codes that linked. The process of theme development is where I must look across these data codes and cluster them into categories that reflect a clear part of the content- and *N.B.* in RTA there can be conflict within each of the themes but not between.

10/2022

I have toiled with the concepts identified in the third theme. Teacher agency is something that I have to refer back to literature about to make sure I'm careful of the language I use and my interpretation. I do not want it to become or appear as a criticism of teachers as such but rather see it as documenting some of the difficulties they are telling me in relation to their own experience and knowledge of EBPs. Yes, it is teacher training or professional learning in some ways, but it is also assuming responsibility to meet the identified needs in the class in the best possible way using EBPs. When teachers become more aware of these missing components, they are more likely to act. Throughout data teachers noted at times how engaging with the survey has made them more aware of what they need to work on themselves or even different practices that they need to research. Seeing the link between teacher agency and adherence to programme fidelity became evident through the coding and categories. If teachers do not have the conceptual knowledge of the practice, it is hard to adhere to the critical components that are part of the EBP remit. There are so many factors that influence these elements, and data expresses the frustration and overwhelming feelings the teachers conveyed.

10/2022

Phase four can be summed up in one word- 're-engagement'. In Phase Four I needed to understand what is meant by a 'good theme' as Braun and Clarke keep

referring to. Key guiding principles that I used at this stage involved answering and being mindful of the following questions adapted from; Braun and Clarke (2021) and Byrne (2022). Can I identify boundaries around the theme? What is the quality of the theme- is it both complex and diverse and do I have meaningful data to support the theme, is it too thin? Does the theme convey something useful about data and is it part of the compelling story, does it answer the research questions posed? Reflecting on the candidate codes and pulling together the relationships initially seemed like tidying up the dataset into nice categories. However, as I engaged further, I realised I was indeed focused on finding themes as topic summaries trying to almost force all data into these 'themes' to create a picture of the information. It was important to remember that phase four is recursive. It is designed to provide a space to revisit all of the analysis covered through a critical lens to capture the core concepts with rich nuances which is the ultimate goal according to Braun and Clarke. As I revisited the overall question and the guiding principles, I had noted I found myself seeking out more of the rich nuanced ideas, what could I capture that the teachers were really telling me in the data? Four central concepts were flagged in this space and I feel more excited to tell their story.

11/2022

As I moved through the dataset and created candidate codes, I could see commonalities that emerged which held similar sentiments and captured what the teachers were promoting or relaying. I came across the code of ‘its ongoing – language and social communication are intertwined’ and it resonated with my own feelings on the teaching SCC - it must be intertwined, it must be referred to throughout the day, over learning and experience are key components in how I taught SCC and used EBPs to promote this. Originally, I thought that this captured a theme well and by the end of Phase Four was still happy to see this through. As I began refining and revisiting the themes as well as the codes and overall dataset, I knew that this lacked the actual sentiment that needed to be expressed and was missing what Braun and Clarke called the central organising concept. I think this is important to document as it puts my own thoughts down to curb the bias component.

11/2022

Surprising comments and data have emerged across the analysis but one of the most interesting comes about when analysing the assessment piece. 70% of respondents identified using assessment to measure SCC and the effectiveness of the EBPs. In this group 61% of the teachers relied on formative assessment which was mostly made up of their own checklists and teacher designed assessments.

By comparison only 16% had standardised formal assessments to use. The other side means that 30% of teachers identified not assessing the SCC learning and effectiveness of the EBPs. Across the dataset I could see how teachers felt a sense of inadequacy and lacked confidence in what they were doing for assessment. They placed little value on their own observations and some teachers didn't even see teacher observation as a form of assessment. One of the most startling observations is the obvious lack of value placed on accessing the student voice in this area. Is this due to the nature of the difference in question as it is SCC or is it reflective of a lack of understanding for the ways we can access the student voice? Furthermore, peers were never mentioned as a source of information although they were identified as a support for implementing EBPs. I feel this is important to capture and something that needs to be addressed in future research outcomes following this study.

12/2022

Analysing the data, I have observed a trend whereby the teachers are almost saying that at times implementing EBPs can be hit and miss for them. There are so many factors that influence this in data and teachers are keen to show the impact of the difficulties for their teaching and on the autistic child. Although not all of the codes were strong enough to be seen as rich evidence a clear story has emerged that warrants telling and as one teacher so aptly put it 'it's very much

trial and error'. Many of the difficulties presented have resonated with my own experience and it is interesting to see this across different contexts and teacher experiences. I am mentioning this so that I can reflect on my own bias with the content.